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Differences in Perceived Constraints of Telework Utilization among Teleworkers and Office Workers

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Abstract

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by

Yolanda West

MS, Delta State University, 2008

BS, Mississippi Valley State University, 1999

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Approximately 37% of the U.S. labor force currently works from a remote location. Costs and competition are driving organizations to increase the use of telework among remote workplaces. Increasing organizational knowledge of the perceptions of current teleworkers could increase its adoption by employees and improve its implementation by managers. The purpose of this research was to test hypotheses regarding the perceived levels of telework efficiency, social interaction, and technical support to determine in those perceptions differed between teleworkers and office workers. Goldratt's Theory of Constraints framed the quantitative research design. A purposive sample of 54 teleworkers and office workers in the Southeastern Division of the USDA received Harandi & Ghafari's Telework Management Scale. Thirty-eight participants responded yielding a confidence level of 0.95 with an interval of 0.15 given the population of 211 employees in the division. Teleworker scores from the Telework Management Scale were found to be significantly higher than office workers scores for telework efficiency (p=.001), social interaction (p=.027), and overall approval of telework (p=.017). No statistically significant difference existed between the two groups for technical support. The scores of both groups, however, were lower than the maximum approval scores of 25 per factor and the overall maximum potential score of 75. Nevertheless, preliminary indications from the findings of this study suggest that the perceptions of current teleworkers could increase its adoption by other employees and improve its implementation by managers. Increasing the level of adoption of telework and improving its implementation by managers could bring about positive organizational, economic, and social changes across the public, private, and non-profit sectors.

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Dedication

This dissertation is dedicated to my husband Phillip West, my daughters Narvetta, Yorvetta Harvey; and Ja'Nya West, and the family members and friends who consistently offered their support, prayers and direction throughout my journey. I also dedicate this dissertation to my late father, James Lee Hayes and our Maker, for gently holding me as I completed this life goal.

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I would like to acknowledge the many people who made completion of this milestone possible. I thank my chair, Dr. Judith Forbes, and committee members, Dr. David Bouvin and Dr. Jules Klagge, whose support and guidance are highly valued. I would also like to thank my supervisor, Dr. Randall Luttrell for sharing a wealth of research ideas and allowing me to take time off to work on this dissertation. Dr. Jeffrey Silverstein, my former supervisor, for guiding me on my survey. And anyone I may have missed whose contributions to this study support meaningful social change.

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Chapter 1: Introduction to the Study

Telework, otherwise known as remote work, is a work arrangement in which employees do not commute to a central place of employment. According to a Gallup poll conducted in 2015 approximately 37% of the U.S. work force works from home or another remote location (Jones, 2015). An individual who telecommutes is known as a *telecommuter*, *teleworker* and at times as a *home-sourced* or *work-at-home* worker (OPM, 2015). Nilles (1997), a pioneer of telework research, first define telework as a working course of action that permits workers to work at locations other than a central office by using information communication technology (ICT) to perform their jobs in organzations.

Teleworking within organizations has created a new method of work through advanced information technology (IT) infrastructures. The International Association of Teleworking defines telework as a type of job configuration in which the employees are flexible in terms of time (part-time or full-time), the location (home, remote sites, or mobile form) by using IT capabilities (Ghanbari & Bakhtjoo, 2011). According to Schnijdirberg (2011), telework provides a solution for satellite offices and mobile workplace in a flexible form that allows the completion of remaining work on holidays or at night.

Researchers have examined satisfaction and perceptions of telework from different perspectives. Results appear to reach a wide range of conclusions. Research reporting negative experiences with telework include a study in which employees reported high levels of job insecurity (Antoniou & Cooper, 2013) and pressure to work

longer hours (Wooden & Fok, 2013). Remote work has also been found to increase level of job stress, work overload, burnout and dissatisfaction have increased in various occupations and professions (Leana, and Meuris, 2015) over the past 2 decades.

By comparison, some researchers have noted that telework programs can extend profits, increase productivity, and carry numerous other benefits (Albiero, Verive, Cooper, and Knott, 2010). Caillier (2014) found evidence that a relationship exists between employee satisfaction and telework programs although social interaction and technical support were not considered when measuring the level of job satisfaction among employees.

Telework includes working away from the general working environment and utilizing Information and Communications Technology (ICT) to remain connected for interchanges with the office (Nof, Ceroni, Jeong, & Moghaddam, 2015). Telework gives employees more control over their time, adaptability, and other associated benefits. Examples of benefits associated with telework include reduction in work-family conflicts and stress (Wright et al., 2014), increases in job satisfaction, productivity, and performance (Allen, Golden, & Shockley, 2015), as well as cost and time savings (Scott, Dam, Páez, & Wilton, 2012) to the organization.

Researchers have studied the constraints which affect the implementation of telework by organizations (Asgari, Jin, & Mohseni, 2014; Ojala, Nätti, & Anttila, 2014). A study on the effects of teleworking arrangements in government and found that administrators were less likely to resign from their position is they were offered the opportunity to telecommute (Caillier, 2014). Beham, Baierl, and Poelmans (2014)

observed that middle manager's ability to adapt to cultural changes were the most important barrier to productivity. Hosseinnezhad (2013) found that the absence of suitable facilities, technical infrastructures, and maintenance of personnel could interfere with the ability of a telework program to flourish. In a report to the Congress by the United States Office of Personnel Management, the Status of Telework in the Federal Government (2013) pointed out that Federal agencies, such as USDA, reported a number of barriers with their capacity to support remote work. Federal agencies have attempted several creative ideas to overcome barriers including (a) addressing management safety, (b) making laptop imparting programs, and (c) minimizing data security dangers by installing RSA tokens (Gordon, 2015). Telework arrangement is significant important in understanding the day-to-day operation of an organization.

Research by Pham (2010) showed that managers in Australia and New Zealand are inclined not to trust telework performance. Approximately half of the administrators in those nations believed that telework implementation is responsible for the underperformance of employees in organizations (Pham). Wright (2015) attributed the tendency of teleworkers to work longer hour to the internalization of competitive pressures on the worker. Other studies reported that home-based workers (Gregg, 2011) found it difficult to withdraw from work.

Some researchers have found that most employees do not have any interest in teleworking because they believe that telework benefits employers and not the employees (Shahangian, 2007). According to the findings of experimental studies conducted by Schnijdirberg (2011), employees who telework feel considerably less impacted by

organizational control than employees who work in the workplace. Authoritative control was also found to be strongly associated with employee satisfaction (Jackson, Alberti, & Snipes, 2014). Schnijdirberg discussed that excessive administrative control has a negative effect on the teleworkers.

Dominique (2010) concluded that the main factors that affect perceptions of teleworking are (a) the length of time spent commuting to work, (b) ones attitudes towards telework, and (c) fear that teleworking will negatively impact one's position in an organization. In addition, Dominique noted that modern telework systems were perceived to require employees to work more hours. According to Lister and Harnish (2011), it will not take long before telework will become the most common mode of work for innovative organizations based in the United States. Scholefield and Peel (2009) noticed that the absence of both social support and technical support are significant drawbacks for individuals who work from home. Consequently, it is imperative that teleworkers have some knowledge of IT.

Naser (2015) reported some technical factors in implementing telework including a fast computer with network, internet, and intranet capabilities. These technical factors, in addition to access to the needed software, hardware, and data protection, were linked to psychological and social aspects of remote employment (Cascio & Monealegre, 2016). Chukwudi and Daddie (2015) reported the negative effects of telework included (a) struggling between work and home time, (b) feeling isolated from workplace social network, and (c) inadequate equipment and/or lack of technical support. Wyrzykowska (2014) suggested the importance of security risks for both the employer and employees.

He reported that spatial dislocation, temporal dislocations, data utilization, and innovative correspondence served as the primary causes of risk (Wyrzykowska, 2014).

Employers reported fearing the inability to provide ongoing supervision over teleworkers, or assuring ongoing communication and information exchange (Weinert, Maier, & Laumer, 2015). The literature consistently cites social seclusion as the most negative factor of teleworking (Harrington & Santiago, 2015; Schulte, 2015; Vesala & Tuomivaara, 2015). Mann and Holdsworth (2003) suggested that isolation due to teleworking cuts down the relationships with coworkers and friends and in turn, prevents emotional support from fellow workers to cope with the difficult situations. Sardeshmukh, Sharma, and Golden (2012) reinforced that teleworking and electronic communication typically had a negative influence on social support received from the help desk and coworkers.

Technologies permit workers considerably more flexibility in dealing with work limits. Dal Fiore, Mokhtarian, Salomon, & Singer (2014) argued that the impact of portable innovations on social connections and social networks as a vital part of telework arrangements have been noted. Although mobile technology influences social networks in telework, according to Harrington and Santiago (2015), social isolation happens when teleworkers expect that they will be by passed for promotions or compensation and they also noted that modifications in administrative oversight of remote employees in telework arrangements has been minimal. The impact of authoritative management needs to be appreciated in the context of personal satisfaction, work life, and professional isolation (Harrington & Santiago, 2015) of the virtual work arrangements.

Background of the Study

According to a study conducted by Commuter Connections, 27% of the workforce in Washington, D.C., reported working remotely at least occasionally (Red River, 2015). This figure is nearly triple that of 2001 figures (Forbes, 2013). In 2012, an estimated 2.6% of the entire U.S. workforce or 3.3 million people telecommuted and/or considered their homes as the primary places of work. Approximately 13.4 million people, or about one-tenth of the entire US workforce, works no less than 1 full workday at home (Mateyka, Rapino, & Landivar, 2012). The focus of this study is to measure the relationship between perceived levels of telework efficiency, social interaction, technical support, and overall acceptance of telework by employees who work remotely versus the office location.

Harandi and Ghafari (2012) suggested that most current empirical research neglects to address the factors that affect dissatisfaction of teleworking employees. Research on the relationships between perceived levels of telework efficiency, social interaction, and technical support. This study was conducted in response to the literature gap and may help organizations better understand which aspects of telework is perceived favorably (Harandi & Ghafari, 2012) by those who carry out their work at the office or remotely.

Problem Statement

Despite the wide acceptance of teleworking, telework has some negative effects for employees (Weinert et al., 2015). Employees hesitate to telework due to worries concerning potential negative outcomes identified by research such as exhaustion

(Weinert et al., 2015) and social isolation (Wyrzykowska, 2014). Wyrzykowska (2014), defined social isolation as employee being separated from the world of discussions, interactions, lack of contact with superiors, and a reduced possibility of career advancement.

Status of Telework in the Federal Government (2013) reported that 19% of employees did not want to engage in the telework system because of concern over being overworked. The general business problem was lack of understanding comparative perceived levels of telework efficiency, social interaction, technical support, and workplace (office or telework) location. The specific business problem was understanding this dynamic as the increase in telework or remote work continues to become more commonplace during the digital era.

Purpose of the Study

This research study was conducted to examine the relationships among perceived levels of telework efficiency, social interaction, technical support, and workplace (office or telework) location among employees who work in an office versus a remote setting. Findings may provide employees useful information in identifying barriers and facilitators in organizational telework programs. This correlational study examined the relationship between perceived levels of telework, social interaction, and technical support among office versus teleworkers. A Pearson's Correlation, *t* tests, and regression analysis were conducted to test the relationship between the independent and dependent variables and to measure differences in the perceptions of workplace factors among employees who work in the office location versus telework. The independent

variable is the respondent's workplace (office or telework) location. Dependent variables include perceived levels of telework efficiency, social interaction, and technical support. Telework efficiency is regarded as the general performance and productivity of employees working from home or chosen remote location. Wyrzykowska (2014) suggested that social interaction is separation from discussions, interactions, superiors, and opportunities.

Technical support reflects assistance provided with technology such as trouble shooting network connectivity, computer hardware, software, and other personal computer problems (Joice, 2007). The study population of interest consisted of employees of the United States Department of Agriculture (USDA), Southeast Regional location. This research may promote positive social change by identifying comparative perceptions of factors that act to support or constraints the practice of telework during the digital era.

Research Question(s) and Hypotheses

The overarching question sought to examine the relationships between perceptions of telework and the workplace (office or telework) location of the respondent.

RQ1. What is the relationship between perceived level of telework efficiency and the workplace (office or telework) location of the respondent?

RQ2. What is the relationship between perceived level of social interaction and the workplace (office or telework) location n of the respondent?

RQ3. What is the relationship between perceived level of technical support and the workplace (office or telework) location of the respondent?

The following hypotheses were tested in this study:

$H_0$1: There is no relationship between perceived level of telework efficiency and the workplace (office or telework) location of the respondent.

H_a1: There is a significant relationship between perceived level of telework efficiency and the workplace (office or telework) location of the respondent.

$H_0$2: There is no relationship between perceived level of social interaction and the workplace (office or telework) location of the respondent.

H_a2: There is a significant relationship between perceived level of social interaction and the workplace (office or telework) location of the respondent.

$H_0$3: There is no relationship between perceived level of technical support and the workplace (office or telework) location of the respondent.

H_a3: There is a significant relationship between perceived level of technical support and the workplace (office or telework) location of the respondent.

Theoretical Foundation

The theory of constraints (TOC) was used to guide this study. The TOC was developed by Goldratt in 1984 (Holmen, 1995). Shams-ur-Rahman (1998) noted that anything that may limit a system to achieve better function is known as constraint. The primary components in the theory (a) identify the constraint, (b) decide how to exploit constraints (c) subordinate other steps, (d) elevate constraints, and (e) repeat and correct the entire process. These five components are discussed further in Chapter 2.

In this study, the TOC was used to address the problem in understanding the potential constraints effecting telework utilization in the context of relationships among (a) perceived levels of telework efficiency, (b) perceived level of social interaction, and (c) perceived level of technical support by respondents electing to work either in the office or telework.

The TOC has been successfully used to improve performance in a host of manufacturing industries, financial institutions, health services, education systems, and nonprofit entities (Myrelid, & Olhager, 2015). Albiero et al. (2010) considered telework programs as a systematic method of using a home-based workforce to benefit and reduce the operational costs of organizations. Researchers have placed much emphasis on examining the decision making process involved with managing constraints and improving performance and productivity (Gupta, Sahi, & Chahal, 2013; Librelato, Lacerda, Rodrigues, & Veit, 2014; Sadat, Carter, & Golden, 2013) in organization.

A constraint is an element of a system that acts to bottleneck performance and productivity (Spector, 2011). This understanding of systems and constraints caused Goldratt to challenge conventional thinking about the crippling impact nonconstraints can have on a system's performance and productivity (Spector, 2011). This is the core of TOC and establishes that uncontrolled nonconstraints can adversely affect constraints (bottlenecks) to the system's detriment (Tulasi & Rao, 2012). The TOC is therefore a tool that helps identify constraints and adopt solutions to systems such as telework programs. As depicted in Figure 1, the TOC cycle is able to illustrate how the ability of management to achieve organizational goals is limited by constraints (Oakley, Salam, &

Iyer, 2013). TOC uses a focused process to identify the constraints and restructure the organization around them (Pires, Fidélis, & Ramos, 2014). TOC adopts the common idiom "a chain is no stronger than its weakest link" (Jayachandran & Kannan, 2015, p. 491). This suggests that processes and organizations are vulnerable because the weakest part can always damage the outcome. The format contextualizes the challenges often faced when managing the elements or constraints that influence the performance of an organization.

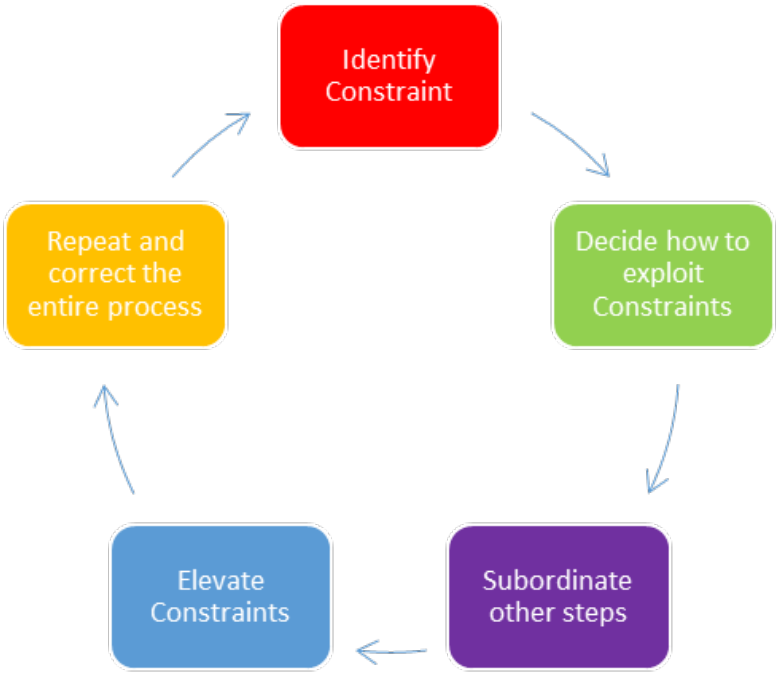

Figure 1. Theory of Constraints (TOC) cycle.

