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A correlational study of telework frequency, information communication technology, and job satisfaction of home-based teleworkers

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ABSTRACT

A Correlational Study of Telework Frequency, Information Communication Technology, and Job Satisfaction of Home-Based Teleworkers

by

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M.S., University of Maryland University College, 2007
M.A., George Mason University, 1997
B.S., George Mason University, 1996

Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
Applied Management and Decision Sciences

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ABSTRACT

In 2008, 33.7 million Americans teleworked from home. The Telework Enhancement Act (S. 707) and the Telework Improvements Act (H.R. 1722) of 2009 were designed to increase the number of teleworkers. The research problem addressed was the lack of understanding of factors that influence home-based teleworkers' job satisfaction. Job dissatisfaction has been found to have a significant impact on voluntary turnover. The purpose of the study was to assess the relationship among telework frequency, information communication technology (ICT), and job satisfaction. The research questions were designed to answer whether correlational relationships exist among telework frequency, ICT, and job satisfaction and to identify primary concerns of home-based teleworkers regarding social interaction, recognition, and career advancement. Sociotechnical theory was the theoretical framework used in this quantitative correlational study. Data were collected from 218 home-based teleworkers via an online survey. Correlation and multiple regression analyses were performed to test the hypotheses. A Pearson product-movement analysis showed a significant positive relationship between ICT usage and job satisfaction. There was no significant relationship between telework frequency and job satisfaction. Pattern matching analysis indicated that teleworkers' concerns centered on a perceived desire for increased face-to-face communication with managers and coworkers. Organizational leaders could use the results of this study to develop strategies that leverage ICT media to enhance communication and collaboration and improve the quality of work life in virtual organizations.

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DEDICATION

I dedicate this dissertation to my loving family and friends who have supported me throughout my journey as a lifelong learner. Your words of encouragement and high expectations for me not only contributed to my pursuit of a doctoral degree but also were instrumental to my success. Your telephone prayers, calls, e-mails, and personal visits always came at the right moment to keep me focused on the path of completion.

If I could dedicate sections of this dissertation to individuals based on the degree of support received and sacrifices made, I would dedicate the largest portions to my husband, Elvis Trotman, and my sons, Ellion and Ellik Trotman. Somehow you understood the sacrifices involved in the dissertation writing process and continued to encourage me during the occasional moments when I questioned my ability to complete the doctoral program. You experienced firsthand how it felt knowing that there were times when completing this dissertation was my number one priority, which meant that fulfilling my responsibilities as a wife and a mother were not my primary focus. I apologize for the times when working on this dissertation rendered me physically, emotionally, and mentally absent from our family life, and I sincerely thank you for loving and supporting me even when I was undeserving. Your day-to-day personal sacrifices enabled me to persevere. I dedicate this dissertation to you.

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Chapter 1: Introduction to the Study

In 2001, Wiesenfeld, Raghuram, and Garud wrote, "At some point in the future, virtual work may become the norm, and employees may never experience what we now consider 'traditional' (i.e., nonvirtual) employment relationships" (p. 226). Wiesenfeld et al.'s prediction is materializing in 21st-century work environments, where technology is at the center of organizational change. The virtualization of modern organizations has evolved as a result of information communication technology (ICT) and the preponderance of *telework*. In 2008, 33.7 million Americans teleworked from home (WorldatWork, 2009). The number of teleworkers will increase with the Telework Enhancement Act (S. 707) and Telework Improvements Act (H.R. 1722) of 2009. Both bills require federal government agencies to establish telework programs and extend telework to all eligible employees.

The term, telework, refers to a work arrangement that enables employees to perform paid work from a location other than the traditional work establishment. Telework has resulted in a transformation of organizations into a new realm of virtual existence (Hill, Miller, Weiner, & Colihan, 1998). With the virtualization of the modern office, the leaders of many 21st-century organizations face challenges in understanding factors that affect aspects of job satisfaction among spatially and temporally dispersed employees (Daniels, Lamond, & Standen, 2001; Kurland & Bailey, 1999; Mello, 2007; Potter, 2003; Wiesenfeld et al., 2001).

