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U.S. Federal Government Telework Management Strategies

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This is to certify that the doctoral study by

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2016

Abstract

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MS, Webster University, 2010

MS, University of Phoenix, 2004

BS, University of Phoenix, 2001

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

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Abstract

The Telework Enhancement Act of 2010 dramatically increased teleworking opportunities for federal employees. The increase in the number of teleworking employees presented numerous challenges for federal managers attempting to establish social networks, teamwork, and organizational commitment for their employees. This study used the case study design with a socio-technical conceptual framework as the basis to explore the strategies managers used. Data were collected via semistructured interviews with federal managers of teleworkers located in the Midwest region of the United States. A coding strategy was employed to organize the transcripts from the interviews into themes, and methodological triangulation was utilized by comparing the interview data with data from federal teleworking documents. From these analyses, 10 themes emerged: group meetings, knowledge-sharing networks, management of teleworkers, teleworker agreements, teleworker equipment, challenge of team building, telework as a reward, limitation on days teleworked, training, and flexibility of teleworkers. Managers incorporating these themes into best practices could have the tools and strategies to effectively implement and manage teleworking programs by helping to improve organizational commitment, teamwork, and socialization. The strategies could also help alleviate the isolation that some federal teleworkers experience. Widespread adoption of these strategies by managers could lead to increased teleworking opportunities for employees, thereby saving energy, reducing greenhouse gases, and reducing traffic congestion.

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Dedication

I dedicate this doctoral study to my lovely and loving wife, Evelyn Mills. She provided a quiet, comfortable environment in which I could study uninterrupted. She gave me the encouragement and positive reinforcement that I required during the rough times. She was always there with a smile and wonderful goodies to keep me going. Dedication also goes to my children, Blenita Mills and Blaine Mills II, for their constant support and companionship during this process. They kept me entertained with their various jokes and gaming stories. Further dedication goes to my mother, Bessie Hairston, for her lifelong belief that I could do anything I wanted to achieve. I have relied on her critiques and prayers during this journey.

A special dedication goes to those who passed away during this endeavor. First, I dedicate this to my pops, Willie Mills, Jr., who did not live to see me obtain this doctoral degree. I miss you, and I wish you could have seen the results of your guidance. Sammie Hairston also passed away during this journey. He was there at the start, giving timely tips and encouragement. Finally, my mother-in-law, Encarnacion Canja, passed away during the process. She was extremely instrumental in taking care of day-to-day family issues so that I could concentrate on my studies. Thank you all.

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Section 1: Foundation of the Study

In 2010, U.S. lawmakers enacted legislation that dramatically increased telework opportunities for the U.S. federal workforce (Caillier, 2012). Federal employees who were not able to telework reported dissatisfaction at double the rate of those who did, and 25% of U.S. federal managers reported an adverse impact of telecommuting on workplace relations (Caillier, 2012). Of the eligible U.S. federal employees who declined to telework, 41% feared a decrease in teamwork, and 31% thought this strategy would hurt office relationships (Caillier, 2012). President Obama signed and implemented the 2010 Telework Enhancement Act to increase telework opportunities for U.S. federal employees after massive snowstorms closed many federal offices for several days (Mahler, 2012). By implementing telework policies, federal managers (a) cut office-space cost by 35%, (b) increased employee retention by 20%, (c) provided government continuity during disasters, (d) saved energy, and (e) relieved numerous traffic problems inherent in traditional commuting (Caillier, 2012).

The advantages of telecommuting are many, but teleworkers, along with the people they work with in their organizations, face many challenges (Fonner & Roloff, 2012). In this study, I explored the strategies that managers of teleworkers used for teamwork, communication, and supervision within their teams. Furthermore, the study included exploration of some of the challenges that managers of teleworkers faced, such as fear, socialization, and organizational commitment.

Background of the Problem

The U.S. federal government continues to pursue telework implementation strategies (Mastracci, 2013). The number of federal government employees has increased by more than 400% since 2005 (Denison et al., 2014). Mastracci (2013) found that government managers liked the continuity that telework offered during inclement weather. Mastracci added that telework increased employees' family relationship satisfaction, matching a federal organizational goal to increase family-oriented workplaces.

Telework employees perform a portion of their work duties offsite using various telecommunication technologies. Fay and Kline (2012) found that high-intensity teleworkers who teleworked more than 2 days a week had poorer coworker relationships than those who teleworked 2 or fewer days per week. Fay and Kline concluded that the more days teleworkers telecommuted per week, the less they identified with the team. This loss of identity degraded their overall job satisfaction and their commitment to achieving their firm's goals (Fay & Kline, 2012).

Successful leaders understand the positive effect of workplace relations; subsequently, such leaders promote team communication (Molina-Morales, García-Villaverde, & Parra-Requena, 2014). According to Balland (2012), the social proximity of workers helps to build reputation and trust, which increase collaboration opportunities. Leaders create stronger teams by creating opportunities for their employees to interact (Molina-Morales et al., 2014). Team building is a challenge when some or all of the employees telework (Allen, Golden, & Shockley, 2015).

Problem Statement

In 2012, nearly a quarter of American employees conducted at least a portion of their work by teleworking (Greer & Payne, 2014). Managers of the largest U.S. employer, the federal government, dramatically increased telework opportunities by establishing eligibility guidelines (Mahler, 2012). Managers who implement teleworking risk having employees with a lower sense of belonging and poor interoffice relationships (Fonner & Roloff, 2012). Caillier (2013) found from an analysis of the 2010 Federal Employee Viewpoint Survey that federal teleworkers reported feeling isolated at a significantly higher rate than nonteleworkers. The general business problem was the proliferation of telework with little understanding of its impact. The specific business problem was that some managers lacked strategies to implement telework effectively.

Purpose Statement

The purpose of this qualitative case study was to explore strategies managers use to implement telework effectively. As of 2013, nearly 25% of U.S. employees performed a portion of their duties via teleworking (Greer & Payne, 2014). Telework opportunities in the U.S. federal government continue to increase because of new guidelines established in the Telework Enhancement Act of 2010 (Mahler, 2012). The research included data collection from U.S. federal government managers who implemented teleworking policies. The results of this study could contribute to social change by providing a better understanding of how to increase teamwork and communication with teleworking employees while preventing feelings of isolation.

Nature of the Study

The qualitative method was the best choice for the purposes of this study. Yin (2010) identified five features of qualitative research: (a) studying people's lives; (b) presenting people's views and perspectives; (c) studying conditions; (d) gleaning insights into human social behavior; and (e) using multiple sources of data. All of these features applied to the research for this study. Participants shared how they managed teleworking within their respective teams. The results of the study could add to the collective knowledge of how to manage teleworking teams effectively. Birkinshaw, Brannen, and Tung (2011) explained that qualitative research is excellent for giving in-depth analysis of perceptions and opinions.

Researchers often use the qualitative method to uncover human perceptions of a phenomenon (Gioia, Corley, & Hamilton, 2013). Quantitative researchers often measure data to prove or disprove hypotheses (Groeneveld, Tummers, Bronkhorst, Ashikali, & Thiel, 2015). The purpose of this study was to analyze the techniques participants used to manage teleworkers. Perceptions of participants are typically not quantifiable using designs under the quantitative research method. Quantitative researchers typically test hypotheses by analyzing collected data (Quick & Hall, 2015). Quick and Hall (2015) explained that quantitative researchers quantify data using statistical methods. I analyzed and interpreted the methods of participants; therefore, the qualitative method was the best method of research.

I used the qualitative research method with the case study design for this study. Case study is an appropriate design for researchers who seek a holistic understanding of a

phenomenon using multiple sources of data (Thomas, 2011). I collected data from the 2015 Federal Employee Viewpoint Survey, the OPM Telework Guide, the OPM 2013 Status of Telework Annual Report to Congress, and the NIST telework guide. I also conducted semistructured interviews. The phenomenological design did not suit the needs of this study because the goal was not conducting research on just the lived experiences of participants (Englander, 2012). Ethnography was not appropriate because of limited resources such as time and money that would be needed in order to embed with participants for long-term observations (Sedlmair, Meyer, & Munzner, 2012).

Research Question

The goal of this study was to have participants discuss their solutions to teleworking problems during face-to-face interviews. I interviewed participants at a mutually agreed-upon location. The interview questions aligned with the following overarching question: What strategies do managers use to implement telework effectively?

Interview / Survey Questions

The interview guide consisted of the following 11 questions:

1. Describe the scope of telework in your team.
2. How do you effectively manage workplace relationships between your teleworker and nonteleworker subordinates?
3. How do you establish team building and teamwork with teleworkers?
4. How have you maintained the effectiveness of communication between your teleworker and nonteleworker subordinates?

5. How do you prevent teleworkers from experiencing feelings of isolation?
6. How do you manage the job performance of the teleworkers you supervise?
7. How have you maintained or improved the job satisfaction of the teleworking people you supervise?
8. Describe the information technology that your subordinates use and the impact on telework.
9. What changes, if any, would you like to implement with telework regarding technology, team building, and supervision?
10. What techniques do you use to maintain or improve teleworkers' organizational commitment?
11. What would you suggest to another unit or organization that is seeking information before implementing telework policies?

Conceptual Framework

The conceptual framework for this study was the socio-technical systems (STS) theory used to study the social and technological connections of a complex work system (Davis, Challenger, Jayewardene, & Clegg, 2014). The foundation for this theory was the seminal study by Trist and Bamforth (1951) regarding the introduction and resulting impact of a new coal mining technique. Trist and Bamforth found that the introduction of new technologies might interfere with the social structure of work groups. With the STS theory, researchers view organizations as large systems with numerous parts (Davis et al., 2014). Bélanger, Watson-Manheim, and Swan (2012) stated that socio-technical systems have four elements: (a) technical subsystem, (b) personnel subsystem, (c) work design

subsystem, and (d) environments. In some organizations, managers use STS to design new work processes, roles, and practices (Davis et al., 2014).

STS is an excellent conceptual framework for conducting telecommuting research because it gives researchers the ability to explore how technical aspects affect social behavior (Bélanger et al., 2012). STS allows research into how teleworking affects the whole organization. Teleworking involves teleworkers, coworkers, managers, and workspaces, all interconnected via information and communication technology (ICT). Teleworking affects multiple levels in an organization. Using STS, I analyzed (a) the information and communication technology of the technical subsystem; (b) the commitment and motivations of the personal subsystem; (c) the processes and procedures of the work design subsystem; and (d) the external influences of the environment subsystem.

Definition of Terms

Cowork: Cowork refers to community workspace that allows individuals from different firms to interact and socialize while teleworking (Spinuzzi, 2012).

Cyberslacking: Cyberslacking is the use of information and communication technology to engage in personal activities outside of job-related duties (O'Neill, Hambley, & Chatellier, 2014).

Face-to-face: Face-to-face refers to direct communication between parties (Sprecher, 2014).

Federal government: A federal government is a system of centralized government overseeing a collection of smaller state governments (Totten, 2012). For this study,

unless otherwise specified, the term *federal government* applies to the U.S. federal government.

Social media: The term *social media* refers to Internet applications that allow users to socialize, share knowledge, and collaborate despite geographical or temporal separation (Kane, Alavi, Labianca, & Borgatti, 2014).

Telecommuting: Telecommuting occurs when employees use information and communication technology to work at home or some other location away from the main office (Koh, Allen, & Zafar, 2013). Researchers often use the term to describe the virtual-commuting aspect of working from home, thus emphasizing not having to real-world commute. The term *telecommuting* means *telework* in this study.

Telework: Telework is a practice that allows employees to work in a place separate from their employers' location by using information and communication technology (Sardeshmukh, Sharma, & Golden, 2012).

Virtual team: A virtual team is a geographically separated team that communicates using ICT (Maynard & Gilson, 2014).

Workplace flexibility: Workplace flexibility is a practice whereby workers have the flexibility to select when and where they work (Coenen & Kok, 2014).

Assumptions, Limitations, and Delimitations

Assumptions

It is impossible to conduct research without assumptions before collecting data (Berger, 2015). The following assumptions applied for this study. The first assumption was that participants for this study would answer questions completely and honestly. The

second assumption was that participants had successfully implemented or managed a team with teleworkers. The third assumption was that participants articulated strategies they used to manage their teleworking team. The final assumption was that managers had direct knowledge about the teamwork, communication, and socialization of subordinates in their teleworking team.

Limitations

It is important to divulge any limitations of a study to increase its credibility with readers (Yin, 2014). This study's limitations included the sample size and geographic area where the study took place. A larger sample size spread over a larger geographic area might yield different results. The use of purposive sampling for data collection restricted applying conclusions to the population (Adler & Clark, 2014). It was not the intent to consider the effects of demographic variables such as age, gender, disabilities, or race with this study. There could be significant variations within each demographic segment. The results could vary because of overrepresentation of one demographic segment. Another limitation of the study was the small population size. The population consisted of U.S. federal government managers of teams with teleworkers. I did not collect data from the private sector, and only collected data from a single U.S. federal governmental agency.

Delimitations

Researchers use delimitations to set the boundary and scope of research (Donkor, 2013). Participants in this study were managers who implemented teleworking. The Midwest region of the United States was the geographical location of the case.