Nature of the Study

A quantitative correlational method was selected for this study to help identify the relationship between the variables of interest which include perceived level of telework efficiency, social interaction, technical support, and workplace (office or telework)

location. The study population consisted of USDA employees. The sample of 38 individuals represented federal employees who work at either the office or telework location. A purposive sampling technique was used and relied on the judgment of the researcher in selecting the respondents to be studied from which statistical inferences from the population of interest could be made (Barratt, Ferris, & Lenton, 2015).

Permission of the USDA to contact and invite a sample of employees to participate in this study was granted (see Appendix C). All potential participants received an e-mail that clarified the purpose of the investigation and outlined the criteria for participation, assurance for maintaining anonymity, potential risks, benefits, informed consent, and a hyperlink to access the questionnaire.

Definitions

The following operational definitions were used to guide this study.

Level social interaction: An exchange between two or more individuals and is a building block of society. Social interaction can exist between two (dyads), three (triads) or larger social groups. By interacting with one another, people design rules, institutions and systems within which they seek to live or work. Social Interactions can be compromised if one is cut off from communication with colleagues, supervisors, or managers (Golden, Vega, & Dino, 2008) and if enthusiastic and emotional aspects of interaction are not met.

Level of technical support: The level of infrastructure for telework and technology (software, hardware, connectivity, inter/intranet, and personal computer) support for teleworkers (Pham, 2010) at USDA.

Level of telework efficiency: Productivity, innovation, outcomes, and hours spent to complete tasks among remote workers. Collaboration, communication, trust, and reinforcement of rules are also considered (Fortune, 2015).

Nonteleworker/office worker: Any USDA employee who work only at a central office.

Teleworker: Any USDA employee who works at a location in a location other than the main office (Watad and Will, 2003).

Assumptions

Several assumptions are made in this study and include: (a) participants provide truthful responses, (b) participants read the criteria before completing the survey, and (c) information from the online survey adequately answer the research questions. The theoretical framework is assumed to be the correct guide for the phenomena being investigated. Therefore, the outcomes of this study are restricted to the phenomena studied. Another assumption is that all variables defined in the study are measurable and the instrument used was a valid and reliable in reflecting those variables.

Scope and Delimitations/ Limitations

Delimitations and limitations for a research study establish the boundaries, exceptions, reservations, and qualifications inherent in every study (Simon, 2011). The limitation of this study included study participation from one USDA site, therefore results may not be applicable to all USDA or Federal Government offices. Finally, an online survey method (Pan, Woodside, & Meng, 2014) generally is associated with the risk of low response rate.

Delimitations in research refer to choices under the control of the researcher (Simon & Goes, 2013). The researcher chose to conduct a correlation study to examine the relationships among perceived levels of telework efficiency, social interaction, technical support, and workplace (office or telework) location. A nonprobability sampling technique was used and participants were selected based on the discretion of the researcher. The most critical delimitation is the rationalizations, decisions, and conclusions made by the researcher based on outcomes.

The limitations of the study are those characteristics of design or methodology that impact or influence the interpretation of the findings from the research (Bryman & Bell, 2015). A quantitative approach was assumed to be beneficial for minimizing data collection time. The sample size studied is assumed to be adequate for making statistical inferences and avoiding both Type I and Type II errors. Finally, it is realized that constraints are generalizability, applications to practice, and/or utility of findings for other Federal organizations in other locations. Another limitation of this study is the researcher bias because of the researcher is a current federal employee. The goal to reduce this bias is to follow the IRB ethical standards along with U.S. federal regulations.

A purposive sampling method which is a nonprobability sampling method technique may be considered a limitation of the study. The sampling method takes into consideration the attributes or factors of the desired population to study and relies on the researcher for subjective selection. Since the participants were limited to one agency and one main office location, results may not be generalizable to all employees at other USDA sites or Federal agencies.

Significance of the Study

Though telework researchers have begun to address problems with network security (James & Griffiths, 2014), administrative trust (Burbach & Day, 2012; Karia & Asaari, 2016), social isolation (Anderson, Kaplan, & Vega, 2014; Scott et al., 2012) and work-life balance (Grant, Wallace, & Spurgeon, 2013; Hilbrecht, Shaw, Johnson, & Andrey, 2013), few empirical researchers (Martin & MacDonnell, 2012; Robertson, Schleifer, & Huang, 2012; Weinert, Maier, Laumer, & Weitzel, 2014) have studied telework performance. Moreover, as the number of teleworkers continues to rise, organizational challenges (Fonner & Roloff, 2012) become more widespread.

Studies have examined the attitudes, values, and behaviors of teleworkers (Golden, 2007; Hynes, 2014). However, research that specifically examines perceived level of telework efficiency, level of social interaction, and level of technical support among workers are just beginning to emerge (Alizadeh, 2012). The findings from this study may contribute to the limited body of scholarly literature on the relationship between these perceptual concepts and the location in which an employee works. Findings may assist to further understand potential constraints for establishing or promoting new organizational telework programs and policies.

Significance to Theory

The TOC was used as the framework to guide this study to help identify the potential constraints for establishing or promoting telework programs and policies. The finding through the theoretical framework have helped to identify factors in level of

perceived telework efficiency, social interaction, and technical support among telework and office workers.

A number of scholars believe that complex systems are best understood through their constraints (Techt, 2014). A telework program is a complex system that allows employees to work away from the primary office in order to increase performance and save cost (Karia & Asaari, 2016). An organization that identifies one or more constraints can avoid conversion into a telework-based establishment (Mahler, 2012). According to Pereira, Pacheco, Henrique, and Rafael (2014), the TOC is also valuable in addressing issues for improving upper management. Leaders are expected to consider the impact of constraints (Naor, Bernardes, & Colman, 2013; Sadat et al., 2013; Yao, 2012) on accomplishing or delaying management goals .

Significance to Practice

Outcomes of the study can potentially contribute to understanding what aspects of telework might help drive an employee to work at a central location or remotely. Findings may aid in an organizational transition from the traditional age to the information age. This type of adaptation is greatly dependent on managements' ability to guide, design, and implement new telework procedures and policies (Harandi & Ghaffari, 2012). The findings of this study may provide valuable information needed for managing such change.

Significance to Social Change

Telework has increasingly become the preferred modality of work, providing many employees flexibility and opportunities for those constrained by travel, scheduling,

family obligations, and disabilities (Meshur, 2015). Findings of this study therefore has the capacity to effect social change in the context of how telework is perceived, implemented, and promoted as an efficient and more inclusive employment option for many individuals. Implementing plans and strategies that encourage rich social discussions is important to optimal leveraging the telework arena. Findings may provide opportunities to create program for part-time teleworkers. Other potential outcomes of positive social change in this study may include (a) understanding the barriers to implementing telework, (b) improving the practice of effective telework programs, and (c) promoting a system of work that is more inclusive of individuals potentially excluded from traditional work systems.

Summary and Transition

Chapter 1 provided historical background on telework. Emphasis was given to the need of telework practices by the federal government. Current and scholarly literature on telework, telework implementation, and TOC were discussed. The information provided a foundation to support the study's statement of the problem and the purpose of the study. The study was designed to fill a significant gap in current research regarding comparative perceptions of telework among office workers and teleworkers.

Chapter 2 presented a comprehensive literature review surrounding the research topic. The studies discussed are relevant to understanding the perceived level of telework efficiency, level of social interaction and level of technical support experienced by workers of numerous organizations. The chapter builds upon the TOC framework introduced in Chapter 1 and explains how telework has changed essential foundations of

the job satisfaction in companies and organizations. Chapter 2 contextualized this study within the larger telework literature and offers further validation for investigating the relationship among the study variables.

Chapter 3 operationalized variables, described the research design, comprehensive sample selection, instruments to be utilized, data collection techniques, and statistical procedures for hypothesis testing. In this chapter, the methodology used to answer the research questions and test three hypotheses is describe. Information on the survey instrument, the data collection and analysis processes, and steps taken to guarantee that ethical protection of research participants was given.

Chapter 4 described the outcomes of respondent (N=38) perceptions of constraints and uses the outcomes to answer the research questions and hypotheses. The results of the Pearson's Correlation, t tests, and regression analysis, were reported, presented in table and graph formats. Outcomes were used to reject or fail to reject each the null hypothesis statements of no difference between respondent subgroups.

Chapter 5 discussed the research findings within the context of recommendations for action, areas for future research, and social change.

Chapter 2: Literature Review

The general business problem was lack of understanding comparative perceived levels of telework efficiency, social interaction, technical support, and workplace (office or telework) location. The specific business problem was understanding this dynamic as the increase in telework or remote work continues to become more commonplace during the digital era. The purpose of this quantitative correlation study was to examine the relationships in perceived levels of telework efficiency, social interaction, technical support, and workplace (office or telework) location.

Chapter 2 provides a review of literature relating to the topic and is divided into the following sections: (a) an overview of the historical mission of telework; (b) telework efficiency; (c) social interaction; and (d) technical support. TOC is discussed in this chapter. In spite of significant increase in telework, a review of literature revealed a lack of information on factors that affect level of telework acceptance; the chapter synthesized research studies and paradigms on perceived levels of telework efficiency, social interaction, and technical support that inform the understanding of telework acceptance and adaption among workplace (office or telework) location.

Literature Search Strategy

The sources for the literature review comprised of journal articles, websites, and dissertations. Journal articles were retrieved through Walden University library and Google scholar search engine. Keywords and phrases included *telework, telecommuting, virtual office, technology, telework security, work/life balance, advantage and disadvantage of telework, top management support, level of telework efficiency, level of*

social interaction, level of technical support, telework risk, and other variations. A total of 192 recent articles and websites were identified as appropriate to use for this study.

Theoretical Framework

Several theories can be used to guide this study. Among them are the technology acceptance model (Teo, & Noyes, 2011) and unified theory of acceptance (Al-Haderi, 2013), both which have been utilized to investigate telework program implementation. However, this study utilized the TOC to help identify potential problems and provide a better understanding of the process involved with developing and guiding a successful telework program.

Technology Acceptance Model

The technology acceptance model (TAM) is a model that addresses how users accept and use a technology. TAM has been found in many studies under different conditions, across genders, and cultures (Venkatesh & Johnson, 2002). This model is used to study the influence of perceived usefulness and ease of technology use (Teo & Noyes, 2011) in organization.

Aboelmaged and El Subbaugh (2012) used TAM to highlight the significant part of unique authoritative factors influencing Egyptian teleworkers. The authors found that a key determinant of perceived productivity was job security. It was also noted that information systems theory described how users come to accept long term utilization of a technology (Hevner & Chatterjee, 2010). While the acceptance of technology was demonstrated, potential constraints interfering with higher rates of telework implementation failed to be addressed (Pérez Pérez, Martínez Sánchez, de Luis Carnicer,

& José Vela Jiménez, 2004). This study used the TOC to help identify potential problems and provide a better understanding of the process involved with developing and guiding a successful telework program.

Unified Theory of Acceptance

The unified theory of acceptance and use of technology (UTAUT) is an engineering organization acknowledgement model figured by Venkatesh, Morris, Davis, and Davis (2003). The UTAUT aims to illustrate client intentions to utilize a data framework and ensuing conduct technique. It holds that four main constructs including: (a) execution expectancy, (b) exertion expectancy, (c) social influence, and (d) encouraging conditions, are determinants for planning and utilization practices (Teo, 2011). Gender, age, and experience are also moderators that impact use behaviors (Venkatesh & Morris, 2000). The theory was developed to explain information systems usage while considering behavioral theories such as theory of reasoned action, diffusion of innovations, and social-cognitive theory (Venkatesh et al, 2003). The UTAUT focus a goal on four main constructs that aims in planning and using practices, while this study focused on identifying constraints to help understand the process involved with developing and guiding a successful telework program.

Theory of Constraints

Goldratt developed the TOC in the 80s in response to an interest in the logistics of production (Spector, 2011). TOC is applied as a method to manage production. It considers that human beings do not have the time or resources to do all the right things, all the time (Pindek & Spector, 2016). It also estimates that approximately 80% of the

impact of any product depends on 20% of the company's operating resources (Thomas, Barton, & Chuke-Okafor, 2008). When applied to telework systems (Naor et al., 2013), it becomes clear that numerous interdependent elements can potentially act as constraints to hinder the system's performance.

The first step of TOC is to identify constraints (Rahman, 1998). Almeida, Penaforte, and Yamashita (2013) stated that every system has one or more constraints. Pretorius (2014) noted that theTOC attributes widespread knowledge in teaching, consulting, and implementing of the constraint. Santos, Romero, Arcelus, and Errasti (2011) positioned TOC to promote holistic, capacity-building learning structures. Identifying constraints have evolved to become a management discipline which governs organizational learning (Mawhinney, 2013). Physical constraints are more easily detected, whereas policy-related constraints are often beyond the control of companies (Golden & Raghuram, 2010). Recognizing the significance of identifying constraints and prioritizing (Shams-ur-Rahman, 1998) them according to their impact on organizational goals was also stressed.

Orttung and Overland (2011) explained the relationships between patterns of behavior and structure of a system's anchor paradigms. An example of one of paradigm used to identify constraints is the system process (Nave, 2002). Rivera-Rodriguez et al. (2013) defined system process as the function in a state of change, which can generate strengths and weaknesses within the components of the system. Therefore, identifying the constraints leads to deciding on how to exploit the constraints in a system. It has also been noted that proper identification of a constraint (Gupta et al., 2013) represents an

opportunity for improvement.

Use of TOC is a continuous process. The first step is to identify the constraints. The second step is to decide how to exploit constraints. Pham (2010) recognized that a system with less capacity to meet demands must strive to increase capacity, thereby eliminating it as a constraint. Shams-ur-Rahman (1998) argues that the objective is to use physical constraints as effectively as possible. However, if the constraint is managerial, it likely requires being replaced with a new policy (Nave 2002). This study focused on identifying constraints to support the process included with developing and managing a effective telework program.

The third step described by Nave (2002) involves adjustments to maximize effectiveness in spite of constraints. The fourth step is elevate constraints which is required if prior improvements made in the system are not acceptable or a major financial expense (Şimşit, Günay, and Vayvay, 2014). The fifth is step is to repeat and correct the entire process (Nave 2002). Gupta et al. (2013) indicated that if any of the prior steps a constraint are broken then going back to Step 1 is required.

A major aspect of using TOC approach is to realize that no arrangement or result may be proper for every circumstance (Nave, 2002). It will be discriminating for those associations to distinguish benefits of organizational changes; organizational strategies must be refined with taking in account from claiming the individuals' transforms (Bailey & Kurland, 2002). Failure to actualize all the 5 steps might lead an association to catastrophe (Rahman, 1998). Any procedure can be enhanced, providing sufficient time, exertion, and assets. The essential inquiry is from the place of improvement to the

change movement (Nave, 2002). The process about progressing change aids in communication prioritize improvement efforts by stating what should be improved in the bottleneck first (Rahman, 1998). Similarly, the causes of quality problems at the postbottleneck (Şimşit, Günay, & Vayvay, 2014) operations should be rectified.

Literature Review

In order to get a clear understanding of the historical factors of telework, it is first necessary to understand its role in the workplace. The idea of the working environment will be broadened past physical limitations and includes individuals who cooperate outside the working environment controlled by an authoritative framework (Putnam, Myers, & Gailliard, 2013). Alternatively, telework, or working from home, may be a standard of how innovative organizations influence authoritative administration. IT infrastructures enabled the opportunity to improve productivity and effectiveness with emerging telework in the 1990s (Watad & Will, 2003). Telecommuting, telework, and the virtual office function interchangeably and mention that individuals can work from home or a location (Siha & Monroe, 2006; Kim & Juan, 2014; Peters, Poutsma, Van der Heijden, Bakker, & Bruijn, 2014) other than a central office.

The widespread phenomenon of telework requires significant investigative organizational and academic study (Bailey & Kurland, 2002; Gajendran & Harrison, 2007; Hill & Fellows, 2014). Azarbouyeh and Naini (2014) conducted an empirical investigation of teleworking on demographic factors such as age, gender, job position, and job experience. While some studies have not found a relationship between demographics, telework, and quality of life, other studies have found a clear relationship

between telework and work induced family conflict (Golden, Veiga, & Simsek, 2006; Hilbrecht et al., 2013). Telework can be used similarly as a method for delivering additional market developments. Telework is also more likely to facilitate hiring capabilities of a skilled workforce during shortages (Azarbouyeh & Naini, 2014) of work availability and office space.

Nilles (1997) proposed that decreasing time and distance traveled by allowing work from home was another important advantage. Furthermore, it could alleviate fuel consumption issues (Rau & Hyland, 2002). Anderson et al. (2014) also suggested that other locations including hotels, field offices, or even the individual's automobile, can be used as potential work sites. They suggested that remote work can involve an assortment of options, improve systems administration, innovative developments and may occur any place, so long as the workplace (Venkatesh & Johnson, 2002) is enabled with connectivity and is firewall secured.