Telework, also referred to as telecommuting or flexiplace, is an international phenomenon. In addition to the United States, organizations in Canada, Finland, and the

United Kingdom are the largest adopters of telework (Daniels et al., 2001; Nilles, 1998). Telework gained attention in the United States in the 1970s with the propositions of Nilles (1975). Nilles viewed telework as a viable and sensible strategy to address the escalating gas crisis of the 1970s by enabling employees to work from home or at a remote site located closer to home. Since the 1970s, telework has been extolled as a panacea for organizational challenges because of its purported efficacy in producing equilibrium between organizational needs and the needs of employees (Taskin & Edwards, 2007). In a 2008 report to Congress, personnel from the U.S. Office of Personnel Management described telework as a recruitment and retention tool, a strategy for continuity of operations, an energy-saving program, and a mechanism for controlling real estate cost. Kowalski and Swanson (2005) and Mello (2007) called telework an optimal business strategy for organizations and employees.

Despite the documented benefits of telework, empirical research has indicated that drawbacks exist (Greenhill & Wilson, 2006; Tietze, 2002; Tremblay, Paquet, & Najem, 2006). Among the most prevalent concerns are professional and social isolation (Cooper & Kurland, 2002; Golden, Veiga, & Dino, 2008; Harris, 2003; Potter, 2003; Taskin & Devos, 2005), lack of organizational identification and commitment (Scott & Timmerman, 1999; Thatcher & Zhu, 2006; Ward & Shabha, 2001; Wiesenfeld, Raghuram, & Garud, 1999), infringement on family life (Kossek, Lautsch, & Eaton, 2006; Standen, Daniels, & Lamond, 1999; Sullivan & Lewis, 2001), and renegotiation of managerial roles and control (Felstead, Jewson, & Walters, 2003; Hendrickson, 1999; Taskin & Edwards, 2007). Although previous research has included an examination of

telework from the perspective of work–life balance, organizational commitment, managerial paradigms, and data security, there is a paucity of empirical research on the mediating role of telework frequency and ICT on the job satisfaction of home-based teleworkers. Chapter 2 provides a detailed discussion of the knowledge gaps in telework literature and an explanation of how this study filled a critical void.

Spatial dispersion of the workforce has created new challenges for managers, including understanding factors that affect job satisfaction in virtual work environments. These challenges are of central concern because causal and correlational relationships among job satisfaction, morale, and voluntary turnover intent are documented in management literature. Lambert, Hogan, and Barton (2001) identified job satisfaction as a core antecedent of employee turnover. The cost to replace an employee could exceed 150% of an employee's annual compensation (Bliss, 2009). As an example, turnover cost for an employee with an annual salary of $50,000 could total $75,000. Potential increases in turnover cost that could result from job dissatisfaction, coupled with stronger federal legislation promoting telework, make the need to understand key mediators of job satisfaction in the virtual work environment an important research topic that requires scholarly investigation. The findings from this research study provide information that increases understanding of correlates among telework frequency, ICT, demographic factors, and job satisfaction.

Problem Statement

The transition from the traditional brick-and-mortar workplace to a virtual organization has presented organizational leaders with new challenges that have serious

implications. Organizational leaders face the need to develop techniques to monitor and measure productivity (Mello, 2007) and face the challenge to cultivate a virtual work environment that promotes job satisfaction among a spatially and temporally dispersed workforce (Felstead et al., 2003). The specific problem addressed in this quantitative correlational research study is that although ICT provides the technological infrastructure that enables organizations to function as virtual work enterprises, there is a lack of information on the relationship between telework frequency, ICT, and the job satisfaction of home-based teleworkers.

Empirical studies on job satisfaction and turnover intent (e.g., Golden et al., 2008; Lambert et al., 2001) have indicated that the failure to address the challenges identified in this study could result in an increase in turnover costs and lost productivity. As the leadership of more organizations implements and expands telework programs, the need for research to increase the understanding of factors that affect the job satisfaction of home-based teleworkers assumes greater urgency. This study used an electronic survey to examine whether relationships exist among telework frequency, ICT, demographic factors, and the job satisfaction of home-based teleworkers.

Background of the Study

Since the 1990s, the social and spatial characteristics of modern organizations have changed significantly with advances in ICT and the expansion of telework. Hunton (2005) noted that, "Work is undergoing a dramatic metamorphosis from the physical to the virtual, as increasingly sophisticated information technology and communication systems change conventional views of time, space, and material" (p. 111).