Significance of the Study

Contribution to Business Practice

The federal government enacted legislation designed to encourage the use of teleworking (*Telework Enhancement Act of 2010*, 2010). Turetken, Jain, Quesenberry, and Ngwenyama (2011) noted that numerous researchers have pointed out the positive aspects of having teleworking employees, whereas few have explored the potential long-term negative aspects of this situation. The results of this study could give business leaders a better understanding of the strategies needed to implement teleworking effectively. Business leaders could use the results of this study to implement policies to reduce negative aspects of teleworking. The purpose of this study was to explore how some managers managed the effects of teleworking on organizational commitment, isolation, teamwork, work-life balance, and communication.

Implications for Social Change

Many managers within the federal government reduce the cost of office space and increase employee retention for their agencies using telework (Caillier, 2012). Caillier (2012) noted that teleworking also improves the ability of government employees to continue critical government operations during disasters, terrorist events, or pandemics. Teleworking employees save energy and help to relieve numerous traffic problems inherent with traditional commuting (Caillier, 2012). President Barack Obama signed the Telework Enhancement Act of 2010, which increased telework opportunities for federal employees, but only 10% telecommuted on a regular basis as of 2011 (Mahler, 2012).

Research on implementation strategies for telework could result in identifying better methods for implementing telework. Some employers, supervisors, and workers have been hesitant about teleworking because of perceived problems (Valmohammadi, 2012). Telework reduces the need for office space, improves retention, relieves traffic congestion, and reduces harmful emissions (Caillier, 2012). Research on managers who have effectively implemented teleworking may help in identifying improvement strategies and thus has the potential to promote positive social change.

A Review of the Professional and Academic Literature

The purpose of this qualitative study was to explore strategies managers used to supervise their teleworking teams effectively. I explored how managers successfully implemented and supervised subordinates in a teleworking team. The goal of this study was to conduct a holistic exploration of the successful management of teleworking systems. The primary system components of teleworking that comprised the central research for this study were interpersonal relationships, teamwork, and communication. This research could provide a better understanding of how to increase teamwork and communication with teleworking employees, improve supervision techniques, and prevent feelings of isolation. The literature reviewed contained valuable information on aspects of these central system components.

The vast majority of authors cited in the literature review focused on individual topics relevant to teleworking such as communication and job satisfaction. Therefore, I organized the literature review by teleworking topics. The first section addresses the positive aspects of teleworking: job satisfaction, work-life balance, and commuting. The

next section, which addresses teamwork, communication, social media, telework supervision, and job performance, relates to the impact teleworking strategies can have on organizations. The final section includes the challenges of teleworking, such as fear, socialization, and organizational commitment.

The articles and scholarly journals used in this literature review came from EBSCO, Google Scholar, SAGE Premier, and ProQuest research databases. The search used the keywords *socio-technical systems, telework, teleworking, telecommute,* and *telecommuting* combined with themes such as *communication, isolation, organizational commitment,* and *commuting*. Credibility and currency were also essential to the search strategy. Of the articles used, 91.92% were from scholarly peer-reviewed journals, and 89.90% were published from 2012 to 2016 (see Table 1).

Table 1

Percentage of Scholarly Peer-Reviewed Articles and Articles Published Since 2012

Source	Total	Percentage
Peer-reviewed articles	91	91.92%
Articles published within 5 years of 2016	89	89.90%
Articles not peer reviewed	7	7.07%
Total all sources	99	

Introduction to Teleworking

The terms *telework* and *telecommuting* have the same definition: the performance of primary duties at alternate locations away from the main office (Groenesteijn et al., 2014). Teleworkers can use their home, satellite office, or any alternate location that allows the use of technology required to perform duties. The rise of wireless broadband Internet, smartphones, and laptop computers combined with high fuel costs, disaster

planning, and employee family requirements have increased the attractiveness of telework (Caillier, 2012). Technologies such as email, social networking, video conferencing, and instant messaging (IM) have enhanced the effectiveness of employees who work from home (Bayrak, 2012).

Teleworkers have helped to alleviate several social problems, such as by reducing traffic congestion and the carbon footprint (Caillier, 2012). This recent phenomenon can also help employees balance work and family (Caillier, 2012). Kramers et al. (2014) said that firms increasingly implement telework procedures as a tool for corporate sustainability. Besides corporate sustainability, telework supporters often mention increased productivity as a primary reason for its implementation (Martin & MacDonnell, 2012). Some teleworkers have claimed fewer distractions as a reason for their increased productivity (Martin & MacDonnell, 2012). Martin and MacDonnell (2012) concluded from their meta-analysis of 22 empirical studies that organizations that implemented telework achieved increases in productivity, performance, and organizational commitment.

The U.S. Patent and Trademark Office (USPTO) is an excellent example of the benefits of correctly implemented telework. The nonprofit organization Partnership for Public Service (PPS) named USPTO one of the best federal government agencies to work for primarily because of USPTO's telework program (Campbell, 2013). Campbell (2013) said that USPTO allows 64% of its workforce to telework. The program decreased commute time for USPTO employees while increasing flexibility (Campbell, 2013).

Teleworking has many positive and negative aspects (Schulte, 2015). Schulte (2015) explained that coworkers and friends might have jealous feelings toward teleworkers because of their enviable work method. Schulte further explained that teleworkers lose social contact and have communication challenges. However, teleworkers enjoy flexibility, fewer distractions, savings in fuel and time, and low clothing costs (Waters, 2015).

Socio-Technical Systems

The term *socio-technical system* refers to the way people interact with their environment, technology, and organization (Dalpiaz, Giorgini, & Mylopoulos, 2013). STS is useful as a framework to help plan and create new technologies that consider human factors, end users, and the organization as a whole (Davis et al., 2014). Socio-technical systems theory emerged more than 60 years ago based on the need to analyze the impact of new technology on social behavior (Davis et al., 2014; Kull, Ellis, & Narasimhan, 2013). Researchers studying coal-mining techniques developed the theory (Davis et al., 2014; Kull et al., 2013). Davis et al. (2014) explained that the researchers developed the socio-technical systems framework to consider human factors, end users, and the organization as a whole when creating and introducing new technologies. Organizations use socio-technical systems theory to design new work processes, roles, and practices (Davis et al., 2014).

The foundation for the STS framework came from a seminal article by Trist and Bamforth (1951) about the introduction of the longwall method of coal-getting. When managers introduced the longwall method in their mines, workgroups grew in size, and

dependencies of tasks and positions changed (Trist & Bamforth, 1951). The new method also created situations where smaller groups sometimes had to combine into larger groups to complete certain tasks (Trist & Bamforth, 1951). The introduction of the new technology and procedures disrupted the entire social structure of the mining company's employees (Trist & Bamforth, 1951). Trist and Bamforth found evidence of isolation, absenteeism, and scapegoating because of the change in social interactions.

Every organization relies on some form of technology combined with a group of workers (Cooper & Foster, 1971). The dynamics of social interactions within workgroups and the various aspects of technology could interact and change each other (Cooper & Foster, 1971). Researchers, managers, and designers using the STS framework consider the technical and social aspects of a system (Baxter & Sommerville, 2011). Baxter and Sommerville (2011) explained that STS is useful for the design or research of organizations that use information and communication technology to connect geographically dispersed teams. Baxter and Sommerville said that STS could help designers and researchers understand how to create better social networks using social media.

Telework is most effective when all of the STS subsystems work in a cohesive manner (Bentley et al., 2016). Bentley et al. (2016) used the STS conceptual framework to conduct research on teleworkers' wellbeing. Bentley et al. stated that the feelings of isolation that teleworkers experience because of dramatic changes in other parts of the STS subsystems indicates that STS is an important framework source for telework research.

Similarly, Chai and Kim (2012) used STS to examine the social factors affecting online social networking sites. Chai and Kim hypothesized about the role that socializing and technology on social networking sites have in users' feelings of community and willingness to contribute. They sent surveys to people associated with a U.S. university who used social networking sites such as Facebook, Twitter, and LinkedIn. Chai and Kim found a direct relationship between users' ethical culture and their feelings of connectivity to a social community.

Managers should consider social aspects during software development by using the STS approach (Maguire, 2014). Maguire (2014) stated that software developers might incorporate end users' knowledge of the workplace social subsystems to increase the effectiveness of the software application technical subsystem. Maguire said that was especially true regarding the usability and accessibility aspects of the application. Managers and software developers should also consider the types of social interactions that could occur during use of the application (Maguire, 2014). Maguire explained that users who are frequently interrupted by teammates might require applications that have a quick-save function. Other STS factors that managers and software developers should consider are privacy, security, and workflow (Maguire, 2014).

Bélanger et al. (2012) proposed using socio-technical systems as the theoretical framework to conduct telecommuting research. Bélanger et al. explained that researchers' findings about telework often conflict with each other. The lack of a clear theoretical framework could be one of the problems (Bélanger et al., 2012). Researchers

using socio-technical systems as a conceptual framework explore how social behaviors combined with technology affect outcomes (Kull et al., 2013).

The STS framework has three components: environment, technology, and human interactions (Bentley et al., 2016; Kull et al., 2013). The introduction of new procedures such as teleworking could negatively affect components of the system. Bélanger et al. (2012) recommended that researchers use the STS theoretical framework because of the tremendous impact telework has on social interactions. The recommended telework multilevels for the socio-technical framework include information and communication technology, work environment, and the entire organization (Bélanger et al., 2012).

Work-Life Balance

Work-life balance (WLB) refers to how well employees manage the separation between their home life and their time working. Employees who successfully manage the balance between working and home life could have an improved quality of life that translates into improved job performance (McCarthy, Cleveland, Hunter, Darcy, & Grady, 2013). Managers in many organizations offer various WLB programs to improve employee performance. McCarthy et al. (2013) found that while WLB programs were beneficial, employees' perception of supervisor and organizational support of these programs was a significant predictor of positive outcomes.

Employees have work-life conflict when their work intrudes on their home life. Many factors, such as both parents working, increased hours, and technological intrusions, disrupt the balance between work and life (Agarwala, Arizkuren-Eleta, Del Castillo, Muñiz-Ferrer, & Gartzia, 2014). Some employers attempt to improve work-life

balance to improve recruitment and increase performance with the use of telework (McCarthy et al., 2013).

Fonner and Stache (2012) found that teleworkers used time and space boundaries along with ICT cues to separate work life from home life. Fonner and Stache used boundary theory for the conceptual framework of their qualitative study on teleworker work-life balance. Using an online survey with open-ended questions to target teleworkers, Fonner and Stache received responses from 142 participants: 55 men and 87 women. After analyzing the data, Fonner and Stache found that a higher percentage of women preferred using time to separate work life, whereas a greater percentage of men preferred to use space as a separator. Participants with children tended to prefer to use space first, followed closely by time, as a separator. Participants who shared the home with an adult chose to combine work and home life at a higher rate, while high-intensity teleworkers preferred special separation (Fonner & Stache, 2012).

Ruppel et al. (2013) continued the examination of the separation of work life theme for teleworkers by exploring two overarching research questions: selection of ICTs and work-life balance strategies. To answer the research question, Ruppel et al. conducted a case study of a multinational organization's globally dispersed team. The team included teleworking U.S. managers who supervised subordinates in India. Ruppel et al. conducted interviews of U.S. managers and facilitated a focus group of the Indian employees. Creating time boundaries was difficult because of the time-zone difference between the United States and India. The U.S. managers had to balance their workday with being able to coordinate with their Indian subordinates and coordinating with U.S.

peers. (Ruppel et al., 2013). ICT usage helps to alleviate problems with knowledge sharing in geographically dispersed teams (Giaglis & Spinellis, 2012). The U.S. managers in the Ruppel et al. research also chose ICT usage based on the task.

Workers could find challenges in achieving balance between work and personal life (Gálvez, Martínez, & Pérez, 2011). Teleworking could be a solution that allows workers to continue to be productive while meeting their other life needs (Gálvez et al., 2011). Gálvez et al. interviewed 72 women teleworkers from Spain for their research. They only interviewed women because the literature revealed that women had more work-life balance issues than men. Gálvez et al. found that the flexibility that teleworkers had allowed them to develop effective work-life balancing strategies.

Researchers differed on the impact of teleworking on employee well-being. Vesala and Seppo (2015) found evidence that teleworking positively affects employees' well-being. During their study, Vesala and Seppo provided 49 participants a workspace that also included lodging accommodations to simulate teleworking. The participants worked and lived at the study location for 1 week. Vesala and Seppo conducted surveys before the experiment, at the end of the experiment, and 2 weeks after the experiment. Using statistical analysis, they found that their teleworkers had lower work-negative feelings and a higher sense of well-being. Stress was also significantly reduced while teleworking. However, Grant, Wallace, and Spurgeon (2013) came to a different conclusion. Grant et al., using semistructured interviews of teleworkers, found that ICT usage created an environment where work life intruded on home life, thereby causing feelings of negative well-being.

A phenomenon occurs for some teleworkers whereby they informally work extra hours when working from home (Grant et al., 2013; Ojala, Nätti, & Anttila, 2014). Teleworking employees working extra hours allow work life to encroach on their home life, causing a negative work-life balance (Grant et al., 2013; Ojala et al., 2014). Using data sets from Finnish quality of work life surveys, Ojala et al. conducted quantitative research on the informal overtime work of teleworkers. Their research uncovered that more than half of the work performed by Finnish employees done at home was not the result of teleworking. Finnish employees conducted informal overtime at home without an agreement of teleworking in place (Ojala et al., 2014). Employees did not receive payment for the informal overtime (Ojala et al., 2014).