Belzunegui, Erro, and Pastor (2014) identified that telework has become an instrument that generates acceptance as tasks move forward through inter and intra organizational correspondence. In addition, the creation of coordinated network efforts is promoted (Belzunegui, Erro, & Pastor , 2014). Expanding telework investment has been attributed to engineering organizations, authoritative assurances, and strategies (O'Neill, Hambley, & Chatellier, 2014; Vesala & Tuomivaara, 2015) that transform how work areas are viewed.

Additionally, telework cooperation requires new management and authoritative challenges, putting employee/manager relationships at the center of emphasis (Kojo &

Nenonen, 2015). The negative side of telework effects potential growth in organizations (Greer & Payne, 2014). Therefore, productivity is appreciated when technology integration (Mupepi, & Mupepi, 2014) is valued ban organization.

The majority of telework research studies have centered on worker perceptions of occupation improvement (Greenhaus & Kossek, 2014; O'Neill et al., 2014) and linked with value (Caillier, 2014) and performance management (Coenen & Kok, 2014). It can be argued that traditional management skills, trust, dialogs looking into occupation improvement, maintained communication, and inspiration are imperative. However, it is also essential to view the virtual work environment as requiring an alternate methodology to administration practices (Bailey & Kurland, 2002; Vesala, & Tuomivaara, 2015). Research studies have focused on the benefits of telework on wellbeing, while benefits related to productivity and cost efficiency (Galvez, Martinez, & Perez, 2012; Bosua, Gloet, Kurnia, Mendoza, & Yong, 2013; Corrêa, 2013; Duxbury & Halinski, 2014) of an organization have also been highly considered. This study methodology was to identify constraints to enhance or improve telework practices and program.

Telework Benefit

Ko and Hur (2014) argued that employee benefits and trustworthiness lead the mission foci of organizations and successful outcomes based on new strategies (Greer and Payne, 2014). Vesala and Tuomivaara (2015) noted that organizational benefits of teleworking include growth efficiency, operational savings, innovative hiring options, and increased capability to make organizational adjustments. Unplanned telework

programs (Cha & Cha, 2014) experience issues and limitations that are more about cost-benefits rather than benefits to employers.

According to Rabiee, Taghi Amini, and Pirayesh (2014), telework improves performance, the balance between professional responsibilities, and personal commitments. Davis and Cates (2013) found a statistically significant relationship between genders, while Dehabadi, Shokri, Ganbarvand, and Sohrabi (2014) found that other demographic factors influence the use of telework in organizations.

Bratton (2013) reviewed literature about downsizing government and found many federal employees were motivated by the potential benefits of telework. In a study conducted by Yinat (2014) a multivariate regression analysis was conducted to measure the relationship between leadership-knowledge, management, performance management, and talent management as predictors of (a) participation, (b) productivity, and (c) job satisfaction among U.S Federal Government employees. The results revealed significant relationships between telework productivity and job satisfaction as a result of perceived managerial performance practices.

Martin and MacDonnell (2012) explored the integration of telework on organizational outcomes with the aim of the understanding its effectiveness for organizations. Ojala and Pyöriä, (2015) considered telework productivity when all people involved know what to expect and are prepared to deal with any issues and fears associated with a new work environment. Waters (2015) examined the pros and cons that are considered by an experienced telecommuter. It has been suggested that few researchers differ in their perspectives on the positive benefits of teleworking

(Rasmussen and Corbett, 2008), although the actual occurrence of these benefits is less certain.

Upper Management Support

Upper management must understand the value and benefits of telework in order to support use of new programs. Siha and Monroe (2006) suggested that upper management support is a primary factor for the successful execution of a telework program. According to Dahlstrom (2013), telework presents distinctive challenges for workers, managers, and human resources departments. Challenges involve managements' perceptions of how employees relate to the organization and show their commitments to the telework process.

Raghuram and Fang (2014) examined the relationship between the power of management and telecommuting intensity in China. The outcomes showed that telecommuting intensity is high when subordinates perceive their supervisors' power as high. Reijers, Vanderfeesten, and van der Aalst (2016) hypothesized and found empirical support for the moderating effect of task interdependence on the relationship between management support and implementation success. Štemberger, Manfreda, and Kovačič (2011) argued that the IT gap present in many companies is often attributed to a lack of upper management support for new initiatives.

Telework Efficiency

Researchers have investigated possible relationships among levels of telework, or time spent working remotely, and specific individual outcomes. A significant part of telework involves frequency which is measured in terms of the average number of days

employees (Kane, 2014; Shekarchizadeh, Ghasemi, Tadi, Soltani, & Nili, 2015; Weinert et. al, 2015) work remotely per week.

According to a report released in 2012, a total of 67,511 federal employees teleworked at least three days per week. The USDA, which is the target population reported that 45% of all its eligible employees (Status of Telework in the Federal Government, 2013) teleworked that year.

Kane (2014) predicted that telework frequency is positively related to professional isolation and that telework frequency influences personal isolation, and consequently, organizational outcomes. Golden (2005) examined 321 professional-level teleworkers and found a negative relationship between telework frequency and job satisfaction. The authors used a hierarchal regression model which estimated that job satisfaction increased with the initial experience of telework, however, as teleworking (frequency) reached higher levels, satisfaction started to level off and eventually declined.

Gajendran and Harrison (2007) reported that employees who telecommute more than 2.5 days per week tend to report lower-quality coworker relationships. Greer and Payne (2014) noted that full-time teleworkers are more likely to experience challenges communicating with supervisors and coworkers. Meanwhile, employees who work a percentage of the work week at the centralized office report the chance to build face to face communication that produce positive connections (Payne, 2014). Halford (2005) reported that employees who worked 2 to 3 days per week from home and the remaining days at the traditional centralized office felt that their face-to-face interactions meet various needs, confirming a significant correlation between telework frequency and

perceived need for face-to-face communications. In a study of *N*=393 teleworkers in one organization, Golden (2007) found that as frequency increased, job satisfaction increased, and turnover decreased while working overtime at home might be more likely to cause family life disruptions.

More regular telework also had a negative impact on employees' sense of connectedness with an organization (Caillier, 2014). A review of the literature on telework revealed that isolation is one of the greatest challenges facing leaders of virtual organizations (Bailey & Kurland, 2002).. The link between telework frequency and feelings of isolation while working away from a central office location is not significant among those who work remotely on an infrequent basis (Bailey & Kurland, 2002). Caillier (2014) discovered that frequent teleworkers were less motivated and therefore, less productive than were infrequent teleworkers.

Social Interaction

It has been suggested that techniques might be used to reduce the social isolation experienced when employees who telework on a full-time basis (Weinert et al., 2015). Ojala and Pyöriä (2015) suggested that managers provide opportunities for engaging employees in informal social activities and meetings. While telework may benefit teleworkers by improving their time flexibility and increasing independence, it may generate feelings of isolation, difficulties with separating home life from work life (Weinert et al., 2015), and concern about equality between themselves and traditional workers.

Many positive anecdotal reports concerning telework state that separating employees from each other may interfere with effective communication (Vesala & Tuomivaara, 2015). Yahaya, Basir, and Deraman (2015) identified numerous factors that impact effective communication. Among the many matters, include predictable, dependable and clear collaboration, use of proper media, structured work efforts, pro-social behavior, and sensitivity to linguistic and social differences (Yahaya et al., 2015). Others agreed that increased isolation and decreased face-to-face interactions cause potentially damaging separation (Vesala & Tuomivaara, 2015) from coworkers and managers.

Employees' feelings of social isolation are a major challenge associated with home-based telework (Bailey & Kurland, 2002). Mann and Holdsworth (2003) noted that employees who have lost their bond with their organization, struggle with loneliness. Professional isolation, reduced office influence, blurred work/life balance, an unfavorable home work environment, and disconnect from organizational culture are among other negative social effects noted (Belle, Burley, & Long, 2015; Harrington & Santiago, 2015) while results of a study by Weinert et al. (2015) found that telework induced stressors such as social isolation, increase exhaustion and turnover intention.

Lavigne, Vallerand, and Crevier-Braud (2011) identified that individuals with a higher need to belong tend to have greater social anxiety, fear of rejection and a lower self-esteem. A study by Fitness (2008) examined teleworkers' fear of isolation from their colleagues. A loss of the direct ability to share ideas, grow the intellectual capital

for the company, and loss of information transfer in a timely manner, were cited as problematic (Fitness, 2008).

Rasmussen and Corbett (2008) found that low acceptance of telework in New Zealand could be explained by the negative impact loss of one person from the office had on small businesses. Golden (2007) found that exhaustion and high work-to-family conflict and was worse for individuals who telework during traditional work hours.

Level of Technical Support

Level of technical support is defined in this study as the infrastructure and level of technology to help teleworkers. Waters (2015) recommended that teleworkers should have more than one computer, high speed wireless broadband, cellular telephone, and access to equipment such as fax, copy machine, scanner and printer. Nearly a decade ago, Siha and Monroe (2006) identified technology and telework as rapidly increasing in importance to the labor industry. In spite of its importance a decade ago, they also found that the number of studies concerning level of technology (Siha and Monroe, 2006) was limited and did not fully reflect changes in the labor market during this period.

Bernardino, Roglio, and Del Corso (2012) identified guidelines for the implementation and management of telecommuting as an alternative to overcome the shortage of qualified professionals in IT. However, Vesala, and Tuomivaara (2015) found that a limited infrastructure in help, e.g. secretaries, support personnel, and technical support can deter a telework program. Cha and Cha (2014) noted the common challenges to a successful implementation of telework program are IT, security, training, management practices, safety, and liability. Technology is the backbone of a teleworking

program. However, due to market competition many organizations choose not to openly share their innovative practices (Harandi & Ghafari, 2012) for employees.

The telework was introduced during the technical boom of the 1980s and 1990s. Researchers suggest ICT played a primary contributing role in the rapid increase in teleworkers during this earlier period (Vitola & Baltina, 2013). A review of the literature on telework has shown that the primary focus of research has been mostly on technological and managerial issues (Bélanger, Watson-Manheim, & Swan, 2013; Bernardino et al., 2012) of control and surveillance and not on identifying constraints on technological and managerial systems.

Advances in ICTs in the mobility of computing power and virtual private networking (VPN) abilities, have provided unique flexibility regarding how and where work is performed. Employees, particularly those in knowledge-based jobs, are no longer tethered to a specific location (Linden, 2014) to complete work.

Security Risk

Perceived security risk is the fear of loss of sensitive information. Recent research addresses security as a risk in all telework arrangements (Zissis & Lekkas, 2012; Ojala et al., 2014). James and Griffiths (2014) found that information security controls in teleworking locations are typically weaker than those in a corporate office. Security concerns often prevent organizations from allowing personnel to telework and highlight the need for secure portable environments (Zissis & Lekkas, 2012).

Shaw, Chen, Harris, and Huang (2009) noted that rapid growth in the use of the internet has resulted in vast losses in many organizations. Awareness of lenient security

resulting in information loss is an important problem to anyone using the Internet. The authors found that the main barriers to information security awareness (Shaw et al.) generally involve computer skills and organizational budgets.

Advantage of Telework

Teleworking has evolved to become a management discipline governing organizational benefits (Ahmad, Rachelle, & Scheepers, 2014; Fonner & Stache, 2012). Research literature has contributed to the understanding of the relationship between telecommuting, flexibility, employee satisfaction, social benefits, productivity, and access to national talent, talent retention, and overhead savings (Hosseinnezhad, 2013; Ko, Hur, & Smith-Walter, 2013) in organization.

Having the flexibility to choose a work location has been related to positive benefits such as reduced work pressure, fewer role conflicts, and increased autonomy (Allen et al., 2015; Sardeshmukh et al., 2012). Telework saves organizations in international and domestic travel expenses (Ellison, 2013). Companies are now able to video/teleconference for trainings and meetings, saving the organization a substantial amount of time and money (Ellison, 2013; Park, Rhoads, Hou, & Lee, 2014) for employees and employers.

Coenen and Kok, (2014) found that telework enhances the speed of product development, flexible work schedules, and hot-desking or sharing work stations. However, they also noted that a level of face-to face contact was essential to counterbalance the possible negative impact of telework on personal satisfaction, information transfer, or productivity (Coenen & Kok, 2014).

Offstein, Morwick and Koskinen (2010) argued that successful telework arrangements are more a function of leadership than of technology. Many companies are recognizing the essential advantages of telework due to the flexibility of workplace location, especially during inclement weather (Mamaghani, 2012; Zhu, 2013). Weisberg and Porell (2011) stated that telework done right promotes both the worker and the business. This is achieved by making performance expectations (Weisberg and Porell, 2011) more explicit while also enabling people to determine when and where they get the job done.

Disadvantage of Telework

Regardless of the advantages of telework, several researchers have stated that poorly managed telework programs result in negative organizational outcomes. Some of the most noted unfavorable outcomes are professional and social isolation (Hosseinnezhad, 2013 & Golden, 2007), violation of family life (Ko, Hur, & Smith-Walter, 2013), and lack of managerial control (Coenen and Kok, 2014) in organization.

Maruyama and Tietze (2012) found that prior to adopting telework, workers tended to underestimate positive and overestimate negative experience of telework. Davis and Cates (2013) reported that engaging strategies for telework will reduce perceptions of isolation. It was also argued that understanding the relationships between the degree of output during traditional and nontraditional work hours, family-to-work conflict, and exhaustion were also essential (Davis & Cates, 2013). Exhaustion was found to be worse for individuals who tended to put in more traditional and nontraditional work hours (Maruyama & Tieze, 2012; Golden, 2007) when working from home.

Less follow up and a lower commitment to job engagement were described as disadvantages expressed by some companies (Sardeshmukh et al., 2012) while a decrease in perceived quality of the relationships between workers and managers and job satisfaction among teleworkers were also considered a risk (Golden, Vega, & Simsek, 2006; Brawley, & Pury, 2016). Another study found that isolation of teleworkers resulted in a decline in job performance (Golden, Veiga, & Dino, 2008). Sikes, Mason, and Vonlehmden (2011) explored some challenges of telework for the organization (Sikes, Mason, and Vonlehmden, 2011), the project, the telework IT worker, and the telework IT manager.

Telework Productivity, Practices, and Policy

Several studies have found significant relationships between telework and productivity (Aboelmaged & El Subbaugh, 2012; Glenn, 2012). These studies presented the positive impact of telework on improving employee productivity. Research which examine output modifications (Greer & Payne, 2014, Shekarchizadeh et al., 2015) typically focus on productivity and overlook procedural details.

According to Shin, Sheng, and Higa (2000), the measurement of efficiency change relies on bias-prone self-reports. In general, teleworkers are likely to have greater work motivation which contributes to increased production (Aboelmaged & El Subbaugh, 2012) . The transfer for different assignments for on-site employees might expand telework benefit (Greer & Payne, 2014). Finally, higher productivity might result from expanded working hours of employees who may contribute working additional hours without billing in exchange for commuting time saved. However, some economists

suggest that the ratio between inputs and outputs (Shin et al., 2000) do not necessarily suggest increased productivity.

Researchers examined alternative measure and dynamics among subcomponents of telework program. Alizadeh (2012) investigated three case studies of live/work communities. Different levels of collective telework facilities were offered to support community-based telework. This investigation promoted further understanding of individual and work-related factors of community-based teleworkers, and opens discussion on their spatial preferences (Alizadeh, 2012).

Studies on telework practices have explored the key types of telework practices adopted by firms, the technological, organizational and environmental contexts of adaption, and labor productivity of the association (Neirotti, Paolucci, & Raguseo, 2013). Chan, Wan, and Kuok (2015) found that gender, marital status, nationality, resident location, profession are relevant influencers. By comparison, educational level, internet use, number of children, age, and years of experience (Chan et al., 2015), were not influencing factors for telework practices.

Researchers have measured connections between telework policy and specific telework practices. Drawing on international and national telework policy approaches, tensions between rights and privilege policies have been identified (Van den Broek & Keating, 2011). They argue that if telework is to become a valid employee option, that policy instruments in Australia are expected to be based firmly on rights, rather than privileges (Van den Broek & Keating, 2011). As organizations seek to enhance the full benefits of telework practices, putting a telework policy (Van den Broek & Keating,

2011) in place to reduce constraints could potentially increase acceptance of a telework program.

Harandi and Ghafari (2012) found that a decrease in identified constraints led to an increase in teleworking implementation. Workplace policies that consider communication, expectations, and travel demands (Pirdavani, Bellemans, Brijs, Kochan & Wets, 2014; Chin, Evans, & Choo, 2015), can function as the basis for negotiation between individual teleworkers and employers.

Organizational Focus

Kassinis and Stavrou (2013) investigated organizational variables that encourage teleworking selection and dispersion. Fay and Kline (2012) discussed teleworking from a perception of organizational configuration and spatial structures while motivation for a telework program can advance from an established organizational structure (Mitchell, Gagné, Beaudry, and Dyer, 2012; Robertson, et al., 2012). In other organizations, efforts to form flexible working systems can result in abrupt termination because of lack of worker response (Valmohammadi, 2012). Therefore, accepting the factors that claim teleworking success (Turetken, Jain, Quesenberry, & Ngwenyama, 2011), are extremely restricted.