Employees who alternate between working at home and working at the office have higher well-being when they telework (Anderson, Kaplan, & Vega, 2015). Anderson et al. (2015) made this finding by giving surveys four times in 2 weeks to a sample of 102 federal employees. Anderson et al. predicted that employees would have higher well-being on telework days. Indeed, their statistical analysis showed that employees had significantly higher well-being while teleworking.

Mothers who work for the U.S. federal government underuse telework programs (Mastracci, 2013). Mastracci (2013) stated that mothers who are federal workers spend less time providing family care than mothers who work at private companies. Federal working mothers also spend, on average, an increased amount of time at work. Longer work with less time for family care indicates poor work-life balance (Fujimoto, Azmat, & Härtel, 2013). Mastracci found that of all the work-life benefits available for federal

mothers, telework was the least used. A third of federal working mothers in Mastracci's study stated that their jobs required them to be physically present, while a fourth said that their managers did not allow teleworking even though their jobs could support it.

Some teleworkers create boundaries similar to the workspace boundaries found at traditional offices (Mustafa & Gold, 2013). Teleworkers could create a physical boundary by establishing an office space at home (Mustafa & Gold, 2013). They could also create boundaries based on time such as establishing work hours similar to the hours they would work at the main office (Mustafa & Gold, 2013). Physical boundaries create a separation from home life and work (Valoura, 2013). Mustafa and Gold (2013) identified three strategies for creating physical boundaries, equipment, activity, and ambiance. Equipment boundaries mean having a separate location dedicated for the sole purpose of work. An activity boundary keeps other activities such as family life from encroaching on the workplace (Mustafa & Gold, 2013; Valoura, 2013). An ambiance boundary creates a workspace look separate from the look of the home (Mustafa & Gold, 2013; Valoura, 2013). Mustafa and Gold found that physical boundaries helped teleworkers create temporal boundaries that separated *work* time from *home* time.

Teleworkers must create methods to separate work periods because as Berkowsky (2013) explained, technology blurs the boundary between home and work life. Berkowsky analyzed data from a survey of work-life and technology usage to look for cases of work-home and homework spillover. Spillover occurs when one aspect intrudes on the other (Muster, 2012; Wheatley, 2012). Spillover took place when employees conducted work activities such as email while at home (Berkowsky, 2013). Spillover

also occurred when workers checked their personal email while at work, or used information and communication technology to communicate with friends and family (Berkowsky, 2013).

The effects of negative spillover could be why Noonan and Glass's (2012) research found negative work-life outcomes associated with teleworking. Noonan and Glass (2012) argued that teleworking increased work-life conflicts. They analyzed data sources from the National Longitudinal Survey of Youth and the U.S. Census Current Population Survey for their research. Noonan and Glass found that teleworkers exceeded 40 hours a week significantly more often than nonteleworkers. Ojala et al. (2014) and Grant et al. (2013) also found that teleworkers frequently worked more hours than scheduled. The increased work hours encroached on the teleworkers' home lives, thus having an adverse impact on work-life balance (Noonan & Glass, 2012).

The increased work hours that teleworkers have, and the resulting negative work-life balance, causes work exhaustion (Golden, 2012). Golden (2012) explained that work exhaustion has a significant negative impact on job performance, illness, turnover, and absenteeism. Golden collected data by giving a web-based survey to employees of a large computer firm. Golden found that work-to-family and family-to-work conflict had a significant impact on work exhaustion with teleworkers. Work-to-family conflict increased exhaustion dramatically with a rise in teleworking hours.

Commuting

The lengthy commute times in the United States have a negative impact on sustainability and the environment, job satisfaction, and employee health (Wener &

Evans, 2011). Wener and Evans (2011) found that 88% of US workers use cars to get to their place of work, with an average commute time of 30 minutes. The fossil fuels used during these commutes cause adverse effects on the environment and poor sustainability prospects (Wener & Evans, 2011). Commuters can have stress because of long commute times, which can be hazardous to their health. Wener and Evans explained that blood pressure increased with longer commute times and higher traffic congestion. Furthermore, Liang et al. (2014) argued that job satisfaction decreased and absenteeism increased with longer commutes.

Zhu and Mason (2014) conducted a study on how teleworking could reduce greenhouse gas emission in the United States. Transportation caused 33% of all greenhouse emissions in the United States in 2009 (Zhu & Mason, 2014). Zhu and Mason noted that an estimated 45% of U.S. employees worked at telework capable jobs. Zhu and Mason analyzed data sets from the National Household Travel Survey (NHTS) to determine if teleworking could significantly reduce greenhouse emissions. They found that teleworkers had more frequent miles traveled that were nonwork related than nonteleworkers. From this outcome, Zhu and Mason concluded that teleworking did not significantly reduce greenhouse gases.

Teleworkers changed the travel patterns of many cities because teleworkers increased flexibility in choosing where to live (Zhu, 2013). Teleworkers consistently choose to live further from their workplace than traditional commuters. Zhu (2013) sought to explore the gap in the literature regarding teleworkers and housing selection. Households with only one worker, who is also a teleworker, tend to live further from

their workplace (Zhu, 2013). Zhu looked at two-worker household were only one worker teleworked. Zhu found that the commute time of dual-worker households with children was shorter if the nontelecommuters were female rather than male. People in households with two workers and one telecommuter chose to live nearer to the nontelecommuter's workplace.

Teleworking reduces the amount of commuting to work, but some theorized the increase of personal travel (Zhu, 2012). Zhu (2012) argued that teleworking allowed employees to live further from their firms. Because they live further, they have to make longer personal trips for shopping, medical care, and entertainment, thus increasing their travel time. Zhu analyzed and compared data sets from the 2001 and 2009 National Household Travel Surveys to study the impact of telecommuting on employees' work and nonwork trips. Zhu found that teleworkers had longer, and more frequent daily work trips combined with longer nonwork trips. Teleworking changed travel patterns, but also increased travel time (Zhu, 2012).

The Minnesota Department of Transportation (MDT) administered a telecommuting initiative called eWorkPlace (Lari, 2012). MDT used eWorkPlace to promote the benefits of teleworking by working with 48 Minnesota employers. The ultimate goal of the program was to reduce traffic and increase productivity. Lari (2012) examined the effectiveness of the eWorkPlace program using data collected from surveys sent to employee participants. Lari concluded that with eWorkPlace, peak period traffic reduced with each teleworker saving an average of 27.96 vehicle miles traveled per

teleworking day. Lari said that employees and their managers noticed an increase in productivity.

Teamwork

Teamwork with teleworkers often takes place in virtual environments. Virtual environments provide virtual spaces for distributed workers to interact with each other via personalized computer avatars (Bosch-Sijtsema & Haapamäki, 2014). Bosch-Sijtsema and Haapamäki (2014) found that virtual teams collaborated within the virtual environment much as teams at the main office. The largest problem with teams in a virtual environment is conveying tacit knowledge (Bosch-Sijtsema & Haapamäki, 2014). Tacit knowledge transference works best face-to-face. Bosch-Sijtsema and Haapamäki argued that the proximity of team members affected the quality of teamwork. Teamwork benefits when team members interact face-to-face. Team members interacting with each other gained valuable information by freely exchanging ideas in brainstorming sessions (Bosch-Sijtsema & Haapamäki, 2014). Teleworkers miss much of these interactions along with nonverbal communications from body language. However, Bosch-Sijtsema and Haapamäki found that the use of virtual environments complete with user avatars mitigated some of the negatives associated with distributed teams.

Counterintuitively, personality, cognitive traits, nor biases appear to affect the performance of virtual teams (Olson, Ringhand, Kalinski, & Ziegler, 2015). Olson et al. conducted a mixed method study on 138 virtual teams comprised of 450 students. The students took a personality assessment to determine their personality, cognitive traits, and biases (Olson et al., 2015). Over the course of the study, Olson et al. examined teams

with a greater number of teammates with various traits such as extroversion, introversion, thinking, or feeling. Olson et al. did not find significant evidence that traits or bias had an impact on virtual team performance.

Teleworkers often are part of global virtual teams (GVT) that, because of geographical separation, should rely on ICT for information sharing and team building. Pinjani and Palvia (2013) defined GVTs as teams having global team members who communicated via information and communication technology. GVT members who are not teleworkers still share many of the same work characteristics as teleworkers, in that they do not work face-to-face with their teammates. Managers of many firms formed global virtual teams at an increasing rate every year because of the global economy (Daim et al., 2012). GVTs should have effective communication to be successful. Daim et al. (2012) conducted research to identify causes of GVT communication breakdown. Daim et al. identified five causative factors of communication breakdown after analyzing the results of their study of several GVTs that had a communication breakdown. These factors included trust, relationships, culture, leadership, and technology.

Pinjani and Palvia (2013) argued that GVTs increased competitive advantage by expanding the team beyond physical boundaries. Challenges to the establishment of GVTs are cultural differences, language, geographical separation, and time differences (Pinjani & Palvia, 2013). Pinjani and Palvia developed hypotheses about the effects diversity, interdependence, collaboration, and trust had on the effectiveness of GVTs. They used a 7-point Likert-type scale questionnaire to obtain the data needed to test their hypotheses. Pinjani and Palvia found trust building difficult with GVTs because of the

geographical separation creating a negative impact on knowledge sharing. Diversity had a similar negative impact. Pinjani and Palvia argued that managers could increase trust and knowledge sharing by emphasizing the collaborative features of information technologies.

Schools need to design courses teaching virtual collaboration because of the dramatic increase in teleworking and other geographically dispersed employees (Long & Meglich, 2013). In a case study, involving 66 students from two geographically separated universities, Long and Meglich (2013) gave the participants a project that required collaboration only via IT. They found that team building suffered because of time zone and communication challenges. Overall, the students felt that they gained valuable training and knowledge on how to interact within a virtual workspace (Long & Meglich, 2013). Long and Meglich concluded that teaching students how to navigate virtually with dispersed teams gives essential skills required in the work environment.

Cyphert, Wurtz, and Duclos (2013) suggested schools add curriculum based on the usage of virtual world technologies by businesses. These virtual world technologies are a new form of communication enabling virtual teams to function much like traditional teams; thus, educators should find ways to teach their usage. Recently there has been a dramatic increase of virtual world platforms where people interact with other people via avatars in a virtual environment (Cyphert et al., 2013).

Information and Communication Technology

Stryker, Santoro, and Farris (2012) said that the face-to-face communication, essential with traditional teamwork, decreased when a separation existed between team

members. Stryker et al. conducted research at two pharmaceutical companies located in the Midwest region of the United States. They selected these companies because one represented a company that had low visibility between employees, and the other high visibility. Visibility refers to the ease of which employees could see each other (Stryker et al., 2012). Stryker et al. invited participants to answer questionnaires given randomly 3 times a week for 8 weeks. They found that there was more face-to-face communication at the high visibility company.

Teleworkers rely on ICT to perform their duties (Bayrak, 2012). Teleworkers should receive adequate support for their critical ICT systems. Bayrak (2012) argued that companies should provide the computers their teleworking employees to enable better ICT support. Company provided computers often have technology installed that allows the ICT department to run remote diagnostics, or install new applications (Bayrak, 2012). Security is another concern because teleworkers use the Internet to access company information. Companies should provide regular training to help minimize the risk to their ICT structure (Bayrak, 2012).

The use of ICTs by teleworkers introduce additional security threats to organizations' networks (Choi, Ra, Shin, & Jung, 2012; James & Griffiths, 2014). Choi et al. (2012) conducted mixed method research on telework security threats by reviewing current literature and surveying 62 participants. From their research, they identified three layers of threat, device, network, and server. The device network, which included teleworkers computers, was the largest threat (Choi et al., 2012). James and Griffiths

(2014) recommended that companies remove some of the functionality of web browsers that inherently add security risk.

Some managers saw the increased security threats that come with telework as a major barrier to telework implementation (Cha & Cha, 2014). The vulnerabilities came from how teleworkers access the organizations' networks (Cha & Cha, 2014). Scarfone, Hoffman, and Souppaya (2009) presented five security measures for teleworking that included firewalls, secure web browsers, secure operating systems, secure home networks, and secure equipment. Employers should balance the need for teleworkers to have access to the organization's network with security threat mitigation strategies (Cha & Cha, 2014).

Some dispersed teams rely heavily on videoconferencing technologies (Julsrud, Hjorthol, & Denstadli, 2012). Videoconferencing allows teams to communicate in real time while also being able to see each other. Julsrud et al. (2012) examined how videoconferencing could change communication and travel patterns. Based on data they analyzed from a Norwegian Internet survey of business air passengers, Julsrud et al. found that scheduled formal meeting events occurred when teammates chose to use dedicated video conferencing rooms. Videoconferencing meetings using Internet technology on desktop computers were more spontaneous than those using dedicated video conferencing rooms (Julsrud et al., 2012). Teammates tended to replace travel with videoconferencing with the use of dedicated videoconferencing rooms rather than with Internet videoconferencing.

Mobile ICTs such as smart phones and personal hotspots allowed some teleworkers to expand their workspace away from their home (Hislop et al., 2015). Hislop et al. (2015) conducted phone interviews with 14 teleworking participants to determine the impact on mobile ICTs on isolation and work-life boundaries. The participants largely noted that mobile ICTs gave them flexibility. They could go to shopping centers or run errands, yet still have work connectivity. Hislop et al. found that the flexibility from the usage of mobile ICTs helped reduce feelings of isolation. However, participants also reported reduced work-life boundaries because of mobile ICTs. The participants felt as though the mobile ICTs kept them in constant contact with their workplace.