Measures of Telework Performance

Hall, Kossek, Briscoe, Pichler, and Lee (2013) noted a multidimensional model that relates to both teleworkers and organizations. The variables studied include satisfaction of employees, customer satisfaction, productivity, cost–benefit effects, and management (Sato, 2013; Watad & Will, 2003). Sato (2013) stated that modifications in

micro level variables such as organizational appearance, number of teleworkers, and number of teleworking days may be effective measures of telework success. Troup and Rose (2012) examined telework success from another theoretical viewpoint of organizational value. While no general agreement is definesd effectiveness, it is viewed as a critical objective of organizational configuration and change (Troup & Rose, 2012).

Harandi and Ghafari (2012) recognized four principal dimensions of organizational effectiveness. Open systems views success in terms of response to external situations (Scott & Davis, 2015). Rational goals focus on economics such as profit maximization, productivity, and efficiency (Scott & Davis, 2015). Human relations emphasize an organization's personnel developmental structure (Smither, Houston, & McIntire, 2016).. Finally, internal processes involve a systematic view of potential, strengths, weaknesses and benefits (Nagano, Stefanovitz, & Vick, 2014) for directing an organizations' future planning.

Potential Indicators of Telework Success

The strategy of organizational motivations for telework may significantly impact success (Wicks, 2002). Organizations that initiate telework for a certain strategic purposes rather than to satisfy employee's needs, may be easier to maintain (Mayo, Gomez-Mejia, Firfiray, Berrone, & Villena, 2016). Golden (2007) suggested the need to consider the full range of telework success includes the potential adverse consequences for nonteleworkers. The acceptance of telework contributes to the belief that telework will bring improvement to the organization or worker (Wicks). A telework program that

fits into current organizational values, techniques, and assessment systems (Davis, 2011), may have a higher chance of success.

Fonner and Roloff (2012) noted telework success may rely on an organizations' physical and/or managerial limitations. Offstein et al. (2010) discovered that in the vast majority cases of telework, knowledge and management were fused to do work without restrictions of geography, duration of time, or physical vicinity. Thus, a larger number teleworkers welcomed telework (Fonner & Stache, 2012) because of the perceived relative advantage.

Organizational Change and Challenges

Lo, van Breukelen, Peters, and Kok (2013) noted that differences in attitudes between employees corresponded with organizational culture. Managers play a critical role in successful organizational adjustment (Kossek, Hammer, Kelly, & Moen, 2014; Thomas, Sargent, & Hardy, 2011; Woodman, 2014) and telework program accomplishments (Beham et al., 2014). Management is the one strength that can balance structural inertia (Schwarz, 2012) and determine implementation (Lin, 2011). Researchers determined that top-down management is particularly effective in enhancing administrative improvements (George, McGahan, & Prabhu, 2012; Jakobsen & Lueg, 2014) and a systematic understanding of the costs (Golden and Watt, 2013) for improving effectiveness and productivity.

Harandi and Ghafari (2012) found that the most resistance to a telework program often comes from middle managers, because it is assumed that middle management tasks will experience the greatest increase in challenges. Researchers found that managers who

were responsible for preparing cost-benefit analyses (Martin & MacDonnell, 2012), safeguarding exclusive information (Diaz, Chiaburu, Zimmerman, & Boswell, 2012), maintaining and monitoring telework equipment (Khoda-yari & Rahnavard, 2013), and/or ensuring sound ergonomic telework practices (Bentley, Teo, McLeod, Tan, Bosua, & Gloet, 2016), had a higher success rate with implementing telework programs.

Implementation and growth of telework programs have produced many organizational challenges. Some of the most frequently cited challenges include: performance measurement, impact on cooperation, security, responsibility, competence of technology, security of information, selection of qualified employees (Sikes, Manson, & VonLehmden, 2011), requirements of telecommunication hardware, and manager discomfort.

According to Ko, Hur, and Smith-Walter (2013), a major challenge organizations face is the ability to understand the moderating role of performance-oriented management in telework. Some organizations resist telework because of concerns about losing control over employees (Harandi & Ghafari, 2012) and decreased productivity of employees when they are not monitored (Yun, Kettinger, & Lee, 2012). Another organizational challenge concerns comparing telework employee performance and abilities with office-based employees (Scott et al., 2012). The development of teleworking engagement strategies (Davis & Cates, 2013) to reduce workplace isolation are suggested.

Relationship to Previous Research

Previous research has identified the importance of key challenges experienced by organizations. As discussed in the literature review, research has shown that spatial

separation from the physical organization has several psycho-social affects including social isolation and disconnection from the work environment.

The variables selected for investigation in this study were chosen to respond to existing gaps in the study of telework constraints as barriers in implementation. Swift and Virick (2013) examined the role of both perceived coworker support (PCS) and perceived organizational support (POS) on the extent to which employees share their knowledge with their coworkers. The results showed that PCS has a strong positive relationship with provider knowledge but does not share a significant relationship with POS (Swift & Virick, 2013).

Although Charlier, Guay, and Zimmerman (2016) noted that companies are becoming more computer savvy and technologically advanced. However, time-saving and money-saving proposals and software appear to command attention as correlates of telework implementation. One study by Ruostela and Lönnqvist, (2013) concluded that the economic environment and policies must be favorable when planning for telework program implementation.

Summary and Conclusions

The review of the literature focused on the essentials, advantages, disadvantages, and potential constrains on telework implementation. It also established the extent to which teleworkers behaviors are related to organizational productivity commitments.

This study sought to fill the gap in the literature relative to perceived constraints on implementing telework programs critical to organizational productivity. The TOC highlighted the way in which perceived levels of telework, social interaction, and

technical support may work to impede the implementation of telework programming by one federal administrative office. While researchers typically emphasize the benefits of telework, it is critical that potential constraints involving managerial challenges to telework implementation be identified and discussed.

Chapter 3 described the research design and rationale. A detailed account of the methodology, population, sampling procedures, instrumentation, variables, data analysis plan, validity, and ethical procedures, limitations and delimitations are described. Chapter 4 explained the results and data analyses performed to test the hypotheses. Based on the results, Chapter 5 provided the interpretation, discussion, conclusion, recommendations and implications for social change.

Chapter 3: Research Methods

The purpose of this research study was conducted to examine the mong perceived levels of telework efficiency, social interaction, technical support, and workplace (office or telework) location among employees who work in an office versus a remote setting.

Chapter 3 described the (a) research design, (b) questions and hypotheses, (c) population and sample (d) instrumentation and data collection, (e) data analysis procedures, and (f) ethical consideration of the participants. The chapter explained the foundations for using a nonexperimental, exploratory, correlational design to answer the research questions and test the hypotheses statements. Parameters were considered to allow inferences to me made to the population from which the sample was derived.

Research Design Rationale

This exploratory study involved a correlational design to examine the relationship between the dependent variables will comprise of (perceived levels of telework efficiency, social interaction, and technical support) which will be treated as potential constraints and the independent variable (workplace,office or telework, location) among a sample of Southeast USDA staff members. Correlational design involves examining potential relationship between two or more variables and can be accomplished by using a variety of techniques based on the collection of empirical data. This type of design is considered a form of observational research (Cavallo, Ris, & Succop, 2016; Simon, 2011) because nothing was manipulated or controlled by the researcher.

It is important to note that correlational research is not causal research. Therefore, statements concerning cause and effect cannot be made because the direction of the cause

remains unknown. Consequently, *t* tests were conducted to provide additional information regarding the direction of relationships between ratings of perceived constraints (dependent variables) and location of the worker (independent variable). Correlational research is often conducted as exploratory or beginning research, however *t* tests assist in providing additional information concerning the direction of the relationship, cause and effect.

Justification for Research Design

This research design might provide a preliminary understanding of the relationship that would be considerably more difficult to explore using a qualitative approach(Frels & Onweugbuzie, 2013; Simon, 2011). Although qualitative designs allow the researcher to gain an in-depth understanding of a phenomenon time, geographical area, and financial factors typically limit the number of research participants that can participate in the study, while inferences drawn from qualitative studies are often not generalizable (Taylor, Bogdan, & DeVault, 2015). In contrast, a web-based quantitative study is better able to expand geography, uses considerably less time, money, and other resources (Frankfort-Nachmias & Nachmias, 2008; Thomas, Nelson, & Silverman, 2011), and is preferred from making inferences or generalizing findings to the population of interest.

The target population for this research was geographically restricted to the Southeast Area of USDA. The survey was issued electronically, using simple questions and a time efficient Likert scale format. The data collected through Survey Monkey was saved in an Excel format and converted to an SPSS format for analyzing. Statistical

analyses in the form of Pearson's correlations and *t* tests were conducted to examine the relationships among perceived levels of telework efficiency, level of social interaction, level of technical support, and workplace (office or telework) location (Pearson's correlation) and to compare and contrast perception levels by workplace (office or telework) location category (*t* tests). In this study, none of the variables were manipulated and were examined as they occur in the natural setting.

Alternative Research Methodologies

The three research broad methodologies can be defined as qualitative, quantitative, and mixed methods (Thomas et al., 2011). All three methods were feasible research possibilities and each with its own characteristic strengths and weakness (Case & Light, 2011). Mixed methods research is a blend of both qualitative and quantitative methods of investigation within a particular study and does provide an opportunity to acquire a more descriptive understanding of phenomena (Venkatesh, Brown, & Bala, 2013). However, the purpose of the current study was not to explore and capture detailed or in depth information regarding the personal or individual experiences of employees. Rather, it sight to gain insight on perceptions (Thomas et al., 2011) among the collective respondent group.

Qualitative Methods

Qualitative approaches do not allow for testing hypothesis, therefore a quantitative approach was selected as the more appropriate to explain this phenomenology from a group perspective (Smith, 2015). In general, a quantitative approach allows for gaining a more noticeable and in-depth understanding of how the

phenomenon directly influences individuals (Marshall & Rossman, 2011) on a personal level.

A case study design is described as a form of qualitative descriptive research that is used to look at individuals, a small group of individuals, or a group as a whole using participant a direct observations, interviews, protocols, tests, examinations of records, and collections with boundaries established by the researcher. Case study research is suitable for acquiring an in-depth understanding (Frankfort-Nachmias & Nachmias, 2008) of one case or as an alternate examination of several cases.

The grounded theory method was considered, but also was not suitable for this study. Grounded theory sets out to discover what hypothesis accounts for the research condition and to describe a particular extent of a phenomenon (Birks & Mills, 2015). The grounded theory method would not have been useful to examine the relationship between variables. According to Simon (2011), grounded theory explores processes, activities, and events and is a suitable method of inquiry when inadequate data exist; extents of a phenomenon require further consideration; or existing principles are insufficient, biased, or improper.

Narrative research is a method in which the researcher investigates the written or spoken words or visual representation of individuals (Lewis, 2015). This information is frequently retold by the researcher into a narrative sequential order. The importance in such methodologies is on the story, normally both what and how is told. Narrative research can be viewed as both a research method but also the phenomenon which is being studied (Frankfort-Nachmias & Nachmias, 2008). Narrative approaches can be

known as real events measures that are suitable when real life problems are considered. In a simple linear method, researcher incorporate the study of the understandings of a single individual embracing stories of the life and discovering the educated impact of those individual experiences (Lewis, 2015). In most cases one will be constructing a comprehensive of storylines separately on individuals.

Narrative research is set out by the confirmation of the audience (Flick, 2009). It is a valuable part of the social science research, but may not permanently stand only for confirmation and support for the assumptions of a report (Czarniawska, 2004) . Whether or not it is a measure of a great presentation or whether it is a separate piece of study, it has to be recognized on its own qualities as individual experience and the explanation of thereof. The inquiry arises as to the precision of the story looked at objectively despite the fact that is must be seen in a sociocultural connection (Flick, 2009). The story provides one's distinct perspective to be accessed on its qualities. Such acceptance is potential by validation from alternative narrative. The questions outlined in this study were concerned with examining what the relationship between variables is and not telling a narrative about individual's experience.

Methodology

This study used quantitative data to perform nonexperimental, exploratory research. No variables or subjects were controlled, manipulated or altered. A cause and effect relationship is not proven. Rather, analysis relied on the interpretation of existing relationships to come to a conclusion. The correlational methodology helps determine whether the independent and dependent variables are correlated. This study specifically

examined the relationships among perceived level of telework efficiency, social interaction, and technical support, depending on workplace (office or telework) location of the respondent. Three tests including a Pearson's correlation, regression analysis, and *t* tests were used to explore the questions and hypothesis. The critical value to test all hypothesis will be held at a value of α=.05 which implies that the null hypothesis is rejected 5% of the time when it is in fact true. This critical value is a standard cut off value used for most research studies.

Pearson's Correlation

The Pearson product-moment correlation coefficient (Pearson's *r*) is a measure of the linear dependence between two variables *X* and *Y*, giving a value between +1 and -1 inclusive, where 1 is total positive linear correlation, 0 is no linear correlation, and -1 is total negative linear correlation. The correlation coefficient *r* measures the strength and direction of a linear relationship between two variables. The value of *r* is always between +1 and -1. To interpret its value, see which of the following values your correlation *r* is closest to:

- Exactly +/- 1. A perfect linear relationship
- +/-0.70. A strong linear relationship
- +/- 0.50. A moderate relationship
- +/-0.30. A weak relationship
- 0. No linear relationship

Independent Sample *t* test

Independent-samples *t* tests compare the means between two unrelated groups on the same continuous, dependent variable. For purposes of this study, the independent *t* test will measure if mean scores reflecting perception levels differ between two workplace groups: office and remote. Several assumptions for using this test were assumed and listed below (See appendix E).

- The dependent variable is measured on a continuous scale.
- The independent variable consist of two categorical, independent groups.
- Observations are independent or no relationship between the observations in each group.
- There are no significant outliers.
- The dependent variable is approximately normally distributed.

Questions and Hypotheses

The research questions that guided the study were as follow:

RQ1. What is the relationship between level of perceived telework efficiency and the workplace (office or telework) location of the respondent?

RQ2. What is the relationship between level of perceived level of social interaction and the workplace (office or telework) location of the respondent?

RQ3. What is the relationship between level of perceived technical support and the workplace (office or telework) location of the respondent?

The following hypotheses were tested in this study using a *p*-value of less than .05 to reject the null hypotheses:

$H_0$1: There is no relationship between perceived level of telework efficiency and the workplace (office or telework) location of the respondent.

H_a1: There is a relationship between perceived level of telework efficiency and the workplace (office or telework) location of the respondent.

$H_0$2: There is no relationship between perceived level of social interaction and the workplace (office or telework) location of the respondent.

H_a2: There is a relationship between perceived level of social interaction and the workplace (office or telework) location of the respondent.

$H_0$3: There is no relationship between perceived level of technical support and the workplace (office or telework) location of the respondent.

H_a3: There is a relationship between perceived level of technical support and the workplace (office or telework) location of the respondent.

Population

The population consisted of full-time employees at the USDA Southeastern Location (Stoneville, Mississippi). Participants included both those who telework and those who work at a central office location. Internet access was required to complete the online survey which is provided to all employees and therefore not a barrier for potential respondents. It is generally believed that if a sample size is too small, it will be

challenging to determine is a significant relationships is actually a true reflection of the populations' experience (Ott & Longnecke, 2015). A larger sample size with a measured minimal sample size is more likely to measure outcomes from which inferences (Ott & Longnecke, 2015) about the population can be made.

Bryman and Bell (2015) suggest that perceptions and conclusions drawn from a quantitative method depend on the information richness of the population from which it was drawn. Frankfort-Nachmias and Nachmias (2008) agreed that purposive sampling for quantitative studies utilizing a small number of respondents can generate generalizable data that support research conclusions (Montero-Marín et al., 2013).

Sampling Procedures

The study population consisted of USDA Southeast area employees. The USDA is a government organization, and the Southeastern area branch is located in Stoneville, Mississippi. The data were collected from a purposive sample of the population of interests. Purposive sampling is a nonprobability sampling technique and **r**elies on the judgment of the researcher in selecting respondents that reflect the population of interest. A purposive sample is typically smaller compared with samples using probability sampling techniques**.**

The goal of purposive sampling is to create a sample with the intention of making statistical inferences from the population of interest. It focuses on particular characteristics of a population of interest, which best enable the research questions to be answered (Yahaya et al., 2015). Using a purposive sample assists, in taking rich and

diverse data (Montero-Marín et al., 2013) in support of the study conclusions and maximizes representation of population views.

Potential participants received an e-mail that explained the purpose of the study and the future use of the information collected, assured privacy, discussed potential risks to participants, required informed consent, and provided a hyperlink to access the survey. The participants received the outline criteria for participation and directions for assuring anonymity.

Sample Size Estimate

The sample size was estimated based on a confidence level of 0.95, confidence interval of 0.15 and total population size of (N=211) workers at this particular USDA regional location. Raosoft software (2016) estimated a minimal sample size of (n=38) was needed to avoid Type I and Type II errors and draw statistical inferences. All employees were invited to participate in the study and a total of N=38 individuals agreed to respond to the study. The actual number of respondents exceeded the minimal sample size estimate of N=38 respondents based on these parameters. Given an anticipated response rate of 2/3 (67%) a minimum of 54 employees was surveyed.

The eligibility criteria for participants consisted of (a) over the age of 18 years (b) currently employed by USDA government organization in Stoneville, Mississippi, (c) occupied a permanent or temporary full-time position, and (d) willing to share perceived level of telework, level of social interaction, and level of technical support. Each study participant was also asked to share their workplace (office or telework) location, which was essential for conducting the comparative analysis.

Procedures for Recruitment, Participation, and Data Collection

Recruitment was performed through the USDA email distribution lists. Survey Monkey was used as the web-based survey portal. The Internet use has generated a resourceful medium for gathering data using web-based survey portal (Margo, Prybutok, & Ryan, 2014). The benefits (Cocco, & Tuzzi, 2013) of using a web-based survey portal results in the simplicity in administration and data collection, the way the survey enable researcher to survey distant populations, the speed of distribution, and the low cost.

Data collection is a key component for this doctoral research. It is imperative to formulate a plan that plainly identifies and explains important approaches for data collection, organization, and analysis. The data collection processes for this study was survey research design. Survey Monkey is an online survey that was used for this study. Academic institutions and organizations used survey monkey for evaluation and research of all types (SurveyMonkey, 2015). The online questionnaire was emailed to target participants of USDA in Stoneville, MS.

Potential participants received an e-mail welcoming them to participate in the study. The e-mail was sent by the president of the Employee Benefit Association (EBA). The email (a) explained the purpose of the study, (b) outlined criteria for participation, (c) ensured anonymity, and (d) provided the hyperlink to access the survey at surveymonkey.com. The survey was posted for two weeks. After a week and half, a second email was sent to remind potential participants to complete the survey. The survey ended at the end of the second week because the minimum sample size had been reached. The collected data were imported into the Microsoft Excel 2013 software

program to clean and manage. The cleaned data were then imported into SPSS 21 for statistical analysis. All data were stored in a password-protected file.

Instrumentation

The study was conducted online using surveymonkey.com software. This software provides several benefits over previous data collection methods, including cost efficiency, time efficiency, safety (e.g. anonymous) and ease of interpreting results. Studies have also shown that response rates are better, faster and more convenient for the participant, and that the functionality allows for more correct answers. All of these make choosing online survey software valuable. According to Hall (2015), surveys, like Survey Monkey, involve setting goals for information collecting, designing research, preparing a reliable and valid data collection instrument, administrating and scoring the instruments, analyzing, and reporting the results.

The survey consisted of a 15 questions developed by Harandi and Ghafari (2012). The survey was divided into three categories of potential constraints including (a) perceived level of telework efficiency, (b) perceived level of social interaction, and (c) perceived level of technical support. Each constraint category contained 5 questions based on a five point Likert scale. Some questions were reversed in the direction of value and were adjusted for analysis. The total cumulative scores ranged from a low of five to a high of 25 points for each constraint, or a total of 15 to 75 points for the cumulative score of acceptance. The survey was pilot tested by 30 experts and users of telework to measure validity. The reliability (Cronbach's Alpha) ranged from 0.780 to 0.919 (Vaske, Beaman, & Sponarski, 2016) which is considered more than adequate for use as a

standardized measurement tool. Permission for use of the tool has been granted by the developers (see Appendix A).

The Relationship of Survey to Research Questions

The survey was designed to address the research questions:

RQ1. What is the relationship between levels of perceived telework efficiency by workplace (office or telework) location?

RQ2. What is the relationship between perceived level of social interaction and workplace (office or telework) location?

RQ3. What is the relationship between perceived level of technical support and workplace (office or telework) location?

Central question: What are the relationship between potential constraints and workplace (office or telework) location among Southeastern USDA employees?

Operationalization

Levels of Measurement

The level of measurement determines the nature of information within the numbers assigned to variables. The four levels of measurement are nominal, ordinal, interval, and ratio. This study used ordinal levels of measurement as follows:

1. Dependent Variables
    a. Level of perceived telework used an ordinal level of measurement based on a five-point Likert scale with total scores ranging between 5-

25 points. Cumulative scores are continuous. The higher the score, the higher the level of agreement is assumed.

b. Level of perceived social interaction used an ordinal level of measurement based on a five-point Likert scale with total scores ranging between 5-25 points for each potential constraint. The higher the score, the higher the level of agreement is assumed.

c. Level of perceived technical support used an ordinal level of measurement based on a five-point Likert scale with total scores ranging between 5-25 points. The higher the score, the higher the level of agreement is assumed.

2. Dependent variable: This categorical variables was bi-variate and reflects the workplace (office or telework) location.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) version 21 was used to analyze the data to answer questions and hypothesis statements. SPSS was released by IBM in 1968 and has remained the most popular professional program available for social science data analysis. This software was used to perform both descriptive and inferential; statistics. Descriptive statistics summarize a data set, describe the sample size and occurrences, while inferential statistics allow the researcher to infer from the sample data what the population might experience, as well as to make judgments of the probability that observed differences between groups are dependable or have happened by chance. SPSS was used to:

1. Analyze raw data
2. Calculate means, standard deviations, correlations, and *t* tests of all data.
3. Provide summary descriptions and inferences.
4. Create charts, graphs and data tables used for interpretation.

Threats to Validity

Validity is the accurateness, importance, and integrity of a research (Leedy & Ormrod, 2010). Construct validity, content validity, and empirical validity guarantee the legitimacy of the instrument. In general, it is suggested that validity (alpha) levels over 0.70, demonstrate that the instrument is adequate (Frankfort-Nachmias & Nachmias, 2008). The reliability to determine that the same outcomes (Cooper and Schindler, 2003) will occur on different occasions.

The tool used for this study has received reliability Cronbach's Alpha coefficients ranging from 0.78 to 0.92 (Vaske, Beaman, & Sponarski, 2016), which are considered more than adequate for use as a standardized measurement tool. In addition, a Cohen's Kappa of $\boldsymbol{k}$ =1.0 was estimated which assured that the inter-rater reliability for interpretation and input of scores achieved. This suggests a 100% agreement as a form of reliability. Permission for use of the tool has been granted by the developers (see Appendix A). The study implemented a sample size estimate and purposive (judgmental or selective) sampling technique in order to allow for making inferences and avoiding threats to validity.

Ethical Procedures

Research studies need to meet a minimum of ethical standards. Research participants were allowed to a practical degree of care in protecting their confidentiality. The IRB evaluated the security of the projected research and the competence of the consent to obtain from research participants (Lambert, 2013). The Walden IRB guarantees that researchers follow ethical guidelines including (a) the voluntary nature of participation; (b) informed consent; (c) the researcher did not put participants in danger; (d) confidentiality, and (e) anonymity. Federal regulations require independent evaluation (Stryjewski, Kalish, Silverman, & Lehmann, 2015) and support by an IRB before conducting studies that involve human participants.

Walden IRB approval # 12-23-15-0284658 was granted before any data were collected (see Appendix D). The IRB system and process is in place to, (a) protect the safety and privacy of participant; (b) avoid unnecessarily exposing participants to risks; (c) encourage researchers to take reasonable risks to achieve anticipated benefits; (d) ensure equitable selection of participants such that the burdens and benefits of research are fairly distributed, additionally, (e) ensure participant sign prior consent; and (f) ensure coercion of vulnerable participants is minimized.

Informed Consent

All participants were offered required information to make an informed choice and grant consent. Information included a statement of the study's purpose, investigational processes, risks/benefits, and a confidentiality declaration. Informed consent was provided to each participant before collecting any data. Respondents were

instructed to terminate involvement in the study should their participation cause any discomfort.

Summary and Conclusion

This chapter included in details the research methodology and design that were used to examine the relationships among level of telework, level of social interaction, level of technical support, and workplace location. The survey research design used Survey Monkey ® to administer the survey on line. A total of N=38 individuals responded, exceeding the estimated minimal sample size of N=38 needed to avoid Type I and Type II errors, and to make inferences. The tool used for this study received Cronbach's Alpha coefficients ranging from 0.78 to 0.92 which are considered more than adequately reliable for use as a standardized measurement tool. Additionally, a Cohen's kappa coefficient κ=1.0 was estimated, suggesting a 100% agreement between the two raters and strong reliability. Walden's IRB reviewed the study to eliminate potential ethical issues and the study meets certain important standards.

The next chapter, Chapter 4, included the research outcomes using descriptive and inferential statistics to describe the relationship between the independent and dependent variables, respond to the research questions and hypotheses, and to determine the degree in which components are considered constraints by those working in office versus remote environments.

Validity and reliability are important criteria for the quality of a test and refer to whether or not the test measures what it purports to measure. The higher the alpha, the more closely linked items are to the test's the intended focus. The tool used for this study

has received reliability Cronbach's Alpha coefficients ranging from 0.78 to 0.92 (Vaske, Beaman, & Sponarski, 2016) which are considered more than adequate. In addition, an inter-rater reliability was estimated using the scores input and interpreted by two raters. The Cohen's Kappa (κ) correlation coefficient of 1.0 suggested 100% agreement between the two raters in way perceptions of constraints and agreement were recorded and interpreted.

Chapter 4. Results

Introduction

The purpose of this quantitative correlation study was to examine the relationships among perceived level of telework efficiency, level of social interaction, level of technical support, and workplace (office or telework) location. The specific business problem was understanding the relationships among perceived level of telework efficiency, level of social interaction, level of technical support, and workplace (office or telework) location. Chapter 4 provides a detailed illustration of how the study was conducted, the data collection methods employed, and the data analysis strategies performed. Also, the chapter clarifies the results of the analyses conducted to test the hypotheses and answer the research questions.

The first research question was to examine the relationship between perceived level of telework efficiency and the workplace (office or telework) location of the respondent. The second research question was to examine the relationship between perceived level of social interaction and the workplace (office or telework) location of the respondent. The third research question was to examine the relationship between perceived level of technical support and the workplace (office or telework) location of the respondent. The central research question was to examine the relationships between perceptions of telework and the workplace (office or telework) location of the respondent.

The survey instrument computed quantitatively USDA workers, who telework and/or do not telework with perceived levels of telework efficiency, social interaction and

technical support, and workplace (office or telework) location. In this chapter the researcher provided the outcomes of the research and data analyses using SPSS and Microsoft Excel as the principal statistical analysis tools. A summary of the descriptive statistics, information of the statistics with all variables was presented using Pearson's correlation and *t* tests data. The data analyses were applied to the research questions and hypotheses.

An USDA government agency received a letter via e-mail soliciting the agency participation in the study. The agency agreed to participate in the study under the condition of anonymity. Participants received an e-mail that invited participation in the study. Outlined inclusion criteria, included an informed consent statement, and contained an embedded hyperlink to access the anonymous web-based survey. All participants were from one federal government agency.

The web-based survey included 15 questions (see Appendix B) that included five perceived level of telework efficiency items, five perceived level of social interaction items, five perceived level of technical support items, and the workplace (office or telework) location. Questions 1, 2, and 5 are positive point scores; Questions 3 and 4 are negative points scores under telework efficiency. Questions 1, 3, and 5 are positive point scores; Questions 2 and 4 are negative point scores under social interation. Questions 1 and 2 are positive point scores; Questions 3, 4, and 5 are negative point scores under technical support. The survey stayed open for 2 weeks. A total of 38 respondents took the survey. The survey was administered to 118 USDA employees, who were EBA members. The responds rate was 32.2%.

The data were exported from SurveyMonkey.com to SPSS 21 for statistical analyses. Descriptive statistics and frequency distribution were calculated to identify outliers and to establish a profile of the study participants. Mean scores and standard deviations were computed for level of telework, level of social interaction, and level of technical support. Correlation and regression analyses were performed to test the hypotheses. A *p* value of less than 0.05 was established to support rejecting the null hypotheses with a 95% confidence level. The findings are reported in this chapter in the following order:

1. Frequencies and percentages for perceived levels of telework efficiency, social interaction, technical, and workplace (office or telework) location variables.
2. Descriptive statistics including means, standard deviations, and minimum and maximum values for erceived levels of telework efficiency, social interaction, technical support variables
3. *T* tests performed for each variables (perceived levels of telework efficiency, social interaction, and technical support variables) between workplace (office or telework) location.
4. Pearson correlations and regression analysis were performed to examine the relationships between the variables and workplace (office or telework) location.

Frequency Results

The statistical analyses performed consisted of descriptive statistics to depict office worker and teleworker of the participants. Table 1 displays the frequency (*n*) counts and percentages for designated variables. A total of 26 office worker about 68.4% of the respondents and 12 teleworker about 31.6% of the respondents. A total of 38 respondents with no missing data for (*n*).

Table 1

Frequency Counts and % for Designated Workplace Location Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Teleworker	12	31.6	31.6	31.6
	Nonteleworker	26	68.4	68.4	100.0
	Total	38	100.0	100.0	

Table 2 through Table 6 show frequencies and percentages of participants who responded to on the perceived level of telework efficiency variables.

Table 2

Frequency Counts, and % for Designated Telework1 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	5	13.2	13.2	13.2
	Agree	13	34.2	34.2	47.4
	Neutral	14	36.8	36.8	84.2
	Disagree	6	15.8	15.8	100.0
	Total	38	100.0	100.0	

Table 3

Frequency Counts, and %for Designated Telework2 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	5	13.2	13.2	13.2
	Agree	20	52.6	52.6	65.8
	Neutral	10	26.3	26.3	92.1
	Disagree	1	2.6	2.6	94.7
	Thoroughly disagree	2	5.3	5.3	100.0
	Total	38	100.0	100.0	

Table 4

Frequency Counts, and % for Designated Telework3 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	2	5.3	5.3	5.3
	Agree	9	23.7	23.7	28.9
	Neutral	11	28.9	28.9	57.9
	Disagree	11	28.9	28.9	86.8
	Thoroughly disagree	5	13.2	13.2	100.0
	Total	38	100.0	100.0	

Table 5

Frequency Counts, and % for Designated Telework4 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	7	18.4	18.4	18.4
	Neutral	14	36.8	36.8	55.3
	Disagree	11	28.9	28.9	84.2
	Thoroughly disagree	6	15.8	15.8	100.0
	Total	38	100.0	100.0	

Table 6

Frequency Counts, and % for Designated Telework5 Variables

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	9	23.7	23.7	23.7
	Agree	17	44.7	44.7	68.4
	Neutral	10	26.3	26.3	94.7
	Thoroughly disagree	2	5.3	5.3	100.0
	Total	38	100.0	100.0	

Table 7 through Table 11 show frequencies and percentages of participants, who responded to the perceived level of social interaction variables.

Table 7

Frequency Counts, and % for Designated Social_interaction1 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	3	7.9	7.9	7.9
	Agree	9	23.7	23.7	31.6
	Neutral	10	26.3	26.3	57.9
	Disagree	11	28.9	28.9	86.8
	Thoroughly disagree	5	13.2	13.2	100.0
	Total	38	100.0	100.0	

Table 8

Frequency Counts, and % for Designated Social_interaction2 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	2	5.3	5.3	5.3
	Agree	11	28.9	28.9	34.2
	Neutral	7	18.4	18.4	52.6
	Disagree	14	36.8	36.8	89.5
	Thoroughly disagree	4	10.5	10.5	100.0
	Total	38	100.0	100.0	

Table 9

Frequency Counts, and % for Designated Social_interaction3 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	1	2.6	2.6	2.6
	Agree	10	26.3	26.3	28.9
	Neutral	13	34.2	34.2	63.2
	Disagree	12	31.6	31.6	94.7
	Thoroughly disagree	2	5.3	5.3	100.0
	Total	38	100.0	100.0	

Table 10

Frequency Counts, and % for Designated Social_interaction4 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	1	2.6	2.6	2.6
	Agree	12	31.6	31.6	34.2
	Neutral	11	28.9	28.9	63.2
	Disagree	11	28.9	28.9	92.1
	Thoroughly disagree	3	7.9	7.9	100.0
	Total	38	100.0	100.0	

Table 11

Frequency Counts, and % for Designated Social_interaction5 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	13	34.2	34.2	34.2
	Agree	16	42.1	42.1	76.3
	Neutral	9	23.7	23.7	100.0
	Total	38	100.0	100.0	

Table 12 through Table 15 show frequencies and percentages of participants, who responded to on the level of technical support variables.