Social Media

Social media allows an excellent real-time communication replacement for communication and collaboration between teammates (Nissen & Bergin, 2013). Nissen and Bergin (2013) observed the use of social media technologies by teams in a virtual environment and compared them to traditional face-to-face teams. They assessed the performance of the virtual and traditional teams. Nissen and Bergin found that face-to-face teams performed significantly better than virtual teams. The dependent variables for their study were speed and accuracy (Nissen & Bergin, 2013). However, their research showed that virtual teams relying on social media technology could function at a high level (Nissen & Bergin, 2013).

Social media could be an effective tool to create virtual communities of practice (CoP) (Annabi & McGann, 2013). CoP is a concept where practitioners of the same craft

share knowledge (Thomas & Howard, 2012). Distributed workers, such as teleworkers, could find CoP challenging because of the lack of proximity, but social media could prove to be a valuable facilitating tool (Annabi & McGann, 2013). Annabi and McGann (2013) collected data on the usage of CoPs with social media from a large corporation. They found that social media could be an effective tool for CoPs, but the social media tools should be free flowing to mimic the informal nature of face-to-face knowledge sharing.

Meredith (2012) argued that the increasingly heavy usage of social media in business communications require the inclusion of a course in MBA programs. Meredith proposed a course that focused on the usage of social media technology as a corporate communications tool. Many students will have extensive knowledge of social media, so initially the instructors could learn much from their students.

Lauby (2013) proclaimed that social media is an effective tool for the recruitment of employees that in turn could improve firms' social media utilization based on a review of social media literature. The popularity of social media makes an excellent vehicle to reach potential candidates. Lauby said that one of the problems that managers face when recruiting via social media was that newly hired employees expected to use social media at work. Managers need not view social media as a negative because social media tools are excellent for collaborating. Lauby suggested that managers incorporate the use of smartphones and tablets in work, so that when employees glance at their devices much of it is work related instead of personal. Lauby also pointed out that social media might facilitate effective communication with teleworkers.

Workers have a reasonable expectation that their private life remains separate from their work life, but social media technology blurred the line of demarcation (Sánchez Abril, Levin, & Del Riego, 2012). Sánchez et al. (2012) said that employees use company provided tools such as computers, phones, and Internet service to conduct private activities. Employees could have an expectation of privacy while accessing their private email when using company property, but this outcome is often not the case (Sanders, Ross, & Pattison, 2013). Some employees have lost their jobs because of activities clearly done on their own time (Tankard, 2012). Sánchez et al. gave an example involving two people terminated for putting a video on YouTube that embarrassed the company.

Increasingly, organizations implement social media strategies to provide workers increased opportunities for relationship building and knowledge sharing (Ravenscroft, Schmidt, Cook, & Bradley, 2012; Weber & Kim, 2015). Weber and Kim (2015) noted that employees of multinational corporations especially need access to social media technology because of the large dispersed workforce. Social media proved especially useful for peers to collaborate and socialize even though separated by space and time (Weber & Kim, 2015).

Telework Supervision

The success of teleworking programs in organizations depends largely on leadership (Beham, Baierl, & Poelmans, 2015). Beham et al. (2015) explained that managers are the approval authority for decisions on whether employees could telework. Managers recruit from a large pool of candidates when their organizations allow

teleworking because geographical separation does not hinder employment (Greer & Payne, 2014). Leaders should have excellent communication skills. Communicating with teleworkers means utilizing information and communication technology in most cases (Greer & Payne, 2014). Leaders need to build team cohesion by offering social support structures. Effective leaders of teleworkers focus on results over task management (Maruyama & Tietze, 2012). These leaders understand the difficulties of managing the details of tasks with physically separated employees (Greer & Payne, 2014; Maruyama & Tietze, 2012). They evaluate their teleworking employees' success by concentrating on results (Greer & Payne, 2014; Maruyama & Tietze, 2012).

Training is another critical success factor for teleworking, and Meshur (2015) noted a requirement for separate training of managers and subordinates. Belle et al. (2015) found in a study of high-intensity teleworkers that the training of managers of teleworkers improved supervisory skills. Successful training programs for managers of teleworkers include communication, task assignments, and output management (Meshur, 2015).

Greer and Payne (2014) identified difficulties that supervisors face when they have teleworking subordinates. The first challenge managers face is the reduced amount of face time with their subordinates (Cowan, 2014). Supervisors have to be aware that there could be jealousy from their subordinates whom they deny the ability to telework (Greer & Payne, 2014). Managers have to develop methods to monitor telework subordinates. Supervisors need to foster social interaction to ensure teleworkers continue to perceive themselves as valuable team members (Greer & Payne, 2014).

Leaders of traditional face-to-face teams know through observation when they need to intervene to solve information and communication technology (ICT) problems (Fan, Chen, Wang, & Chen, 2014). Leaders of virtual teams do not have the luxury of direct observation. Fan et al. (2014) explored how the use of motivating language used via ICT communications from leaders affected performance. They took a sample of Taiwanese students to form 30 virtual teams. Fan et al. assigned each team a leader who gave direction to their team completely via ICT. Teams produced a higher amount of ideas when they received directive instructions (Fan et al., 2014). Teams were more creative with sympathetic instructions (Fan et al., 2014).

A combination of both task orientation and relationship orientation leadership styles work best with teleworking employees (Dahlstrom, 2013). Dahlstrom (2013) said that teleworkers respond well to relationship-oriented leadership because of the emphasis on trust, communication, and guidance. Leaders with effective communication skills combined with established trust should have the greatest impact on successful telework outcomes (Cowan, 2014). Teleworkers also need a level of structure and control to keep them committed and on task (Dahlstrom, 2013).

Madlock (2012) concluded that the task-orientation style was the best form of leadership used with teleworkers. Madlock said difficulties existed for managers to build and maintain relationships with teleworking subordinates. Managers communicate with teleworking subordinates formally because of the limitations of information and communication technology (Waters, 2015). This type of formal communication works best when limited to tasks information (Madlock, 2012). Madlock found, from research

using 157 teleworkers, that task-orientation leadership was the best predictor of positive outcomes.

Supervisors could find difficulty choosing suitable subordinates for telework. Naser et al. (2015) explained that telework does not work for every employee. Managers should ensure subordinates have the training needed for successful teleworking (Denison et al., 2014). Teleworkers have minimal face-to-face time with supervisors (Anderson et al., 2015). Training gives subordinates more tools enabling them to work more effectively with less supervision (Naser et al., 2015).

Cooke, Chowhan, and Cooper (2014) examined telework as a managerial strategy. To do this, Cooke et al. categorized telework situations as either employee-oriented or employer-oriented. An employer could allow an employee to telework because of family or personal issues, which would be employee-oriented (Fonner & Stache, 2012; Golden, 2012; Troup & Rose, 2012). Employers could also allow employees to telework to save office space or improve job retention (Waters, 2015). This kind of telework is employer-oriented (Cooke et al., 2014). Cooke et al. also categorized employer strategies as innovative, involved, or cost containing using data from Canada's 2005 Workplace and Employee Survey as the basis for their quantitative study. Cooke et al. determined that employers using an innovative strategy used teleworking the most. These managers used a higher number of employer-oriented and employee-oriented teleworking implementations (Cooke et al., 2014).

Job Performance

The productivity of teleworkers depends largely on the creativity of the tasks (Dutcher, 2012)**.** Dutcher (2012) used students from a Florida university to examine the effects of task types on teleworkers' productivity. The students completed several tasks, some mundane and others creative. Dutcher concluded from the experiments that teleworkers' productivity increased with creative tasks and decreased with dull tasks. Dutcher offered these results as a possible explanation for some of the conflicting results in the current literature about teleworking productivity.

Clark, Karau, and Michalisin (2012) explored how the big five personality traits influence telecommuting outcomes. The big five personality traits are extraversion, agreeableness, conscientiousness, emotional stability, and openness. Clark et al. (2012) hypothesized that extraversion would have a negative influence on telecommuting, with the other four personality traits having a positive impact. They found through their research that only emotional stability and agreeableness had significant impacts on telecommuting. Agreeableness had a positive influence, and emotional stability a negative influence. Clark et al. theorized that agreeable people might have personality traits such as increased cooperation and decreased competitiveness that helps adapt to the challenges of telecommuting. They further theorized that emotionally stable people feel comfortable around others (Clark et al., 2012). Neurotic people, who are less emotionally stable, could prefer to telecommute because it allows them to avoid the anxiety they could have with social gatherings (Clark et al., 2012).

Two personality traits outside of the big five, honesty and procrastination, are also predictors of telework success (O'Neill et al., 2014). O'Neill et al. (2014) explained that with the increased job performance associated with telework, also comes Cyberslacking. Cyberslacking is the use of ICT such as email and the Internet for personal activities instead of performing job duties (Hassan, Reza, & Farkhad, 2015). Honest employees who rarely procrastinate are less likely to engage in Cyberslacking activities (O'Neill et al., 2014).

Caillier (2014) explored how role clarity combined with the higher job satisfaction teleworkers reported related to job performance. Caillier developed three hypotheses for this research. The first hypothesis was that teleworking significantly impacts work effort. The second hypothesis was that teleworking improves role clarity, and thereby increases work effort. The third hypothesis was that teleworkers increased work effort because teleworking increases job satisfaction. Supervisors rely on task outcomes to manage their teleworking subordinates; therefore, teleworkers have a high degree of role clarity (Caillier, 2014). Caillier found that teleworkers had less work effort than nonteleworkers, even though teleworkers have clearer roles and higher job satisfaction. Caillier found that job satisfaction and role clarity did not increase teleworking job performance.

Teleworking Fears

Fear could be the first challenge to overcome when implementing teleworking. Maruyama and Tietze (2012) followed 394 people as they transformed from office-based workers to teleworkers. They compared the workers' expectations about telework with

their practical knowledge. Maruyama and Tietze found that teleworkers expected greater negatives than what they encountered. Teleworkers also underestimated the positives that telework would provide.

Managers need to understand how their employees could view teleworking before implementing changes. They should manage expectations and fears. Maruyama and Tietze (2012) identified three distinct patterns of pre telework expectations and actual telework experiences. Teleworkers expected to have the flexibility to manage home life situations. Teleworkers, women, and sales personnel in particular, feared reduced visibility, promotions, and recognition.

Once managers addressed the fears and concerns of their employees, they need to develop a teleworking implementation strategy. Teh et al. (2013) said the first step toward implementation was the identification of issues such as information and communication technology, data security, and standardization. Next, organizations need to identify the task accomplished by teleworkers. The organizations also need to establish policies and guidelines for teleworking.

Managers should consider external forces when developing a teleworking implementation plan. The institutional barriers of tax policies and zoning regulations could be a significant impediment to teleworking (Alizadeh & Sipe, 2013). Alizadeh and Sipe (2013) conducted two case studies on institutional impediments to teleworking, one in Australia, and one in the United States. They selected cases with locations in master planned communities, and analyzed them using a global online travel agency database.

Alizadeh and Sipe concluded that planners could increase teleworking by adding tax incentives and thoughtful planning of land usage.

In Iran, Valmohammadi (2012) found that a major barrier to teleworking was the fear of less socializing opportunities. Valmohammadi analyzed a sample of 190 participants from 28 public Iranian organizations. The results of the study showed that teleworking had enormous benefits from less absenteeism, improved job satisfaction, and increased continuity. However, numerous barriers that prevented many from teleworking. The fear of isolation and loss of social opportunities was a large barrier.

Social Interactions

One of the largest negatives associated with teleworking is the loss of social interactions (O'Neill et al., 2014). Employees use social interactions to build social capital and for knowledge transference (Korte & Lin, 2013). Social interactions also strengthen organizational commitment while decreasing feelings of isolation (Shaemi et al., 2011). Teleworkers experience isolation from their coworkers indicating that organizations with teleworkers could lose social capital, knowledge transference and organizational commitment (O'Neill et al., 2014).

Large parts of social interactions include nonconsequential talking. Nonconsequential talking could be about personal life, entertainment, sports, or gossip (Blithe, 2014). Blithe conducted a study on how teleworkers gossip and the impact it could have on an organization. Blithe conducted semistructured interviews with 16 participants. Blithe found that participants pointed out gossip in others, but not their own. Blithe indicated that teleworkers often felt guilty about gossiping because of the

planned nature of telework gossip. Gossip in the workplace happens ad hoc and unplanned (Blithe, 2014).

Teleworkers interact with peers using ICTs, but this form of interaction reduces the ability to build strong professional relationships (Vayre & Pignault, 2014). Vayre and Pignault (2014) used the qualitative study method to examine the relationships that teleworkers form. They interviewed 24 teleworkers to gather data on teleworkers' family and professional relationships. Vayre and Pignault found that the physical separation from peers that teleworkers experienced increasing difficulty for teleworkers to build professional relationships. Many of the respondents explained that the qualities of face-to-face communication worked better than ICT communication.

Social capital. Employees gain acceptance, corporate culture, and training by interacting socially with their coworkers (Korte & Lin, 2013). Employees build social capital when they socialize with their coworkers. New employees in an organization often rely on organizational socialization as a critical part of the familiarization process. Korte and Lin (2013) called this process onboarding. While onboarding, new employees find mentors and peers to help them learn processes, understand the corporate culture, and share knowledge. Teleworkers have a reduced ability to socialize; therefore, they could find difficulty using social capital building techniques.