Table 12

Frequency Counts, and % for Designated Technical_support1 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	8	21.1	21.1	21.1
	Agree	20	52.6	52.6	73.7
	Neutral	6	15.8	15.8	89.5
	Disagree	3	7.9	7.9	97.4
	Thoroughly disagree	1	2.6	2.6	100.0
	Total	38	100.0	100.0	

Table 13

Frequency Counts, and % for Designated Technical_support2 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	5	13.2	13.2	13.2
	Agree	10	26.3	26.3	39.5
	Neutral	16	42.1	42.1	81.6
	Disagree	7	18.4	18.4	100.0
	Total	38	100.0	100.0	

Table 14

Frequency Counts, and % for Designated Technical_support3 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	1	2.6	2.6	2.6
	Agree	7	18.4	18.4	21.1
	Neutral	10	26.3	26.3	47.4
	Disagree	13	34.2	34.2	81.6
	Thoroughly disagree	7	18.4	18.4	100.0
	Total	38	100.0	100.0	

Table 15

Frequency Counts, and % for Designated Technical_support4 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	2	5.3	5.3	5.3
	Agree	12	31.6	31.6	36.8
	Neutral	10	26.3	26.3	63.2
	Disagree	10	26.3	26.3	89.5
	Thoroughly disagree	4	10.5	10.5	100.0
	Total	38	100.0	100.0	

Table 16

Frequency Counts, and % for Designated Technical_support5 Variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Thoroughly agree	3	7.9	8.1	8.1
	Agree	13	34.2	35.1	43.2
	Neutral	11	28.9	29.7	73.0
	Disagree	8	21.1	21.6	94.6
	Thoroughly disagree	2	5.3	5.4	100.0
	Total	37	97.4	100.0	
Missing	System	1	2.6		
Total		38	100.0		

Descriptive Statistics

Table 17 shows descriptive statistics such as mean, standard deviation, low and high for designated perceived levels of telework efficiency, social interaction, and technical support variables. Respondents were office workers and teleworker. Perceived level of telework efficiency was measured using validate five-point Likert-type scale on five items that range from five to 25. Survey questions (1-5) were under perceived level of telework efficiency. Perceived level of social interaction was measured using validate five-point Likert-type scale on five items that range from five to 25. Survey questions (1-5) were under perceived level of social interaction. Perceived level of technical support was measured using validate five-point Likert-type scale on five items that range from five to 25. Survey questions (1-5) were under perceived level of technical support. All dependent variables had positive and negative point scores of 5 = *thorough agree* to 25 = *thorough disagree* instrument that consisted of 15 items. Table 17 described each dependent variables minimum, maximum, means, and standard deviation value.

Table 17

Descriptive Statistics for Designated Level of Telework Efficiency, Level of Social Interaction, Level of Technical Support

	N	Minimum	Maximum	Mean	Std. Deviation
Telework1	38	1.00	4.00	2.5526	.92114
Telework2	38	1.00	5.00	2.3421	.93798
Telework3	38	1.00	5.00	3.2105	1.11883
Telework4	38	2.00	5.00	3.4211	.97625
Telework5	38	1.00	5.00	2.1842	.98242
Social_interaction1	38	1.00	5.00	3.1579	1.17465
Social_interaction2	38	1.00	5.00	3.1842	1.13555
Social_interaction3	38	1.00	5.00	3.1053	.95265
Social_interaction4	38	1.00	5.00	3.0789	1.02355
Social_interaction5	38	1.00	3.00	1.8947	.76369
Technical_support1	38	1.00	5.00	2.1842	.95451
Technical_support2	38	1.00	4.00	2.6579	.93798
Technical_support3	38	1.00	5.00	3.4737	1.08396
Technical_support4	38	1.00	5.00	3.0526	1.11373
Technial_support5	37	1.00	5.00	2.8108	1.04981
Valid N (listwise)	37				

Table 18 shows the regression coefficient for perceived level of telework efficiency variables. Results of the regression for perceived level of telework efficiency variables were significant, (r=.521, p<.01).

Table 18

Regression Coefficient for Perceived Level of Telework Efficiency

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.390	.401		3.469	.002
	Telework1	.027	.092	.052	.289	.775
	Telework2	.147	.079	.293	1.858	.073
	Telework3	-.162	.098	-.386	-1.658	.107
	Telework4	-.135	.097	-.279	-1.385	.176
	Telework5	.088	.086	.185	1.033	.310

Table 19 shows the regression coefficient for level of social interaction variables. Results of the regression for level of social interaction were significant, (r=.358, p<.05).

Table 19

Regression Coefficient for Perceived Level of Social Interaction Variables

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.122	.364		3.085	.004
	Social_interaction1	-.044	.074	-.111	-.604	.550
	Social_interaction2	-.064	.078	-.155	-.821	.418
	Social_interaction3	.043	.076	.088	.571	.572
	Social_interaction4	.046	.083	.100	.552	.585
	Social_interaction5	.333	.092	.541	3.636	.001

Results of the regression for level of technical support were not significant.

Presentations and Analysis of Data

All data was tested for normality and achieved a skew within the -2 and + 2 range. (See Appendix E). The data which were normally distributed were then used to conduct

the Pearson's Correlation and t tests as proposed. A Pearson's correlation was first conducted to test the strength of association between the independent and dependent variables (See Table 20.).

Table 20

Correlation between Perception of Constraints and Workplace (N=38)

	1	2	3	4	5
1. Workplace	1	.521 **	.358 *	.174	.387 *
2. Efficiency		1	.783 **	.667 **	.903 **
3. Social Interaction			1	.688 **	.920 **
4. I.T Support				1	.874 **
5. Overall Approval					1

**** Correlation is significant at the .01 level (2-tailed) * Correlation is significant at the .05 level (2-tailed)**

A Pearson's Correlation measured a significant relationship between work place (office or telework) location and perceived level of telework efficiency (r=.521, p<.01), workplace (office or telework) location and perceived level of social interaction (r=.358, p<.05), workplace (office or telework) location and overall approval (r=.387, p<.01). A significant relationship was not measured between workplace (office or telework) location and perceived level of technical support. Therefore the $H_0$1 and $H_0$2 were rejected, because differences between the two sub-groups were found to exist. $H_0$3 however was not rejected because perceptions in the availability of perceived level technical support were not significantly different between teleworkers and office workers. It was also estimated that differences in the overall acceptance of telework were significantly associated with whether or not a respondent's workplace was at the office or

telework location (r=.387, p<.05). *t*tests were run to measure these relationships further. Outcomes are reported in Table 21.

Table 21

Mean Scores, Standard Deviations and t tests (N=38)

	Teleworkers		Office-Workers				
Constraint	M	SD	M	SD	△	t	p
Efficiency	20.0	3.27	16.54	2.42	3.46	3.66	.001 **
Social Interaction	18.5	3.48	15.85	3.22	2.65	2.5	.027 *
Technology Support	17.58	4.08	16.35	2.95	1.24	1.06	.295
Overall Approval	56.08	9.47	48.73	7.85	7.35	2.52	.017 *

A *t* test measured significantly greater perceptions of telework efficiency (p=.001), social interaction (p=.027) and overall approval of telework *(*p=.017). Differences measured for perceived level of technical support were not significant between workplace groups. It should be noted however that the scores offered by both groups were much lower than the maximum approval scores of 25 and an overall maximum potential score of 75. Outcomes suggested that while constraints regarding telework were generally higher for those who work in an office location, low approval or agreement scores both groups considered the listed items as potential constraints. Differences in constraint perceptions by workplace are illustrated in Figure 2.

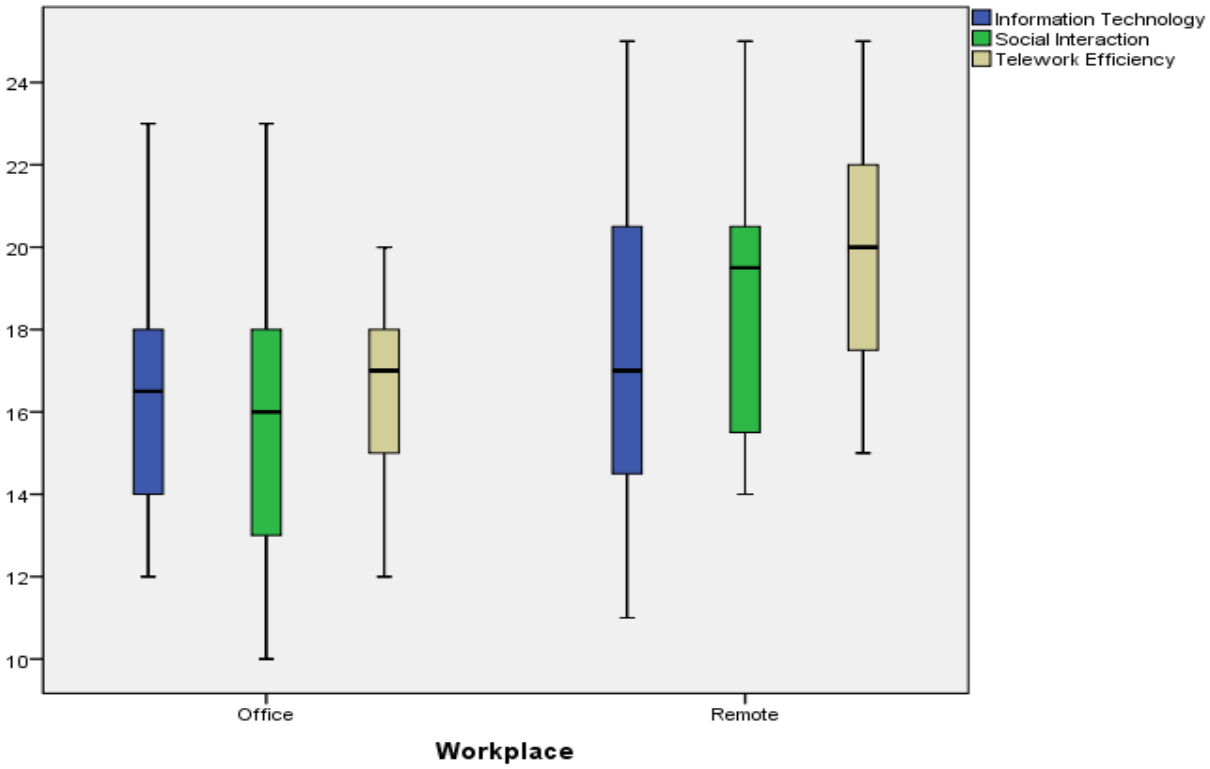

Figure 2. Comparative perceptions of constraints: Teleworkers versus office workers.

Summary

The data collected from 38 respondents via an online survey were imported into SPSS software program for analysis. Descriptive statistics were performed to identify the number of office worker and teleworker of the sample. Almost a third (32%) of the respondents were teleworkers and over two-thirds (68%) were office workers. Employees at USDA Southeastern Location (Stoneville, Mississippi), who are EBA members participated in the study.

A Pearson analyses were performed to determine whether a relationship exist between perceived level of telework efficiency variable and workplace (office or telework) location. The findings supported that a statistically significant relationship between perceived level of telework efficiency and workplace (office or telework) location.

A Pearson and regression were performed to determine whether a relationship exist between percieved level of social interaction variables and workplace (office or telework) location. The findings supported that a statistically significant relationship between percieved level of social interaction and workplace (office or telework) location.

A Pearson and regression were performed to determine whether a relationship exist between perceived level of technical support and workplace (office or telework) location. The results failed to reject null hypothesis 3. The findings showed that no statistically significant relationship between perceived level of technical support and workplace (office or telework) location. Overall acceptance of telework was higher between teleworker.

Chapter 5 provided an explanation of the research findings, recommendations for management specialists, implications for social change, and suggestions for future research. Limitations of this study are also described. The chapter provided results that were unanticipated and explained how the findings of the current study support with or separate from findings of prior research studies discussed in the literature review.

Chapter 5: Discussion, Conclusions, and Recommendations

Overview

The purpose of this quantitative correlation study was to examine the relationships between perceived levels of telework efficiency, social interaction, technical support, and workplace (office or telework) location. Differences in perceptions of these factors by workplace (office or telework) location may provide a better understanding of potential constraints in developing successful telework programs. Outcomes for this study confirmed that a need for considering social exchange and the effectiveness of telework may play a role in organizational efficiency and growth.

Chapter 4 presented the data analysis procedures implemented and the study's results. Chapter 5 is a summary of the research study and a discussion on several important final components structured in the following order: (a) interpretation of key findings, (b) limitations of current study, (c) recommendations for further research, (d) recommendations for workplace location, (e) implications for management/social change, and (f) conclusions.

Conclusions of the Study

Approximately 37% of the United States labor force reported teleworking or working remotely in 2015 (Jones, 2015). Despite continuing increases in the proportion of individual's teleworking, a lack of information in the literature concerning factors that affect comparative perceptions and experience of workplace (office or telework) location. The outcomes estimated that perceived constraints for telework were higher for those who work in an office location. A significant relationship between workplace (office or

telework) location and perceived level of telework efficiency (r=.521, p<.01), workplace (office or telework) location and perceived level of social interaction (r=.358, p<.05), and workplace (office or telework) location and overall approval (r=.387, p<.01) were estimated. A significant relationship was not measured between workplace (office or telework) location and perceived level of technical support. Findings of this study suggested that the constraints for telework were substantial regardless of workplace (office or telework) location as evidenced by low overall approval scores of 56 and 48 for teleworkers and office workers respectively. However, those who worked in office settings did appear to have a weaker perception of both the level of telework efficiency and social interaction working in a remote location was able to afford.

The findings of this study are consistent with studies conducted by Noonan and Glass (2012), who revealed that managers fear to give up supervisory control of workers and that workplace location of the respondent effected perceptions of fear. Noonan and Glass noted that telework location had a positive impact on productivity, decreased absenteeism, and increased retention. However, remote work was found to have a negative effect on work-family conflict. Large organization and branches of the federal government have begun to collect and analyze empirical data to support the shifting workplace (Brown, Pearl, Arduengo, & Taylor, 2016; Zhang, 2016). Particular requirements for information concerning factors that effect choice of a workplace (office or telework) location, is an information gap that is just beginning to be filled.

Significance of Study

A telework program is an arrangement that permits workers to fulfill work tasks away from the primary office. While these programs are expected to increase performance and save costs, an organization that identifies only one constraint may avoid implementing a telework program or converting itself into a telework-based establishment. Researchers have been studying the attitudes, values, and practices of teleworkers (Golden, 2007; Hynes, 2014). However, examination of perceived levels of telework efficiency, social interaction, technical support, and workplace (office or telework) location are just starting to emerge (Alizadeh, 2012). Results from this study may contribute to a limited body of scholarly literature on the relationship between these perceptions and workplace (office or telework) location. Identifying potential constraints may be able considered by organizations developing strategies to promote telework programs.

The results estimated that there is significantly stronger perceptions of telework efficiency (p=.001), social interaction (p=.027) and overall approval of telework (p=.017) among those who work remotely, all results which were anticipated. Poor perceptions in network security (James & Griffiths, 2014), administrative trust (Burbach & Day, 2012; Karia & Asaari, 2016), social isolation (Anderson et al., 2014; Scott et al., 2012) and work-life balance (Grant et al., 2013; Hilbrecht et al., 2013) are being addressed by organizations. Empirical researchers (Martin & MacDonnell, 2012; Robertson et al., 2012; Weinert et al., 2014) have studied telework challenges as the practice of remote work becomes increasingly commonplace (Fonner & Roloff, 2012).

The theoretical framework used to guide this study sought to determine the impact of identified constraints. The findings emerging through the use of a theoretical framework might help identify factors in perceived levels of telework efficiency, social interaction, technical support, and the physical workplace (office or telework) location of the respondent. According to Pereira et al. (2014), the TOC may likewise be important in addressing problems for enhancing upper management. Leaders and managers should focus attention to components that influence framework implementation and delay the improvement of achieving its organization objectives (Naor et al., 2013; Sadat et al., 2013; Yao, 2012).

This analyses revealed that respondents who telework responded higher than the respondents who work in the office (See Figure 2). These perceptions validate the suggestions of Noonan and Glass (2012) that telework provided an instrumental and flexible option to meet nonwork obligations. Findings suggest that employees in this study acknowledge the importance of IT regardless of workplace location. Outcomes however can be used to help management's capability in developing new successful methods and strategies for promoting teleworker in organizations.

Data Analysis and Interpretation of Research Questions

A nonrandom sample of N=38 workers in the federal sector completed the web-based electronic survey. Participants were USDA (Southeastern) employees, almost 70% who work at the office location and 30% who telework or work remotely. The collected data were used to test the hypothesis and answer the research questions. The confidence level was held at .95, therefore a p-value below .05 supported rejecting the null

hypotheses of no difference. This section provides an interpretation of the research findings presented in Chapter 4.

Research Question 1

Research Question 1 asked whether there was a relationship between perceived level of telework efficiency and the workplace (office or telework) location of the respondent. $H_0$1 stated that there is no relationship between perceived level of telework efficiency and the workplace (office or telework) location of the respondent. A Pearson correlation estimated that the relationship between these two variables was significant ($r = 0.521$, $p < 0.01$) was significant and that workplace had a moderately strong impact on perception of telework efficiency. The null hypothesis was therefore rejected.

The *t* test in Table 21 revealed the perceived level of telework efficiency is significant. The statistics outcome of the *t* test measured a significantly greater perception of telework efficiency ($p = .001$). These findings are consistent with other studies estimating a more positive perceptions of efficiency among teleworkers (Anderson et al., 2014; Belzunegui et al., 2014; Greenhaus & Kossek, 2014; O'Neill et al., 2014; Rabiee et al., 2014).

Research Question 2

Research Question 2 asked whether a relationship existed between perceived level of social interaction and the workplace (office or telework) location of the respondent. A Pearson's correlation estimated a significant ($r = 0.358$, $p < 0.05$) and moderate relationship, therefore, rejecting the $H_0$2 of no difference in perceived level of social interaction by workplace (office or telework) location. These results were consistent with

prior studies conducted by Bae and Kim (2016) which found that the level of social exchange experienced was driven by the workplace location of workers, and Bentley et al. (2016) who found that workplace location had a huge impact on perceived organizational social support and feelings of social isolation.

The *t* test in Table 21 revealed differences in the perceived level of social interaction by workplace (office or telework) location. The *t* test measured a greater perceived level of social interaction office workers (18.5) compared to teleworkers (15.85). These outcomes are supported by studies which resulted in stronger sense of social interaction experienced by those working in an office location or nonvirtual environment (Bailey & Kurland, 2002; Belle et al., 2015; Harrington & Santiago, 2015; Lavigneet al., 2011; Mann & Holdsworth , 2003; Vesala & Tuomivaara, 2015; Weinert, et al., 2015; Yahaya et al., 2015).

Research Question 3

Research Questions 3 inquired whether a relationship existed between perceived level of technical support and workplace (office or telework) location. A significant relationship was not measured between perceived technical support and workplace, therefore the $H_0$3 was not rejected. The results found inadequate evidence that the perceived level of technical support was different by workplace (office or telework) location. This suggests that perceived levels of technical support may not function as a constraint or barrier to telework program implementation. The *t* test in Table 21 revealed that perceived levels of technical support were about equal for teleworkers and office workers. Therefore, technical support did not appear to be constraint among this sample

of workers. Harandi and Ghaffari (2012) noted that new technology may promote a successful telework program in an organization while Mupepi and Mupepi (2014) found that productivity is appreciated when technology integration is valued in an organization. Equal levels of perceived technical support between the two groups may suggest that the organization makes an effort to assure the infrastructure provides ample technical support for all workers regardless of workplace location.

Central Question

The central question inquired whether there was a relationship between overall perceptions or acceptance of telework and according to the workplace (office or telework) location of the respondent. The results of the Pearson's correlation measured a significant higher l relationship between approval of telework and work location (r = 0.387, $p < 0.05$). A t test measured significantly a greater overall approval of telework among remote workers compared to office workers. These results were consistent with findings by Noonan and Glass (2012) who found that telework received high rates of appeal among remote workers because of the ability of telework to cut commuting time, commuting costs, and additional energy consumption.

An illustration of differences in perceptions between the telework and office workers is found below (See Figure 3).

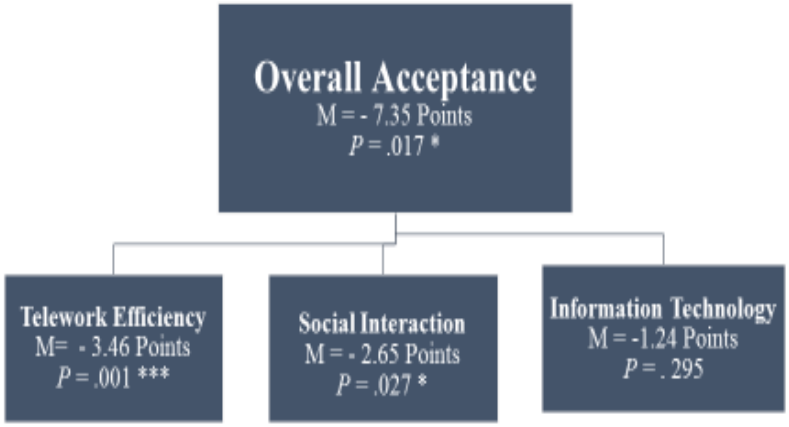

Figure 3. Differences in perceptions of telework constraints among office workers.

Relationship to Theoretical Base

Goldratt's TOC was used to drive this study (Shams-ur-Rahman (1998). It was hypothesized that perceived levels of telework efficiency, social interaction, and technical support were different according to the workplace (office or telework) location of the respondent. Results were intended to identify potential constraints to telework program implementation and suggest that lower perceptions of efficiency and social interaction could function as constraints in telework implementation. Outcomes suggest more positive attitudes towards teleworking among those who work remotely. Further analysis of variances in perceptions between the office workers and teleworker workers about the benefits and acceptance of telework is warranted.

Assumptions

Several assumptions were made in this study: (a) participants provided truthful responses, (b) participants read the criteria before completing the survey, (c) data

collected from the online survey were valid, reliable and adequate to answer the research questions, (d) the correct theoretical framework was chosen to examine the phenomenon of interest, and (e) it was assumed that the sample size was ample for drawing inferences based on findings.

A quantitative approach was used because this method provides data that can be expressed in numeric form and statistical tests could be performed to respond to hypothesis statements about the data. These include descriptive statistics including mean, standard deviation, and inferential statistics such as *t* tests. Measurements based on quantitative data allowed derivation of important facts regarding differences between groups and provided crucial information used to interpret findings and draw conclusions.

Limitations of Current Study

Researchers have established that each research study has particular limitations based on the exclusive nature in which the study was intended and applied (Simon, 2011). While the study provides information useful to organizations and businesses, it is significant to identify key limitations. First, the respondents worked from the same federal organization based in one geographic region. Therefore, findings lacked generalizability to other types of organizations and regions. Second, the study utilized a web-based survey instrument. Lack of interaction between the researcher and respondent prohibited the researcher from asking questions which may have increased insights into respondents' views.

Limitations are possible shortcomings of the study that are normally out of the researcher's control (Marshall & Rossman, 2011). Study limitations included (a) small

sample size, (b) narrow geographic locations, (c) time constraints to conduct the study, and (d) limited researcher capability. The sample population was limited as the source of the participants was a single federal government organization in Southeast Area located in Stoneville, Mississippi. The study data was collected within a limited discrete period of time. Finally, it is recognized that researchers need training when conducting any research (Engel & Russell, 2016) and that experience of this researcher was limited.

Recommendations for Future Research

The limitations of the current study effected the ability to generalize the findings to other types of organizations and geographies. Subsequently, future researchers might draw a larger random sample of workers from an extensive combination of organizations and professions so that findings might be generalized to a broader population of workers. A mixed-method approach using a combination of close ended quantitative data collection and open-ended question, face-to-face interviews, observations, triangulation, or other qualitative data might offer more descriptive information that helps provide a richer understanding of the phenomena. Finally, demographics inclusive of gender, age, and education level may serve as additional modifying factors that effect workplace choice and perceptions, and therefore merit consideration in future research.

This study identified two of three potential constraints appeared to act differently between remote workers and office workers where those who worked at the office location appeared to have a more negative perception of telework. Another problem important to examine in a future study is why some remote workers experience social isolation and others do not. Previous studies have identified that found that social

isolation adversely affects workplace (office or telework) location in organization level (Bentley et al., 2016; Harrington & Santiago, 2015). Masuda et al. (2012) found that telework availability their relationship with work-to-family conflict affect workplace (office or telework) location. Additional research is necessary to provide an understanding about how telework efficiency and the impact of social isolation effect employment satisfaction and turnover. It may also assist with understanding how particular character types are more predisposed to choosing an office or remote workplace location.

Recommendations for Workplace Location

Outcomes of the web-based survey suggested significantly different perceptions of telework efficiency and social interaction by workplace location. Organizations might have time to develop and implement a complete range of policies intended in improving telework program. A single method in telework program might not prove sufficient in organizations. For example, Mas-Machuca, Berbegal-Mirabent, and Alegre (2016) explained that no-single factor explained a substantial amount of work in organization. From Mas-Machuca et al's perspective, work-life balance depends upon how the employee values these variables. This supports the widespread knowledge in teaching, consulting, and implementing of constraints in information of using a wide variety of strategies and the idea that the first step in developing any approach aimed to enhance the telework program. Strategies might respond to problems that office workers and teleworkers might value.

Experimental research in which a treatment, procedure, or program is intentionally introduced and a result or outcome is observed, may assist employees and managers gain a better understanding of how telework programs may contribute to an organization (Cookson, 2016). Some research has found that the spreading of telework can compromise important social and emotional connections to an organization. This study suggests that negative perceptions regarding the adverse effect of remote workplace location on social interaction as a critically important constraint.

Implications for Practices and Implications for Social Change

The results of the study might be useful to employees deciding if telework is or is not a good employment choice. The study results indicated that organization may develop strategic plan in practice from traditional age to information age. Employee perceptions of benefits of telework in the study might influence the individual in determining the type of location in which to work. Also, the results might promote the planning of expanding inclusion in telework techniques and strategies by organizations (Harandi & Ghaffari, 2012).

The results of this study might affect positive social change in the context of how telework implementation is perceived and supported by employees of an organization. The study results might provide vital information that will potential increase the workforce, economic growth and technological development. Also, the result of this study might offer benefits to generate program for part-time workers. Other potential opportunities of positive social change in this study might include (a) an increase in the

number of teleworkers, (b) a decrease in the barriers to implementing telework, and (c) the potential to substitute hours at the office for hours teleworking.

Teleworker is no longer considered an innovative approach for organizations. Likewise, while best- practices and management responsibility continue to evolve. As the effects of the factors in this study are identified new companies and organizations need to consider essential components when strategizing how to develop successful productivity growth in an organization. Strategies to improve efficiency growth and job performance are all associated positive social change between leaders and employees.

Kossek (2016) stated that organizational change is understood by design and evaluation that is supporting by employers and employees. This study provided a possibility of guaranteeing more employee involvement in the effects of workplace (office or telework) locations in organizations. Opportunities planned to bring a better understanding and to transfer the knowledge of the experience and the effects of workplace (office or telework) locations can only help future workers. There are limited studies emphasizing experimental evidence on the effects of workplace location experienced by large corporations. More experimental information across organizations is encouraged (Bae & Kim, 2016).

Strategies for Promoting Telework Programming

One of the most frequent discussed matters regarding workplace (office or telework) locations is how to stay flexible and productivity during change management. Olson-Buchanan, Boswell, and Morgan, (2016) referred to four areas managers should focus on to sustain effective relationships with workers: (a) flexibility, (b) productivity,

(c) job attitudes, and (d) work-conflict. Best practices set clear goals and expectations with an organization and individualized approaches tailored to each worker as a step towards success (Basile & Beauregard, 2016). This is a crucial step for both managers and employees to understand exactly what is expected. Documenting the goals and expectations during an open discussion as a working arrangement between the manager and employee will validate the approach and add a more significant to the approach for future productivity in workplace (office or telework) locations.

This study identifies and reports constraints which can interfere with successfully expanding telework programs. Recommendations for creating a successful company or organization may rely on modifying policies and strategic plans that can decrease concerns as illustrated in this study. Improving the telework planning and management processes might give advantage to both the organization and employees.

Final Summary

An effective way to identify factors that is related to workplace (office or telework) locations is to conduct research that is coherent to the work environment. The factors this study identifies that are related to workplace (office or telework) locations are perceived levels of telework efficiency and social interaction. As a result, an effective telework programs are likely to promote the needs of workers and substituting hours at home for hours at the office (Noonan & Glass, 2012). Generally, organizational leaders might pursue plans and policies to create organizational concepts such as obligation, association, and responsibility.

This study found a correlation between perceived levels of telework efficiency, social interaction and workplace (office or telework) location. Perceived level of telework efficiency might be used to enhance teleworkers, professional, and leaders. Finding other possibilities to connect with employees who telework from home could provide opportunities for full benefits of telework such as reduced costs and stability of operations accordingly, organizational leaders may pursue to interact with upper management to produce social change in the processes and procedures, including providing employees and management with adequate training in the difference area of teleworking, such area as: growth efficiency, operational total savings, innovative hiring options, and increased capability to adjust virtual organization. Findings may be useful for assisting strategies for improving perceived constraints of telework efficiency and social interaction when implementing new organizational telework programs.

Chapter 1 discussed the importance of utilizing ICT to maintain interchanges and connections in a telework program. The effects of ICT connection gives teleworkers more control of dealing with time and adaptability which has been associated with numerous benefits. The current study only identified factors that effects workplace (office or telework) location in one organization. Further study addressing time spent teleworking using ICT to connect with office workers and teleworkers may reveal a correlation between the time spent and workplace (office or telework) location.

The literature discussed the social interactions is important in teleworking (Weinert et al., 2015). The authors noted that feelings of isolation were a stressful response to difficulty separating home life from work life, concerns about equality

between themselves and traditional workers, and compromised communication. Yahaya, et al. (2015) noted factors that effected communication when teleworking included clear collaboration and other pro-social behaviors. Many claims based on research findings of the dissimilar of conduct between teleworkers and nonteleworkers have been made. Further research is required to measure the variations over time between the two groups in work/life balance, office influence, and promotion.

Finally, larger quantitative studies utilizing larger and randomly selected samples are recommended for further understanding perceived constraints in remote work. In chapter 2, work motivation was mentioned as a potential area to research in workplace (office or telework) location. The results of work motivation in office workers are yet to be researched. The lack of knowledge of the effects of an organization work environment is perplexing and possibly harmful. Office workers lacking motivation may cause high turn around rate in organizations, causing loss of money, time, and other resources. This is only one example of a concept that needs to be researched. Studies under different conditions need to be conducted and evaluated in order for management to make informed choices regarding work environments that support effective job production.

The survey of participant responses revealed that despite some problems, when properly executed and supervised, perceived levels of telework efficiency and social interaction may positively impact workplace (office or telework) location. Overall acceptance of perceptions of telework and office work locations give the idea of (a) expanding flexible times, (b) increasing social interaction, (c) encouraging quality of life,

and (d) promoting inclusion in teleworking. Depending upon workers' accommodation for changing in workplace location, perception and constraints of level of telework efficiency and social interaction are important for workers overall well-being when considering to telework or not. Organization improvement of perceptions of telework may help gain a sustainable competitive advantage when organizations accommodate employee needs while teleworking. Based upon this study, organization may focus upon perceptions of level of telework efficiency and social interaction between employees.

Bentley et al. (2016) found that organizational social support and teleworker support was associated with increased job satisfaction and reduced psychological strain. Some improvement organization may incorporate to reduce constraint in perceptions of level of telework efficiency and social interaction are the use of cell phones, instant messaging, email, videoconferencing, facetime, social media, and learning portals (Olson-Buchanan et al., 2016). Strategies for addressing potential constraints may prove to be quite valuable tool for managers who are charged with attracting competent employees and/or retaining their current workforce for new telework program arrangements.

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Appendix A: Permission to use Survey Tool

Subject: Re: Permission to use your survey in Dissertation Research Project
Date: 11/01/2014 04:03 PM

Dear Yolanda Harvey,

You can use our survey for your project with referring to the authors and paper.
Best,

Farhad Ghaffari
Faculty member of Economy Dept.
Azad University, Science and Research Branch
Sent from my iPad

On Oct 30, 2014, at 7:37 PM, "Yolanda" <yharvey19@excite.com>; wrote:

Dear Dr. Harandi and Dr. Ghafari,

The purpose of this e-mail is to request your permission to use your Telework survey to collect data for my dissertation research project. I am a doctoral student at Walden University in the Doctor of Philosophy in Management program specializing in Information Systems Management. My research study will focus on the relationships among economic constraints, technology constraints, risks, and telework implementation. The problem that this study will address is the lack of information concerning factors that influence teleworkers performance.

The target population will consist of full-time telework employees in federal sectors. Depending upon your approval, your survey will be administered electronically via www.surveymethods.com.

I would be pleased to share the results of my study with you. Should you require additional information to render a favorable decision, please contact me?

Appendix B: Telework Management Scale (Harandi & Ghafari, 2012)

How much do you agree with the following statements?

Thoroughly Disagree Disagree Neutral Disagree Thoroughly Agree

Telework Efficiency

1. Telework increases productivity.
2. Telework provides more recruitment options.
3. Telework creates problems with working hours and overtime pay rate. (R)
4. It is hard to ensure the safety and health of teleworkers. (R)
5. The organization has tasks that are suitable for teleworking.

Social Interaction

1. Losing one person in an office because of teleworking would be a problem.
2. Telework hinders teamwork. (R)
3. Managers lack trust in teleworkers.
4. Managing absent workers is difficult. (R)
5. Employees like to do telework.

Technical Support

1. Telecommunication technology supports working at home.
2. The company has an appropriate infrastructure.
3. Telework requires too much IT support. (R)
4. Sensitive information can be lost through teleworking. (R)
5. Hardware, software and infrastructure expenses for telework are significant. (R)

Scoring: Each item for the dependent variables receive a positive point score. Items with an R receive a negative point score. Total scores reflect the sum of positive and negative point scores.