Employees understand the importance of social interactions as many weigh the potential loss on their decision on to telework or not (Wilton, Páez, & Scott, 2011). Wilton et al. (2011) said that the fear of isolation might be a primary factor for deciding

not to telework. Managers need to understand how any loss of social capital will affect their employees and their organization.

The loss of social capital for teleworkers could be an acceptable trade-off for better job performance (Fonner & Roloff, 2012). Fonner and Roloff (2012) acknowledged the importance of social interactions, but argued that the impact on teleworkers was marginal. They conducted a study using a sample of 89 teleworkers and 104 main office workers. They found that while employees working at the main office enjoy frequent interactions that provided meaningful knowledge transference with coworkers; these interactions often produce distractions (Fonner & Roloff, 2012). Teleworkers' communications are mostly business related, so they do not have these distractions. Teleworkers' high job satisfaction could be the result of effective communication free of the distracters that are inherent with face-to-face communication. Fonner and Roloff concluded that teleworkers maintained social interactions via IT.

Chen and McDonald (2015) found through their research that teleworkers could actually increase their social capital by creating an extensive network. Increased social capital included significant associations with increased job decision latitude (Van Bogaert, Kowalski, Weeks, Van Heusden, & Clarke, 2013). Chen and McDonald analyzed data from a national survey of more than 2000 participants. Participants in the survey provided information on how well they agreed to various subjects using a scale system. Some of the subjects included social capital, text message, instant messaging, and multiple team membership (Chen & McDonald, 2015). Chen and McDonald found

that teleworkers, who used various ICT applications to develop a network of multiple team membership, increased their social capital.

Knowledge transfer. Coworkers share corporate knowledge through social interactions (Coenen & Kok, 2014). Knowledge transference is an important part of an organization's success; often promoted as a critical component of the firm's competitive advantage. Coenen and Kok (2014) stated that knowledge transference is a key factor in the developing and designing phase of innovative firms. Unfortunately, teleworkers were not in a position to participate in knowledge transference as easily as employees working in a traditional setting were. Coenen and Kok argued that firms might keep the same quality of knowledge sharing through the effective use of IT.

Teleworkers lose valuable tacit knowledge transference opportunities by not being in proximity with their coworkers. Tacit knowledge is information that employees learn through exposure (Majiros, 2013). Majiros (2013) explained that tacit knowledge is difficult to teach. Informal and unplanned communications are a source of valuable tacit knowledge sharing. Tacit knowledge sharing often comes in the form of stories about prior encounters (Arnett & Wittmann, 2014). These stories contain valuable information on past problems or situations complete with resolutions. Teleworkers receive and transmit knowledge mostly via information and communication technology applications (Chen & McDonald, 2015). Whereas, traditional office-based employees have direct face-to-face communication. Teleworkers usually do not engage in unplanned storytelling sessions while communicating using IT. Management should consider the

potential loss of knowledge transfer when implementing telework because of the lack of proximity in social interactions.

Isolation. Isolated workers could feel ostracized by their coworkers (Robinson, O'Reilly, & Wang, 2013)**.** Isolated workers such as teleworkers often miss many of the standard social interactions that other employees enjoy. Robinson et al. (2013) stated that feelings of isolation and ostracism increased because more employees are moving into telework arrangements.

The isolation that teleworkers experience could create an organizational subculture less hierarchical in nature (Harrington & Santiago, 2015). Harrington and Santiago (2015) conducted research using federal government employee participants. The sample of federal employees contained both managers and nonmanagers. Using a 5-Point Likert-type scale, they measured responses to questions about isolation, work-life quality, and organizational culture. Harrington and Santiago found that teleworkers did have a less hierarchical subculture than nonteleworkers. They also found that high levels of hierarchical values significantly correlated with higher quality of work-life. Harrington and Santiago argued that the isolation that teleworkers experienced altered their organizational culture and values.

ICT such as social media and synchronous communication could overcome teleworker isolation (Fonner & Roloff, 2012) by creating virtual spaces where teleworkers could socialize. Unfortunately, the increased social activity with these technologies also increases social interruptions. Using social media technologies could help decrease teleworker isolation, but could introduce many of the same distracters of

the office-based workplace (Fonner & Roloff, 2012). Fonner and Roloff (2012) called the social media trade-off between reduced isolation and increased distractors the connectivity paradox. They created hypotheses based on their connectivity paradox theory and tested it with a sample of 89 teleworkers and 104 office based workers. They concluded that the results did not support their theory of a connectivity paradox because teleworkers did not have increased social connection with increased social media connectivity. However, Teleworkers did have more interruptions with increased connectivity (Fonner & Roloff, 2012).

A trend known as co-working could be a viable option to help alleviate the isolation of teleworkers. Groups of teleworkers working at the same facility are co-working. The teleworkers at co-working facilities could come from several different firms. Co-working businesses offer community workspaces for teleworkers. Many workers who can work anywhere, including at home, chose to pay to work at offices with other people in similar situations (Spinuzzi, 2012). Teleworkers often feel isolated, or they have trouble separating work from home life. Co-working allows them to have the freedom of telework, but gives them some of the qualities they miss when working from home.

With proper planning, libraries could become an attractive alternative co-working space for teleworkers who do not wish to rent workspace from co-working businesses (Bilandzic & Foth, 2013). Bilandzic and Foth (2013) observed and interviewed users at a bookless library space in Australia dedicated to facilitating the concept of co-working. The library used an open concept that allowed users to talk to each other while working.

Bilandzic and Foth suggested that libraries share information about users, so to help those with a common interest find each other thus increasing the social interaction potential.

Organizational commitment. The isolation that teleworkers often have could result in teleworkers having less organizational commitment. Organizational commitment remains one of the largest concerns about teleworking (Shaemi et al., 2011). Organizational commitment refers to the amount employees identify with their organization. Shaemi et al. (2011) explained that employees with strong organizational commitment feel sadness or a sense of loss when faced with the idea of leaving the organization. Employees with strong organizational commitment have feelings of attachment and obligation to the organization, so they buy into the organization's mission, vision, and goals.

Flexibility is an apparent factor for increasing organizational commitment with teleworkers. Galea et al. (2013) concluded that employees who had a choice of when and where they worked at home, satellite office, or main office had a higher sense of organizational commitment than employees who worked exclusively at home. Employees could gain organizational commitment when they have the flexibility to interact with coworkers whenever they feel the need.

High-intensity teleworkers had difficulty feeling loyal and attached to their firms. High-intensity telecommuters, defined by Belle, Burley, and Long (2015), are those who teleworked more than 2 days per week. Belle et al. argued that the lack of informal communication results in reduced organizational commitment. Employees use informal communication to build feelings of belonging and establish trust among individuals.

Belle et al. conducted semistructured interviews with 10 high-intensity teleworking participants from different industries. They found that the level of informal communication was a predictor of organizational identification and commitment.

Belle et al. (2015) also studied the impact of high-intensity teleworking on organizational commitment. High-intensity teleworkers used a relationship between three constructs to gain or develop organizational commitment (Belle et al., 2015). Constructs included the telework plan, the type of work, and knowledge of the work (Belle et al., 2015). Teleworkers that have a good understanding of their job, and a good understanding of the organization they work for, have a better sense of organizational belonging (Belle et al., 2015).

Transition

In Section 1, I identified the general and specific business problems associated with teleworking in the U.S. federal government, and gave a detailed explanation of the framework for this study. Section 1 also included an extensive accounting of the review of the current literature. Section 2 includes a description in detail the method, design, population, sample and data collection plans for this study. Finally, in Section 3, I presented the findings from my research. Section 3 contained an analysis of the data, the implications for social change, and a recommendation for further study.

Section 2: The Project

Section 2 includes an in-depth explanation of the research method and design, role of the researcher, and data collection technique. I explain in this section the selection and use of the qualitative method with the case study design. Data collection included interviews, the OPM Telework Guide, the 2015 Federal Employee Viewpoint Survey, the NIST telework guide, and the OPM annual report on teleworking. Also discussed in this section is the ethical treatment of participants during research, and the reliability and validity of the study.

Purpose Statement

The purpose of this qualitative case study was to explore strategies managers use to implement telework effectively. As of 2013, nearly 25% of U.S. employees performed a portion of their duties via teleworking (Greer & Payne, 2014). Telework opportunities in the U.S. federal government continue to increase because of new guidelines established in the Telework Enhancement Act of 2010 (Mahler, 2012). The research included data collection from U.S. federal government managers who implemented teleworking policies. The results of this study could contribute to social change by providing a better understanding of how to increase teamwork and communication with teleworking employees while preventing feelings of isolation.

Role of the Researcher

My primary role as researcher was to review current literature, develop interview questions, conduct interviews, analyze data, and report findings. Harland (2014) explained that a researcher conducting a case study should analyze and present a

narrative that accurately portrays the case. I followed the ethical principles of the Belmont Report as I conducted my research by treating participants with respect, protecting participants' privacy, minimizing potential harm, and ensuring that participants gave informed consent (DuBois et al., 2012). My knowledge of the topic of this study provided insight, as my supervisor teleworks 2 days per week. In addition, I am a federal U.S. government employee who works with teleworkers from other agencies.

As the researcher, I mitigated biases to ensure minimal impact on the study. An excellent technique to mitigate researcher bias with case studies is the use of multiple sources of data (Barratt, Choi, & Li, 2011). Barratt et al. (2011) explained that using multiple sources of data reduces interpretive bias. The collected data came from interviews, the OPM annual report to Congress on the status of telework, the 2015 Federal Employee Viewpoint Survey, the NIST telework guide, and the OPM Telework Guide. I also minimized biases while conducting interviews. The primary method for minimizing bias was the use of open-ended questions during interviews. Open-ended questions encourage participants to expound on details from their viewpoint (McIntosh & Morse, 2015). I created open-ended questions to elicit complete responses while also allowing for follow-up questions. Participants' responses to open-ended questions sometimes led the research in unexpected directions.

For this study, collecting data meant conducting interviews and reviewing documents. Researchers use the qualitative method with case study design to analyze multiple data sources such as interviews and document reviews to uncover a holistic

narrative of a case (Thomas, 2011). Interviewing is an excellent method for uncovering the views and perceptions of participants (McIntosh & Morse, 2015). The interviews were in-depth explorations of the strategies managers use to manage teleworking teams. In this case, my role as a researcher required accurate capture of data from the interviews.

Participants

The participants were managers of a U.S. federal agency in the Midwest region of the United States during 2015. These managers implemented a teleworking program for their teams. I gained contact information of several potential participants by using an acquaintance who worked at the subject federal agency. Potential participants who indicated their willingness to participate received an email version of the informed consent form (see Appendix A).

I used purposive sampling to find participants. Purposive sampling is a nonrandom sampling technique whereby researchers select participants based on predetermined criteria (Adler & Clark, 2014; Barratt, Ferris, & Lenton, 2015). Most researchers use purposive sampling when they need participants with specific knowledge (Elo et al., 2014). Random sampling would not have worked for this study because the participants had to meet the criteria of the study. Any data collected were for the sole purpose of this study and did not include information that could identify individual participants or the federal government agency. I saved all data on a flash drive and stored it in a locked desk drawer, where it will remain until destroyed after 5 years to protect the participants' privacy.

The number of participants in a study has to be large enough to represent the population but not so large that the research becomes impractical to complete (Elo et al., 2014). The correct sample size depends on when data collection reaches the point of saturation. Saturation happens when participants do not add new information to the conversation (Dworkin, 2012). Dworkin (2012) explained that saturation levels vary based on factors such as the homogenous level of the sample. I used the method proposed by Francis et al. (2010) to test for sample saturation.

Francis et al. (2010) called for establishing the minimum number of interviewees required for analysis and then specifying a number of additional participants to demonstrate saturation. The targeted number of participants for this study was 20. However, Elo et al. (2014) explained that it is better to conduct initial analysis to gauge sample saturation during data collection. After 10 participants, I suspected that the sample had reached saturation. I added two participants to test for saturation to ensure accuracy. The additional participants did not add new themes to the conversation. The sample size for this study was 12, including the two test samples.

Research Method and Design

The qualitative research method with case study design worked best for this study because the study was about the managers' observations. Qualitative research is an excellent method when the researcher seeks to analyze key insights that can only come from the personal perceptions of people (Birkinshaw et al., 2011). The participants for this study were managers of teleworking teams at a U.S. federal government agency

located in the Midwest region of the United States. I interviewed 12 participants to gain insight into how federal managers implemented and supervised teleworking.

Research Method

Of the three possible research methods to use—qualitative, quantitative, or mixed method—qualitative was best for the purposes of this study. The qualitative method of research is a method that researchers use to understand the multiple perspectives of human beings experiencing the phenomenon of study (Groeneveld et al., 2015). Birkinshaw (2011) explained that the qualitative research method works best when a researcher is seeking to discover the reasoning behind individuals' actions within a business phenomenon over a period. Researchers using the qualitative research method describe a narrative based on findings from the opinions of the sampled participants (Gioia et al., 2013). Gioia et al. (2013) explained that the semistructured interview is an effective technique to collect the perceptions of participants. Participants in qualitative research give historical explanations about what they saw, did, and felt about the phenomenon during interviews or within focus groups (Groeneveld et al., 2015). Researchers using the qualitative research method can tell a story supported by data (Gioia et al., 2013). The qualitative method in this study helped in exploring strategies to manage interpersonal relationships, teamwork, and communication in teleworking organizations by analyzing multiple data points of one federal agency during 2015.