	Forward	Reverse
1.	Thoroughly Disagree	Thoroughly Agree
2.	Disagree	Agree
3.	Neutral	Neutral
4.	Agree	Disagree
5.	Thoroughly Agree	Thoroughly Disagree

Perceived Level of Telework Efficiency: An ordinal value based on a five-point Likert scale on five Items. Range = 5-25

Perceived Level of Social Interaction: An ordinal value based on a five-point Likert scale on five Items. Range = 5-25

Perceived Level of Technical Support: An ordinal value based on a five-point Likert scale on five Items. Range = 5-25

Independent Variable:

Which is your primary work arrangement? (Check One)

- Teleworker (Home/Other)
- Nonteleworker (Office)

Appendix C: Letter of Cooperation

United States Department of Agriculture

Research,
Education, and
Economics
Agricultural
Research Service

Letter of Cooperation

February 17, 2016

Dear Yolanda Harvey,

Based on my review of your research proposal, I give permission for you to conduct the study entitled, "Identifying Factors Related to the Level of Job Satisfaction among Office Workers within United States Department of Agriculture (USDA), Agricultural Research Service, and Jamie Whitten Delta States Research Center".

As part of this study, I authorize you to recruit potential EBA participants through the USDA email distribution lists. The data will be collected from a purposive sampling of EBA members in USDA government organization in Stoneville, Mississippi. The data collection processes for this study will be survey research design. Potential participants will receive an e-mail that explains the purpose of the study and the future use of the information collected; assures privacy; discusses potential risks to participants; requires informed consent; and provides a hyperlink to access the survey.

The participants will also receive the outline criteria for participation and directions for assuring anonymity. The email will have information that explains potential risks, benefits, informed consent, question whether participants are teleworkers, and a hyperlink to access the questionnaire. Survey Monkey is an online survey that will be used for this study. Individuals' participation will be voluntary and at their own discretion. The findings to this study will be disseminated with a 1-2 page summary of the research results to the invitation group, EBA members at USDA, Stoneville, MS, Walden, and general public who are interested in the researcher's study.

We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,

CAROLINE HORTON

Digitally signed by CAROLINE HORTON
DN: c=US, o=U.S. Government, our=Department of Agriculture, cn=CAROLINE HORTON, 0.9.2342.19200300.100.1.1=12001000108123
Date: 2016.02.17 17:58:31 -06'00'

Carlean F. Horton

Location Support Services Office
Southeast Area, Jamie Whitten
Delta States Research Center 141
Experiment Station Road, P.O. Box
225Stoneville, MS 38776-0225

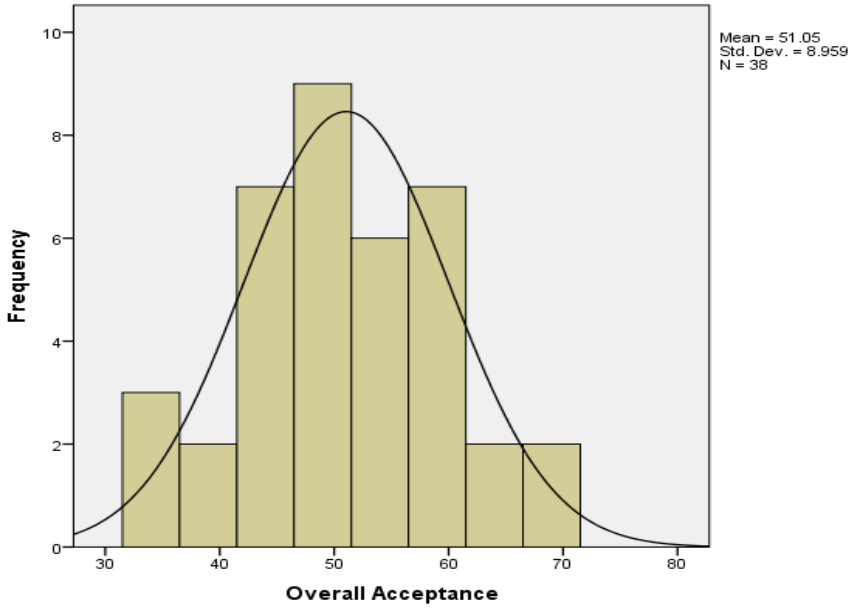
Appendix D: IRB Approval

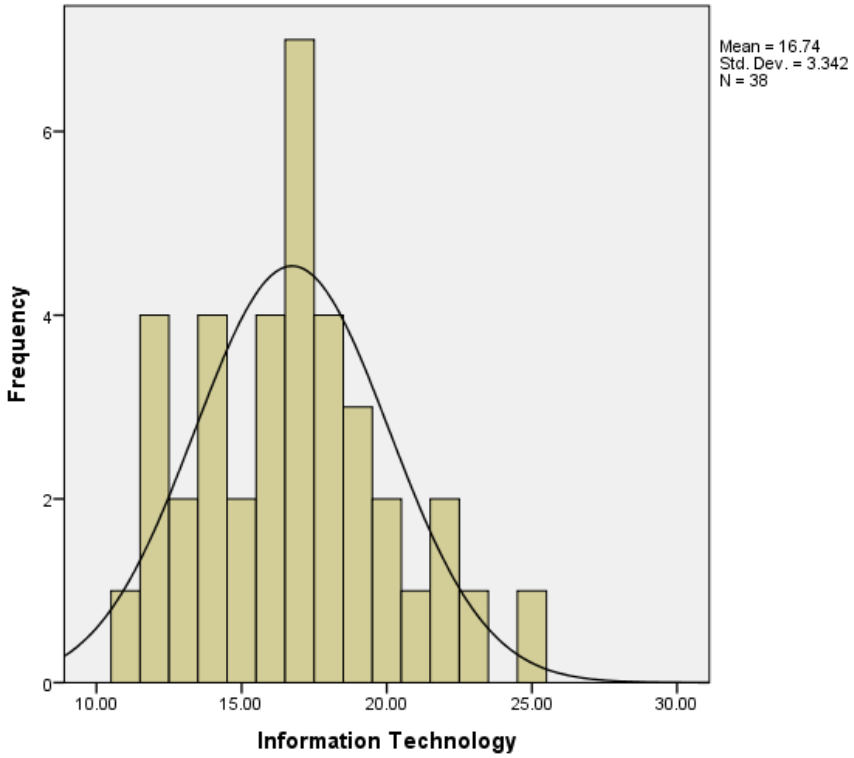
Dear Ms. Harvey,

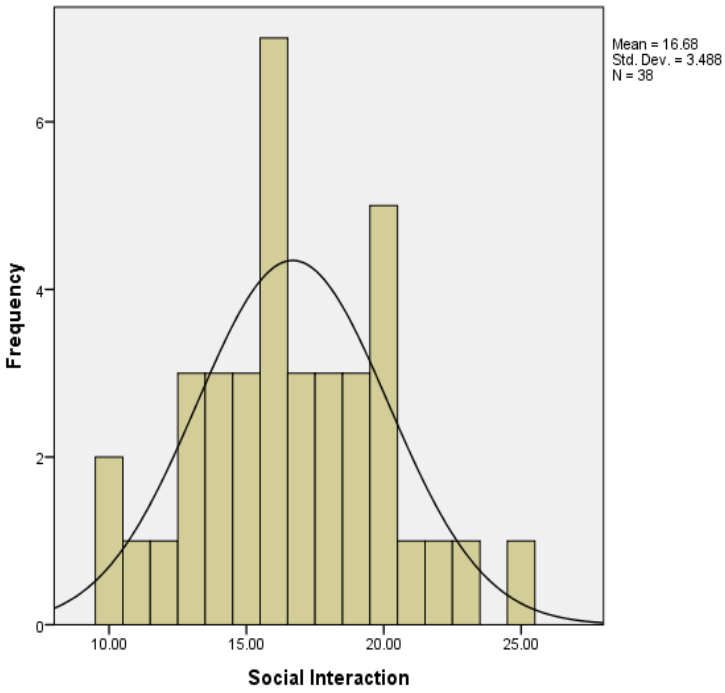
This email is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, "Identifying Factors related to the Level of Job Satisfaction among Office Workers," conditional upon the approval of the community research partner, which will need to be documented in a signed letter of cooperation. Walden's IRB approval only goes into effect once the Walden IRB confirms receipt of that letter of cooperation.

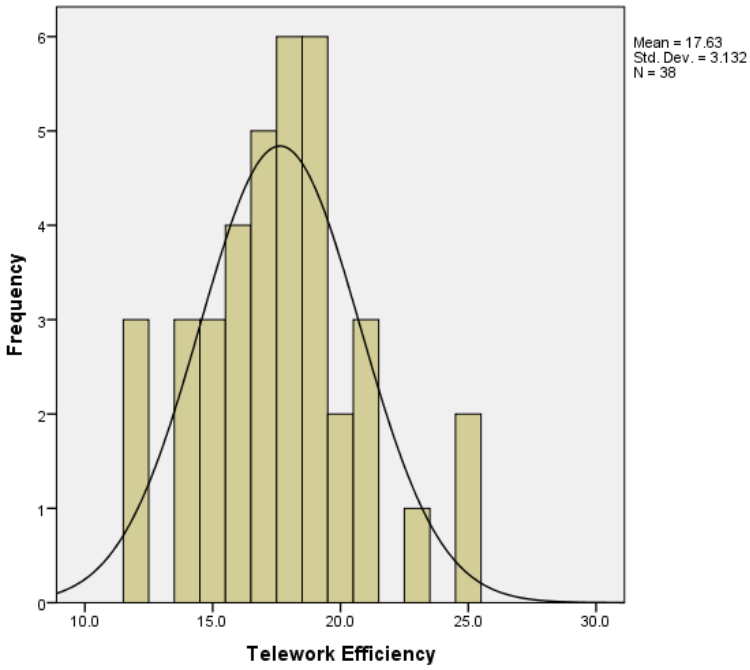
Your approval # is 12-23-15-0284658. You will need to reference this number in your dissertation and in any future funding or publication submissions. Also attached to this e-mail is the IRB approved consent form. Please note, if this is already in an on-line format, you will need to update that consent document to include the IRB approval number and expiration date.

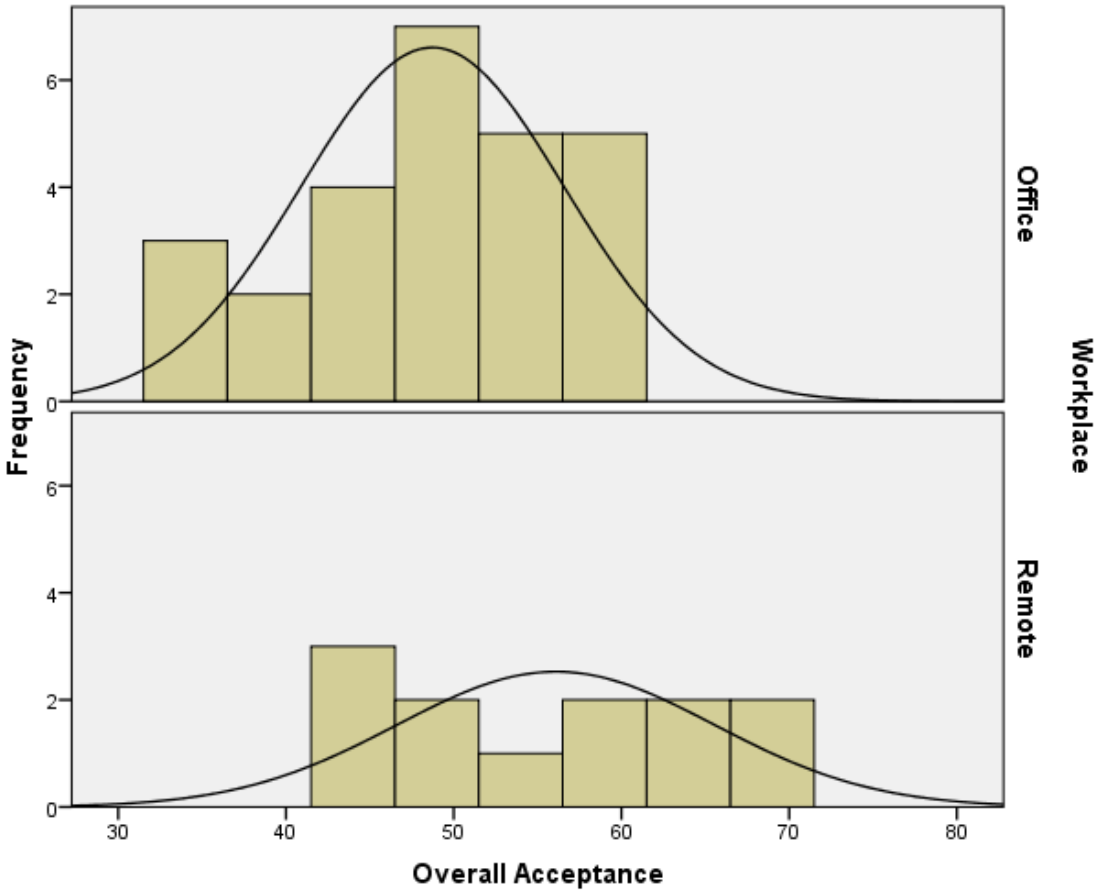
Appendix E. Measurements of Normality






Mean = 16.68
Std. Dev. = 3.488
N = 38
Frequency
0
2
4
6
10.00
15.00
20.00
25.00
Social Interaction


Mean = 17.63
Std. Dev. = 3.132
N = 38
Frequency
0
1
2
3
4
5
6
10.0
15.0
20.0
25.0
30.0
Telework Efficiency



Descriptive Statistics

	N	Skewness	
	Statistic	Statistic	Std. Error
Information Technology	38	.366	.383
Social Interaction	38	.118	.383
Telework Efficiency	38	.333	.383
Overall Acceptance	38	.034	.383
Valid N (listwise)	38		

Appendix F. Data Output

Correlations

		Workplace	Telework Efficiency	Social Interaction	Information Technology	Overall Acceptance
Workplace	Pearson Correlation	1	.521**	.358*	.174	.387*
	Sig. (2-tailed)		.001	.027	.295	.017
	N	38	38	38	38	38
Telework Efficiency	Pearson Correlation	.521**	1	.783**	.667**	.903**
	Sig. (2-tailed)	.001		.000	.000	.000
	N	38	38	38	38	38
Social Interaction	Pearson Correlation	.358*	.783**	1	.688**	.920**
	Sig. (2-tailed)	.027	.000		.000	.000
	N	38	38	38	38	38
Information Technology	Pearson Correlation	.174	.667**	.688**	1	.874**
	Sig. (2-tailed)	.295	.000	.000		.000
	N	38	38	38	38	38
Overall Acceptance	Pearson Correlation	.387*	.903**	.920**	.874**	1
	Sig. (2-tailed)	.017	.000	.000	.000	
	N	38	38	38	38	38

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

*. Correlation is significant at the 0.05 level (2-tailed).

Descriptive Statistics

	N	Mean	Std. Deviation
Employees Prefer	38	4.11	.764
Recruitment options	38	3.87	.741
Supports works at home	38	3.82	.955
Suitable Tasks	38	3.61	1.128
Required IT support	38	3.58	1.030
Productivity	38	3.45	.921
Health & Safety	38	3.45	.950
Appropriate infrastructure	38	3.34	.938
Proper Pay	38	3.26	1.107
Teamwork	38	3.24	1.125
Losing Office Personnele	38	3.16	1.175
Trust	38	3.11	.953
Risk of Losing Information	38	3.08	1.075
Absent workers	38	3.08	1.024
Costs	38	2.92	1.050
Valid N (listwise)	38		

Group Statistics

	Workplace	N	Mean	Std. Deviation	Std. Error Mean
Overall Acceptance	Office	26	48.73	7.846	1.539
	Remote	12	56.08	9.472	2.734
Information Technology	Office	26	16.3462	2.95218	.57897
	Remote	12	17.5833	4.07784	1.17717
Social Interaction	Office	26	15.8462	3.22108	.63171
	Remote	12	18.5000	3.47720	1.00378
Telework Efficiency	Office	26	16.538	2.4204	.4747
	Remote	12	20.000	3.2753	.9455

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Overall Acceptance	Equal variances assumed	1.400	.244	-2.515	36	.017	-7.353	2.923	-13.281	-1.424
	Equal variances not assumed			-2.343	18.265	.031	-7.353	3.138	-13.938	-.768
Information Technology	Equal variances assumed	1.510	.227	-1.062	36	.295	-1.23718	1.16447	-3.59883	1.12447
	Equal variances not assumed			-.943	16.540	.359	-1.23718	1.31185	-4.01081	1.53645
Social Interaction	Equal variances assumed	.406	.528	-2.303	36	.027	-2.65385	1.15218	-4.99057	-.31712
	Equal variances not assumed			-2.238	20.054	.037	-2.65385	1.18601	-5.12740	-.18030
Telework Efficiency	Equal variances assumed	1.765	.192	-3.660	36	.001	-3.4615	.9459	-5.3799	-1.5432
	Equal variances not assumed			-3.272	16.775	.005	-3.4615	1.0580	-5.6959	-1.2272