The discovery nature of the study did not lend itself to the quantitative research method. The quantitative research method works best with researchers who want to test hypotheses (Birkinshaw et al., 2011). Researchers using the quantitative method use

statistical analysis of data to derive conclusions (Groeneveld et al., 2015). This form of deductive reasoning points to a singular truth of a topic (Groeneveld et al., 2015). Pettigrew (2013) explained that researchers using the quantitative method seek objective answers to questions of what, where, and when in relation to a topic.

Similarly, I did not use the mixed methods research method because as Venkatesh, Brown, and Bala (2013) explained, researchers using the mixed method use both quantitative and qualitative methods. Researchers using the mixed method take the best aspects of quantitative and qualitative methods and combine them. Venkatesh et al. stated that researchers might use the quantitative method to confirm a truth and the qualitative method to explore different perspectives, with both in the same study. However, the reasons that disqualified the quantitative method applied to the quantitative portion of the mixed method.

Research Design

Researchers use case study to gain an understanding of individuals and organizations within a social phenomenon (Yin, 2014). The case study design used with business studies allows researchers to study a phenomenon's effect in a real-world environment (Yin, 2014). Researchers use the case study design to explore and explain new concepts and theories of a phenomenon by studying in its natural environment (Barratt et al., 2011; Thomas, 2011). Barratt et al. (2011) explained that a *case* is a clearly defined instance or occurrence of the object of study. Ample precedent exists for using the case study design with teleworking research.

Ruppel, Gong, and Tworoger (2013) used the case study design to explore the effects of ICT on teleworkers' work-life balance. Alizadeh and Sipe (2013) conducted research on teleworking impediments by using the case study design. The goal was to explore strategies to manage interpersonal relationships, teamwork, and communication in a federal teleworking agency. I used the case study design because of the complexity of the phenomenon, the well-defined boundary of the case, and the exploratory and explanatory goal of the study.

Phenomenology is a qualitative-method design used to access the subjective perspectives of individuals experiencing a phenomenon (Englander, 2012). Researchers use phenomenological design to gain an understanding of individuals and organizations within a social phenomenon (Yin, 2010). Researchers often use phenomenological design for business studies because it allows researchers to study a phenomenon's effect on a real-world environment (Yin, 2014). Researchers use phenomenological design to explore the subjective descriptions that humans use to convey their perceptions (Englander, 2012). The phenomenological design did not meet the needs of this study because of the study's holistic scope in understanding this understudied issue.

With the ethnography design, researchers observe participants for a long period to understand every aspect of the topic (Sedlmair et al., 2012). Sedlmair et al. (2012) offered anthropology and sociology as excellent disciplines for the use of ethnography. Researchers from these disciplines can use ethnography to embed themselves into the culture of the target of their study. My intent was not to embed mysef into the culture of the sample population participants.

Population and Sampling

The population for this study included U.S. federal government managers with experience in implementing teleworking policies by allowing at least a portion of their employees to telework. The participants were employees of a federal government agency located in the Midwest region of the United States. The sample included 12 participants. I conducted interviews at a mutually agreed-upon location with each participant. The locations were quiet and comfortable to ensure a positive environment to conduct effective interviews. Locations included libraries and conference rooms.

I used purposive sampling to recruit participants for this study. Participants in the study managed a team with teleworkers; by targeting this population, I sought to capture a representation of the federal government's teleworking managers. Purposive sampling is a nonrandom sampling technique that researchers use to study specific elements (Adler & Clark, 2014; Barratt et al., 2015). Purposive sampling is an excellent technique for researchers who require participants, who have specific knowledge about the studied case (Elo et al., 2014). For this study, the specific elements were U.S. federal government managers of a team that had teleworkers during 2015.

The sample size should be large enough to achieve reliability and validity without going beyond the point of saturation (Elo et al., 2014). The correct sample size in a qualitative study depends on when data collection reaches the point of saturation. Saturation happens when additional interviews add no new information to the conversation (Dworkin, 2012). Dworkin (2012) explained that the saturation level varies based on factors such as the homogeneity level of the sample. I used the method

proposed by Francis et al. (2010) to test for sample saturation. Francis et al. (2010) called for specifying a number of additional samples to test for saturation. The initial target number was a placeholder to prepare a number of participants because, as Elo et al. (2014) explained, researchers identify saturation as they approach it when conducting analysis during data collection. I believed that I had reached data saturation at 10 interviews. I interviewed two additional participants to test for data saturation. I did not discover new themes with the two additional interviews, indicating that the sample had reached data saturation.

Ethical Research

The goal of this study was to explore the strategies that U.S. federal government managers used to implement and oversee teleworking policies. No physical risks existed for participants, as they simply answered questions in interviews. However, ethical research requires researchers to obtain informed consent from participants before interviews begin (DuBois et al., 2012; Lorell, Mikita, Anderson, Hallinan, & Forrest, 2015; Taiwo & Panas, 2013). All participants for this study received a written consent form via email asking them to read and consent by replying before the start of each interview (see Appendix A). The written consent form included information indicating that participation in the study would remain confidential. No participants received paid incentives for this study. The consent form also informed participants that they could withdraw from the study at any time before or during the interview. Participants could also refuse to answer any or all questions.

Researchers should not collect sensitive identifying characteristics unless they are essential components of the research (DuBois et al., 2012; Morse & Coulehan, 2015; Saunders, Kitzinger, & Kitzinger, 2015). This study did not include identifying information on participants or the federal government agency where they worked. I will protect participants' information by storing transcripts, purged of identifying characteristics such as names, race, age, and gender, in a password-protected flash drive locked in a drawer for 5 years, at which time I will destroy the flash drive using a shredder.

Data Collection Instruments

As the primary data instrument, I used semistructured interviews. Researchers using semistructured interviews can stray from scripted questions to ask probing follow-up questions to gather further information (Doody & Noonan, 2013). Unlike with unstructured interviews, researchers using semistructured interviews can focus on a theme or topic (Rabionet, 2011). However, Rabionet (2011) explained that researchers have freedom to allow interviewees to tell a complete story. The semistructured interview is one of the best tools for researchers to elicit the entire narrative about the perceptions of participants (Rowley, 2012). For the purposes of this study, interviews used the series of questions found in Appendix B.

Different methods increase the reliability and validity of interviews. An important method to achieve reliability and validity is recording interviews. Recorded interviews improve reliability and validity because researchers can continuously check recordings for accuracy (Al-Yateem, 2012). Yin (2014) stated that researchers enhance

the reliability and validity of case studies when they use multiple data sources for triangulation. I triangulated data by analyzing the results of the interviews, the 2015 Federal Employee Viewpoint Survey, the OPM Telework Guide, the OPM 2013 Status of Telework Annual Report to Congress, and the NIST telework guide. I further enhanced reliability and validity of the interviews by carefully reviewing the transcripts and through the use of member checking.

Data Collection Technique

After contacting participants via telephone, potential participants who indicated their willingness to participate received an email version of the Informed Consent form (see Appendix A). The interviews took place at a mutually agreed upon location. Participants understood that the interviews would not go over 30 minutes unless they chose to extend the time, and that they could exit the interview at any time. None of the interviews exceeded 30 minutes. I conducted semistructured interviews using the 11 interview questions located in Appendix B. I created the interview questions using information gained from the review of the literature. A recording device captured the audio from the interviews. Researchers can use interview recordings as a valuable tool for analyzing data (Al-Yateem, 2012). I created transcripts of the interviews in a Microsoft Word document using the recorded data, removing all items that could identify the participant or the participant's organization.

Many advantages exist regarding the use of semistructured interviews for research. Researchers use semistructured interviews because of allowing for follow-up questions (Cachia & Millward, 2011). Researchers use interviews to uncover perceptions

of participants (Cachia & Millward, 2011; Rowley, 2012). Rowley (2012) explained that questionnaires work best when researchers want a large sample from the population, but researchers obtain a better understanding of participant's perceptions through interviews. Researchers gain significant advantages by conducting interviews such as the ability to ask detailed questions as well as follow-up questions (Doody & Noonan, 2013). Participants expanded or clarified answers they previously gave with the follow-up questions I used. Doody and Noonan (2013) further explained that researchers might establish a bond with participants giving them the ability to ask follow-up questions for clarity. The disadvantages of interviews are that they could be expensive, invasive, and protracted (Doody & Noonan, 2013).

I used member checking during this study. Member checking is a process where the researcher validates their understanding of the interview by checking with the participant (Harvey, 2015). I contacted each participant to ensure my understanding of various themes each presented aligned with the message they conveyed.

Data Organization Technique

The primary sources for data collection came from interviews, the 2015 Federal Employee Viewpoint Survey, the OPM Telework Guide, the OPM 2013 Status of Telework Annual Report to Congress, and the NIST telework guide. Gioia et al. (2013) explained that valid meticulous qualitative research starts with careful organization of the collected data and converting of all data into five Microsoft Word files named after the data source titled: interviews, the 2015 Federal Employee Viewpoint Survey, the OPM Telework Guide, the OPM 2013 Status of Telework Annual Report to Congress, and the

NIST telework guide. The interview document included headings to identify each interviewee by a number such as manager one (M1).

I used coding to organize the data because as Campbell et al. (2013) said, this strategy helps researchers discover themes. Researchers using the coding technique for data organization take raw data and organize it in a form for easier analysis (Pierre & Jackson, 2014; Rosenfeld, Gatten, & Scales, 2013). I color coded each data source based on themes uncovered from the analysis. I used NVivo™ to organize the themes from the telework guides, OPM report, interviews, and Federal Employee Viewpoint Survey. This organizational technique allowed the cross-analysis of data from all sources, and an analysis of each source individually. I saved the transcripts along with the NVivo™ coded data on a password protected flash drive to be stored in a locked desk for 5 years, and scheduled for destruction after that.

Data Analysis

Triangulation is a method to ensure the reliability, confirmability, and credibility of the research (Houghton, Casey, Shaw, & Murphy, 2013). I used methodological triangulation for this study. Methodological triangulation is a method where researchers improve reliability and validity by using multiple sources of data (Bekhet & Zauszniewski, 2012; Wijnhoven, 2012). For this study, triangulation meant using five data sources: (a) interviews, (b) the 2015 Federal Employee Viewpoint Survey, (c) the OPM Telework Guide, (d) the OPM 2013 status of telework report, and (e) the NIST telework guide. I analyzed the data from all sources individually and comparatively, which improved academic rigor, reliability, and validity.

I used NVivo™ to help me code raw data, and organize into themes. Campbell et al. (2013) explained that the coding strategy is a valuable analysis tool for researchers to discover themes. Researchers using the coding technique for data analysis take raw data and organize it into themes (Pierre & Jackson, 2014; Rosenfeld, Gatten, & Scales, 2013). I used NVivo™ to find emerging themes from the telework guides, OPM report, interviews, and Federal Employee Viewpoint Survey. NVivo™ is a software application that allows researchers to code themes for easier analysis. Woods et al. (2015) said that software analysis tools could assist researchers in obtaining a deeper analysis of collected data. With NVivo™ I grouped the coded data into themes.

The identification of themes continued from the interviews and other data sources, followed by a thorough analysis using the socio-technical conceptual framework. Davis et al. (2014) explained that the socio-technical framework is an excellent tool for analyzing the effects technology, procedures, and environment have on employee behaviors. Furthermore, the framework also helps researchers explore the effect employee behaviors have on technology, procedures, and environment (Anable, Brand, Tran, & Eyre, 2012; Bélanger et al., 2012).

Reliability and Validity

Traditionally researchers should present information to explain the reliability and validity of their research (Akerlind, 2012). However, Akerlind (2012) explained that reliability and validity are objective concepts, where most qualitative research is subjective in nature. Reliability refers to the repeatability and consistency of the research (Akerlind, 2012). Validity refers to how well the research represents the topic (Akerlind,

2012). Reliability, validity, along with objectivity are similar to the more subjective terms of credibility, transferability, dependability, and confirmability often used with qualitative research (Thomas & Magilvy, 2011).

Reliability

The terms dependability and confirmability are qualitative terms that are similar to the objective terms reliability and objectivity used in quantitative research (Petty, Thomson, & Stew, 2012; Schreiber, 2013). The achievement of dependability and confirmability comes from identifying and justifying all research methods and strategies (Yilmaz, 2013). A description of the research provides readers of the study the ability to trace the research (Thomas & Magilvy, 2011). For this study, the achievement of dependability and confirmability came from a detailed description of the research question, conceptual framework, assumptions, limitations, and delimitations, role of the researcher, participants, research method, research design, data collection, and data analysis. This information ensured that future readers would have a record of the process used to create this study.

Member checking further enhances dependability. Member checking is a process where the researcher validates their understanding of the interview by checking with the participant (Harvey, 2015). After completion of all interviews I contacted each manager again for member checking. Harvey (2015) explained that member checking helps researchers clarify understanding of ideas that interviewees conveyed. During this process I gave my synthesis of the information from the transcripts to each participant, and asked if this was a correct interpretation of their ideas. I gave participants an

opportunity to clarify or correct any misunderstandings from my synthesis. Each manager affirmed that I synthesized the information correctly.

Validity

Credibility is the subjective equivalent of internal validity in qualitative research (Thomas & Magilvy, 2011). Credibility refers to the trustworthiness of the research (Petty et al., 2012; Yilmaz, 2013). Credibility in this study occurred by accurately presenting a representation of the data collected. Credibility started by recording the interviews. Recorded interviews improve credibility because researchers can continuously check recordings for accuracy as they create transcripts (Al-Yateem, 2012).

Methodological triangulation further enhances credibility. Methodological triangulation is a method that helps improve the rigor of qualitative research by comparing and contrasting data from different sources (Bekhet & Zauszniewski, 2012; Houghton et al., 2013). The additional sources of data used in this study were the 2015 Federal Employee Viewpoint Survey, the OPM Telework Guide, the OPM 2013 Status of Telework Annual Report to Congress, and the NIST telework guide. The relevant data included guides that U.S. federal employees could follow, and information on the status of federal telework.

I further achieved credibility by ensuring a saturated sample. Saturation happens when adding additional participants do not add new information (Dworkin, 2012). I used the method proposed by Francis et al. to test for sample saturation. Francis et al. (2010) called for establishing the number of samples required for analysis, and then specifying a

number of additional samples to demonstrate saturation. I chose 20 as my initial target number of participants, but I confirmed saturation at 12 interviews.

The external validity equivalent in qualitative research is transferability (Petty et al., 2012; Thomas & Magilvy, 2011). Transferability happens when the findings from a study apply to other populations under similar circumstances (Petty et al., 2012; Yilmaz, 2013). Researchers achieve transferability through thorough descriptions of the population, sample, geographical location, and circumstances of the study. Federal government managers of teleworking teams comprised the population of this study. A thorough description of the case gives future researchers the information they need to determine the transferability of this study.

Transition and Summary

Section 2 included a comprehensive explanation the plan to conduct research for this study. I identified the population, sampling technique, and data collection techniques. Also included was an extensive section explaining the ethical research along with the methods for enhancing reliability and validity. The focus for Section 3 includes the actual outcomes of the research including findings, implications, and reflections.

Section 3: Application to Professional Practice and Implications for Change

The purpose of this qualitative case study was to explore strategies managers use to implement teleworking effectively. I conducted semistructured interviews with 12 managers of a federal agency located in the Midwest region of the United States. These managers supervised employees who teleworked. I identify participants with a number assigned to each, from M1 to M12. I validated the information received from the interviews by using member checking with each interviewee. I used NVivo™ to help code the interviews and triangulation data. During this process, 10 themes emerged that I present below.

Presentation of the Findings

The overarching research question for this study was the following: What strategies do managers use to implement telework effectively? I conducted semistructured interviews with a saturated sample of participants as my first data collection technique. Trotter (2012) explained that researchers use saturation for samples when seeking to uncover themes. I used the purposive sampling technique to find participants who matched the study criteria and ultimately reached sample saturation.

Next, I conducted analyses of the data using NVivo™. I coded similar convergences of ideas into areas of the application known as *nodes*. For this study, nodes refer to collections of similar ideas. I combined the nodes under the following 10 themes: (a) group meetings, (b) knowledge-sharing networks, (c) management of teleworkers, (d) teleworker agreements, (e) teleworker equipment, (f) challenge of team building, (g)

telework as a reward, (h) limitation on days teleworked, (i) training, and (j) flexibility of teleworkers. Table 2 depicts the number of participants contributing to each theme.

Table 2

Number of Participants Contributing to Themes

Themes	# of participants to offer this perception	% of participants to offer this perception
Group meetings	12	100%
Knowledge-sharing networks	12	100%
Management of teleworkers	12	100%
Teleworker agreements	12	100%
Teleworker equipment	12	100%
Challenge of team building	10	83%
Telework as a reward	10	83%
Limitation on days teleworked	6	50%
Training	6	50%
Flexibility of teleworkers	5	42%

Theme 1: Group Meetings

All managers interviewed used the group meeting as a formal method of intraorganizational communication. Some managers held group meetings weekly, others held them monthly, and some held them as needed. The managers used the group meetings to convey information on goals, roles, and vision. Most of the meetings were mandatory to ensure maximum attendance. Participant M1 used mandatory weekly group meetings to stress "commitment and support of organizational goals." Participant M10 held biweekly meetings to help build a sense of community within the team. Participant M11 said that giving praise and performance awards during group meetings helped to build organizational commitment by recognizing individuals among their peers. Participant M8 made similar comments when explaining the need to "give praise to the

entire team, so everyone knows the quality of work being done." Consensus among all managers emerged that group meetings helped to recharge teleworkers' organizational commitment.

This finding aligned with the explanation by Allen et al. (2015) that the changes to communication caused by teleworking may have significant negative effects on organizations. This finding also aligned with the statement of Molina-Morales et al. (2014) that successful leaders promote team communication to enhance workplace relations. The managers in this study used group meetings to expand communication. This further aligns with the STS conceptual framework because, as Bélanger et al. (2012) stated, teleworkers introduce major communication changes to technical and social subsystems.

Theme 2: Knowledge-Sharing Networks

All of the managers during the interviews discussed using knowledge-sharing networks such as Microsoft's SharePoint for knowledge sharing and social interaction activities. Knowledge-sharing networks allowed team members to post important information that all team members could view. Participant M2 described the knowledge sharing network as "a Microsoft product that allows info sharing." As Participant M10 described them, knowledge-sharing networks were an important tool that allowed teammates "to share their knowledge with their peers." M4 said that Microsoft's SharePoint "allows for group collaborations." M4 further explained that SharePoint "allows for multiple team members to be editing and developing at the same time."

The managers interviewed for this study used knowledge-sharing networks to improve knowledge-sharing opportunities for teleworkers. This finding aligned with the finding from Weber and Kim (2015) that the use of knowledge-sharing networks is an important strategy to increase social engagement, decrease isolation, and improve knowledge sharing for teleworkers. This further aligned with the finding in the OPM (2013) report in which 78% of federal teleworkers believed that their unit shared job knowledge.

Bélanger et al. (2012) explained that teleworking has the potential to decrease knowledge sharing through changes in the technical and social subsystems. Knowledge sharing changes because of the technology used to telework and a reduction in social interaction. Weber and Kim (2015) argued that knowledge-sharing networks improve knowledge sharing by increasing collaboration and socializing opportunities.

Theme 3: Management of Teleworkers

The management of teleworkers emerged as a major theme for this study. The data analysis revealed that many of the participant managers had found ways to manage the task performance of teleworkers successfully. Participant M1 used an ICT that allowed the ability to "see what everyone is working on at any given time." This ICT gave real-time updates on the progress of the tasks. Participant M11 used similar technology to monitor the performance of tasks in progress. Participant M2 required teleworkers to document their activities as they performed them. Participant M2 further monitored availability using the organization's IM tool. Participant M5 said that "there has to be some micro-managing" of teleworkers to ensure that they get the job done.

This finding did not align with Beham et al. (2015) who explained that managers could not manage tasks and therefore had to manage results of teleworkers. This finding also did not align with Waters's (2015) argument that managers should spend more time managing teleworker outcomes instead of teleworker tasks.

Half of the managers interviewed used the results management technique. Participant M3 gave teleworkers leeway to complete tasks without direct supervision, only getting involved as required. Participant M2 managed the outputs of teleworkers looking for evidence of quality and completeness. Participant M10 also managed outcomes by trusting teleworkers to complete assignments. Participant M10 further explained the importance of giving teleworkers "the tools to do the job then get out of the way and let them do the job." Teleworkers should be able to work without direct supervision (OPM, 2011).

Many of the managers expressed the importance of supervisor communication for managing teleworkers. Participant M8 tried to contact teleworkers daily on an informal basis just "to see how they are doing." Participant M8 further explained, "communication should be regular." Another manager, Participant M7, also contacted teleworkers daily. This manager tried to ensure that teleworkers knew that they could make contact for help, or just to get managerial encouragement. Nine of the 12 managers explained that communication lines should remain open even with the separation that comes with teleworking employees. Many of the managers used IM to augment telephone conversations and to replace the informal nature of much of office face-to-face communication. Some managers required teleworkers to post contact information on

their office workspace to ensure that nonteleworking coworkers could communicate as well. Participant M1 explained that supervisors' communications should involve teleworkers' total experience throughout the teleworking process. This finding aligned with Greer and Payne's (2014) finding that supervisors require excellent communication skills when managing teleworkers. Federal managers should facilitate methods that allow effective communication with teleworkers (OPM, 2011).

Theme 4: Telework Agreements

All of the managers spoke of having telework agreements with their employees. Managers during the interview explained that the telework agreement is a written understanding between the manager and employee on when the teleworker could telework, and what the expectations are while teleworking. Participant M11 said that it was important to place procedures in the telework agreement. Participant M4 added that the telework agreement lists the days to telework and the ICTs used for teleworking. Participant M1 used the telework agreement process to talk with employees about the workload and performance expected during teleworking.

This finding aligned with the OPM (2013) report that telework agreements are a requirement before any federal employee teleworks. This finding further aligned with Ojala et al. (2014), who explained that telework agreements help managers and employees establish a foundation on which teleworking works for all parties concerned. Telework agreements reduce negative impacts on the environment, technical, and social subsystems of STS by outlining, as OPM (2013) described, when and where to telework, along with goals and responsibilities.

Theme 5: Teleworker Equipment

All 12 of the managers and all of the collected data mentioned the importance of properly equipped teleworkers. The managers explained that teleworking was possible because of technology. Therefore, the type of technology and equipment used is critical for success. Managers described the use of various ICTs during the interviews. Participant M2 stated the importance of supplying teleworkers with the tools required to accomplish the mission. The most common ICT tools that managers said teleworkers used included email, telephone, laptop computers, instant messaging, knowledge-sharing networks, and virtual private networks (VPN). The instant messaging (IM) tool that managers said their teleworkers used had many beneficial aspects for both employees and managers. Participant M3 said that the IM tool allowed managers and coworkers to know when teleworkers teleworked and their availability. Participant M4 described IM as a great tool that allowed instant informal communication. Participant M4 stated that the tool also included features such as a shared whiteboard for brainstorming sessions and shared desktops for real-time collaboration.

Five of the managers expressed a desire to have better video conferencing. Specifically, these managers wanted to have a feature added to the IM tool that allowed video chat in a manner similar to Apple FaceTime and Skype. The managers felt that this would reduce feelings of isolation and provide another forum for formal and informal communication. Participant M12 said that this could give an added managerial tool that would give managers more face-to-face communication with teleworkers.

The telework equipment finding aligned with Meshur (2015), who indicated that a key step in the teleworker implementation process involved an assessment of required equipment. This finding further aligned with Cohen et al. (2015), who stated that teleworkers require tools from ICT equipment to accomplish their tasks away from their traditional office space. Deficient equipment was a major barrier to the successful implementation of teleworking for some federal managers (OPM, 2013).

Bélanger et al. (2012) explained that the technical subsystem in teleworking organizations often refers to the ICTs teleworkers require while teleworking. These ICTs facilitate teleworking, but they also affect the environment and social subsystem of the STS system. The managers in this study used ICTs to implement teleworking and to help minimize negative effects on the social subsystem.

Theme 6: Challenge of Team Building

During the interviews, 10 of the managers expressed team building as a challenge and offered strategies to overcome the problem. Participant M10 described a team as a community. Participant M10 said that the "challenge is how to build this sense of community with people who see each other infrequently." Participant M10 also noted that building the community takes time "but it is well worth it." Participant M10 further explained that a portion of the team took part in an offsite team-building exercise on the same day as the interview. Participant M2 described building the team concept into the process by increasing the participation of teammates. Participant M12 encouraged subordinates to complete tasks as a team to use the skill sets of all.

This finding aligned with the OPM (2013) report finding that some managers deny teleworking opportunities because of the potential negative impact on teams. This further aligned with Allen et al. (2015) who found that managers often find difficulty in building teams with teleworkers. This also aligns with Bélanger et al. (2012) who explained that teleworking may have a negative impact on relationships within the STS social subsystem and therefore may affect teams. Team building may be a challenge because teleworkers often experience reduced relationships (Fonner & Roloff, 2012).

Theme 7: Telework as a Reward

During the interviews, 10 of the 12 managers said they used telework as a reward for high performance. Participant M1 used telework as "value added work for high performers." Participant M1 explained, "telework is not a right, the privilege must be earned by being a high performer." Participant M10 added that teleworking works as a retention tool because of the time and money teleworkers save. Participant M5 claimed, "the ability to do telework is a job satisfaction motive," adding that teleworking "saves wear and tear on your car."

This finding aligned with a finding in the OPM (2013) report that telework is an excellent tool to reward and recruit top performers. This further aligned with data from the 2015 Federal Employee Viewpoint Survey (2015) that indicated that federal employees have high satisfaction with telework programs. This also aligned with Schulte's (2015) explanation that teleworking has many rewarding aspects such as flexibility, autonomy, no commute, and an informal dress code.

Theme 8: Limitations on Days Teleworked

Some of the data collected suggested that putting limitations on the number of days employees may telework helps to mitigate isolation problems. Half of the managers interviewed created a policy that required teleworkers to be in the office a set number of days per week. These set numbers ranged from 1 to 3 days a week. Participant M1 explained, "teleworkers should not be out of the office more than 2 days a week [because] this keeps everyone current." Participant M10 mentioned putting together a team to create a policy for teleworking. This team "came up with the need to come into the office twice weekly" to ensure that they could socialize with teammates.

Another strategy that went along with limiting days per week for teleworking was having mandatory in-the-office days. To facilitate team building, training, and facetime, Participant M5 required all employees to be in the office on Tuesdays and Thursdays. Participant M6 required everyone to be in the office on Fridays with the understanding that other mandatory in-the-office days could happen as necessary. Placing some limitations on telework was an important strategy to improve organizational commitment and reduce isolation while still giving teleworkers flexibility.

The organizational documents I reviewed aligned with the limitation-on-days-teleworked strategy because, in 2012, 68% of all federal teleworkers worked 2 days a week or less (OPM, 2013). My review of the organizational documents showed that the U.S. federal government management allows full-time teleworking, but most employees telework on a part-time basis (OPM, 2011). This finding further aligned with Van Yperen et al. (2014) who found that the number of days teleworkers teleworked related

directly to the negative impacts teleworkers could experience. This finding also aligns with the STS framework because, as Bentley et al. (2016) said, teleworking could have negative effects on the social subsystem of an organization.

Theme 9: Training

Six of the managers noted the importance of training for teleworkers. Participant M4 recommended that all employees receive adequate training before allowing any employee to start teleworking. Participant M4's organization used computerized training for teleworking employees that stressed responsibilities, requirements, and expectations. Participant M6 said that to have high performing teleworkers "training is the key." Participant M4 noted that employees received "computerized training that details the teleworking responsibilities, requirements, and expectations" before they could telework. Another manager, Participant M7, noted the criticality for success in "training potential teleworkers."

The managers' emphasis on training aligned with the triangulation data because training is a requirement for all federal employees who wish to telework (OPM, 2011). The training finding further aligned with Belle et al. (2015) and Meshur (2015) who indicated that managers and subordinates need extensive telework training concerning essential skills such as communication. This also aligned with Naser et al. (2015) who explained that well-trained employees have the skills to perform with less supervision.

Theme 10: Flexibility of Teleworkers

Five of the managers noted the importance of giving flexibility to subordinates. The first act of flexibility given to federal employees is the choice of teleworking.

Participant M4 offered the opportunity to telework to all subordinates, but worked with each individually to determine the suitability. Participant M6 noted, "teleworking is a personal choice" with some preferring not to participate in the program. Some managers further increased flexibility by allowing employees to choose when they wanted to telework. Participant M10 gave subordinates "control of their work schedules," and participant M12 added that flexibility helped improve job satisfaction.

The finding that telework flexibility improves job satisfaction aligns with the finding of Greer and Payne (2014) who noted that the retention of employees improved when given the flexibility to choose to telework. These findings also align with Anderson et al. (2015), who explained that flexibility helped improve the sense of control and well-being with employees. This also aligned with a finding in the OPM (2013) report that the ability to choose whether to telework or not increased job satisfaction and well-being. This further aligned with Coenen and Kok (2014) who said that telework flexibility has numerous positive impacts including better productivity, job satisfaction, and better work-life balance.

Applications to Professional Practice

This doctoral study included an examination of the strategies U.S. federal managers used for their teleworking programs; the findings could also apply to other organizations in the public sector. Telework arrangements increase every year because of the potential benefits, and managers are a critical success factor (Beham et al., 2015). The managers interviewed for this study conveyed strategies that federal managers could use to implement or enhance their telework programs. Mahler (2012) noted that many

federal managers hesitate to allow employees to telework because of perceived negatives. This study could give hesitant managers a strategic roadmap to telework implementation.

OPM (2011) showed that managers in the U.S. federal government in 2011 tended to implement telework with little planning based on employee situation. However, evidence existed in 2013 pointing to an increased usage of teleworking as a strategic initiative to improve job performance and decrease employee turnover (OPM, 2013). The strategic application of telework benefits employees, organizations, and society (Greer & Payne, 2014). The strategies explored in this study could encourage managers to take more of a strategic view when considering telework implementation.

Implications for Social Change

The implications for social change are many because the U.S. federal government could save up to $12 billion dollars a year if all eligible federal employees teleworked (Denison et al., 2014). Perhaps more importantly, Denison et al. (2014) explained that teleworking reduces greenhouse gases, improves job satisfaction, and provides government continuity. The potential for teleworking to help achieve sustainability goals clearly demonstrated implications for social change (Zhu & Mason, 2014).

Teleworking remains an important sustainability tool for many organizations (Mehta & Chugan, 2015). President Obama signed an executive order mandating that federal agencies implement sustainability plans to decrease greenhouse gas emissions (OPM, 2013). Managers in some federal agencies already include teleworking as part of their sustainability initiatives (OPM, 2013). Additionally, public organizations could use sustainability strategically to gain competitive advantage (Mehta & Chugan, 2015). The

strategies identified in this study could offer managers additional tools to implement better-teleworking programs, and thereby help to achieve sustainability goals.

Recommendations for Action

The managers interviewed for this study were aware of the potential negative aspects of teleworking. Each devised strategies to mitigate the negatives and enhance the positives. As Dahlstrom (2013) explained, teleworkers require a sense of structure to keep them committed to the organization, the mission, and immediate tasks. Managers could adapt and implement the following strategies to help implement telework policies successfully.

Managers could limit the number of days employees telework to increase socializing opportunities. As discussed in the literature review section, high-intensity teleworkers experienced higher levels of isolation and reduced organizational commitment (Belle et al., 2015; Fay & Kline, 2011). Managers could ensure that all of their employees work in the office on the same day each week.

Managers could increase the flexibility of teleworking to allow teleworkers to choose when they want to work at the office or home. Managers noted flexibility to be a positive telework enhancer. Employees with flexibility could decide to work at the office when they want to socialize.

Teleworkers should receive training to increase the potential for positive outcomes. I discovered during the literature review that the training of both managers and subordinates helped improve outcomes (Belle et al., 2015; Meshur, 2015). The U.S.

federal government requires that all teleworkers receive interactive telework training (OPM, 2013). However, public industry could also use this strategy as a best practice.

I recommend managers initiate team building strategies based on the interviews and the literature review. Managers face challenges to team building with teleworkers (Bosch-Sijtsema & Haapamäki, 2014; Stryker et al., 2012). Participant M10 mentioned trying to build a sense of community with employees as a team building strategy. The team building strategies could be informal socializing events, or formal brainstorming sessions.

Managers could implement teleworking strategically by using teleworking as a reward for excellent performance, and as an improvement to job satisfaction. Teleworkers typically have higher job satisfaction and better work-life balance than nonteleworkers (Caillier, 2014; Fonner & Roloff, 2012; Valmohammadi, 2012). During interviews, 83% of managers mentioned that they use teleworking as a performance reward.

Managers should improve intraorganizational communication with teleworkers. Intraorganizational communication included the use of group meetings to inform teleworkers about the roles, goals, and vision of the organization. All of the managers interviewed for this study used strategies to bring both teleworkers and nonteleworkers together for group meetings. Intraorganizational communication also included peer-to-peer communication to enhance knowledge sharing.

Teleworkers should have the equipment required to telework successfully. During the interviews, managers expressed the importance of ICT tools needed by

teleworkers. The manager and teleworker should list the required ICT tools for teleworking in a telework agreement.

I recommend that before managers allow employees to telework they initiate a telework agreement. The telework agreement acted as a contract between employee and manager outlining the expectations, communication strategy, and required tools to telework successfully. Managers in the federal government should complete telework agreements before allowing employees to telework (OPM, 2013). Public sector managers could also use telework agreements as a best practice.

Not all employees have the characteristics for successful telework. Additional recommendations, based on interviews and the literature review, include that managers select potential teleworkers based on individual abilities. After telework selection, managers should take the time to communicate with teleworkers on a regular basis. Many managers during the interviews stated they contact their teleworkers on a daily basis.

I recommend that managers use a combination of task and results-based supervision. During the literature review, I found evidence indicating that the results-oriented supervision technique produced the best results (Dahlstrom, 2013; Madlock, 2012). However, 50% of the managers used results-oriented supervision, and the other 50% used task-oriented supervision. The managers that used task-oriented supervision explained that using current ICTs allowed them to manage tasks in real time much as they do with office based employees. A combination of these two styles could improve outcomes.

The strategies uncovered during this study could be beneficial to managers seeking to implement teleworking policies, and to managers who already have teleworkers. Leadership abilities of managers lead to successful telework programs (Beham et al., 2015). The important themes presented in this study could improve managers' leadership skills with their teleworkers.

Recommendations for Further Research

Some of the managers interviewed for this study employed limitation tactics to mitigate potential negative effects of teleworking. Researchers could use this information to explore strategies managers use to address issues that could occur with high-intensity teleworkers. There is a possibility that a different set of strategies exist that managers should use to effectively manage high-intensity teleworkers.

Organizational commitment was another interesting finding during the interviews. Managers acknowledged that organizational commitment was a worry, but that their employees remained committed because of the importance of their mission. The reasons could include that public employees start with a higher sense of organizational commitment than their private employee counterparts do. Further investigation by researchers could explore the levels of organizational commitment between public and private employees.

Because of time constraints, I did not observe teleworkers in their homes, nor did I use focus groups with teleworkers and managers. Future recommendations include that researchers embed themselves to watch how teleworkers perform their duties while

teleworking. Researchers could also facilitate focus groups of managers and teleworkers to help gauge the effectiveness of deployed teleworking strategies.

Reflections

The purpose of this qualitative case study was to explore strategies federal managers use to implement effective teleworking strategies. I used semistructured interviews with open-ended questions combined with the methodological triangulation of federal documents to uncover strategies some managers currently use. The process was enlightening regarding the discovery of many strategies. Some of the strategies managers used complemented information gleaned from the literature review such as ICT usage, communication importance, team building, and training.

The NVivo™ application was a useful tool in helping discover themes. Themes emerged that would otherwise have not been uncovered using manual coding techniques. The NVivo™ also helped determine when the sample reached saturation. Recommendations include that future qualitative researchers consider NVivo™, or a similar application to help with the analysis of their research.

Conclusion

Federal managers by U.S. federal law should offer teleworking opportunities to employees when possible (Denison et al., 2014). Subsequently, managers require effective strategies to manage these teleworkers. The study findings revealed many effective strategies used by these managers to provide potential learning and guidance for others. The detailed analysis of interviews of federal managers combined with methodological triangulation data from federal documents uncovered 10 themes. The

themes were (a) group meetings, (b) knowledge-sharing networks, (c) management of teleworkers, (d) teleworker agreements, (e) teleworker equipment, (f) challenge of team building, (g) telework as a reward, (h) limitation on days teleworked, (i) training, and (j) flexibility of teleworkers. Based on these themes, managers could find strategies to start or improve teleworking policies because successful telework programs could improve sustainability, job performance, job satisfaction, and employee work-life balance.

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Appendix A: Informed Consent for Participants Over 18 Years of Age

INFORMED CONSENT FORM

You are invited to take part in a research study of Teleworking within the U.S. Federal Government. To participate in this study you must be a manager of a team that allows teleworking. This form is part of a process called "*informed consent*" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Blaine Mills who is a doctoral student at Walden University.

Background Information:

The purpose of this study is to explore teleworking within the federal government as a system.

Procedures:

If you agree to be in this study, you will be asked to:

- Participate in an interview lasting no more than 30 minutes at a mutually agreed upon location
- Allow the researcher to record the interview to ensure accuracy. The researcher will delete recordings after transcripts are completed.
- Participate in member checking. Member checking is when the researcher asks the participant questions to ensure the researcher understand the message the participant conveyed. Member checking is an important part of this research to improve the reliability and validity of the information collected during interviews. This is an opportunity for participants to affirm or correct the researcher's understanding of the information collected. Member checking will occur approximately within one week of the interview after the transcript is completed. Member checking will take place using the telephone or in person. Member checking will take no longer than 30 minutes.

Here are some sample questions:

____ How do you establish team building and teamwork with teleworkers?

____ How do you manage the job performance of the teleworkers you supervise?

2

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one in the federal government will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as stress or fatigue. Being in this study would not pose risk to your safety or wellbeing.

This study will capture the observations and perceptions of federal government employees managing a team with teleworkers. This study has the potential to identify teleworking concerns, and may even find potential solutions.

Payment:
There will be no payments for participation associated with this study.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure on a password protected flash drive and stored in a lock desk drawer. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via blaine.mills@waldenu.edu. Please read this letter of consent carefully and consider the implications for at least 24 hours. The researcher will contact you after 72 hours of receipt of the letter if he has not heard from you. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is (612) 312-1210. Walden University's approval number for this study is **09-11-15-0319104** and it expires on **September 10, 2016.**

Please print or save this consent form for your records.

Statement of Consent:
I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By replying to this email with the words, "I consent," I understand that I am agreeing to the terms described above.

Appendix B: Interview Questions

The interview guide consisted of the following 11 questions:

1. Describe the scope of telework in your team.
2. How do you effectively manage workplace relationships between your teleworker and nonteleworker subordinates?
3. How do you establish team building and teamwork with teleworkers?
4. How have you maintained the effectiveness of communication between your teleworker and nonteleworker subordinates?
5. How do you prevent teleworkers from experiencing feelings of isolation?
6. How do you manage the job performance of the teleworkers you supervise?
7. How have you maintained or improved the job satisfaction of the teleworking people you supervise?
8. Describe the information technology that your subordinates use and the impact on telework.
9. What changes, if any, would you like to implement with telework in regarding technology, team building, and supervision?
10. What techniques do you use to maintain or improve teleworkers' organizational commitment?
11. What would you suggest to another unit or organization that is seeking information before implementing telework policies?