Transformation from paper-based to electronic business processes, coupled with robust ICT systems, led to an exponential increase in the number of teleworkers in the United States (Daniels et al., 2001; Hunton, 2005) and spawned an evolution of virtual organizations. Spatial reconfiguration of the work environment has transformed the nature of work, organizational culture, and managerial locus of control (Halford, 2005).

Despite spatial, temporal, and social changes in the composition of modern organizations, studies have indicated that employees' core psychological needs have not changed (Gajendran & Harrison, 2007; Golden et al., 2008). The needs include social interaction, recognition, and career advancement (Herzberg, 1976; Maslow, 1970). For example, Harris (2003) found that 63% of home-based teleworkers reported feeling isolated from colleagues and disconnected from the organization, primarily due to the lack of meaningful social interaction and the sense of disengagement in the virtual organizational context. The findings have important implications for the long-term sustainability of virtual organizations.

A review of the literature on telework revealed that few scholars have examined the job satisfaction of telework employees. Illegems and Verbeke (2004) noted that empirical research "neglects the subsequent effects of telework adoption on what really matters for employees, namely job satisfaction" (p. 320). The missing link in the transformation from a traditional to a virtual organization is understanding the factors that affect the job satisfaction of teleworkers. Research on the relationship between mediating variables and dimensions of job satisfaction could fill a significant gap in the literature and enhance understanding of factors that affect job satisfaction in virtual

organizations. Thus, this study, which was designed to answer whether correlational relationships exist among telework frequency, ICT, and job satisfaction, addresses a critical gap in the telework literature.

Purpose of the Study

The purpose of this quantitative, correlational study was twofold. The primary purpose was to examine the relationship between telework frequency, ICT, and job satisfaction of home-based teleworkers in the federal and private sectors. A secondary purpose of the study was to identify the concerns of home-based teleworkers regarding social interaction, recognition, and career advancement. The relationship between the variables inform the understanding of factors that affect job satisfaction in virtual organizations. Further, the concerns expressed by home-based teleworkers provide organizational leaders with information that might be useful in cultivating a cohesive, collaborative, and supporting, virtual organizational culture. Findings from this study could be useful in the development of strategies to motivate and engage socially isolated home-based teleworkers.

Significance of the Study

With the virtualization of the modern office, the leadership of many 21st-century organizations faces challenges with engaging and managing a spatially and temporally dispersed workforce (Hughes, O'Brien, Randall, Rouncefield, & Tolmie, 2001; Kurland & Bailey, 1999; Mello, 2007; Potter, 2003; Wiesenfeld et al., 2001). The findings generated from this correlational study make significant contributions to telework literature. More specifically, knowledge of the positive correlation between ICT usage

and job satisfaction and the perceived need for face-to-face communication could aid organizational leaders in developing strategies that incorporate videoconferencing and other communication media to improve social exchange processes among teleworkers, coworkers, and managers in virtual work environments.

Though telework researchers have began to illuminate issues concerning ICT network security (Butcher-Powell, 2006; Taskin & Devos, 2005), managerial trust and control (Felstead et al., 2003; Pearlson & Saunders, 2001), professional and social isolation (Cooper & Kurland, 2002; Feldman & Gainey, 1997), and work–life balance (Adams, King, & King, 1996; Greenhill & Wilson, 2006; Hill, Hawkins, & Miller, 1996; Johnson, Andrey, & Shaw, 2007; Joice & Verive, 2006; Madsen, 2006; Major, Verive, & Joice, 2008; Martino & Wirth, 1990; Musson & Tietze, 2004; Tietze, 2002; Tremblay et al., 2006; Vitterso et al., 2003), few empirical researchers (E. Baker, Avery, & Crawford, 2006; Golden & Veiga, 2005; Hartman, Stoner, & Arora, 1991) have examined job satisfaction of home-based teleworkers. Yet, as the number of teleworkers continues to increase, organizational challenges become more prevalent (Kurland & Bailey, 1999; Mello, 2007).

The results of this study could effect positive social change in the management domain by drawing attention to the relationship between ICT and job satisfaction and by illuminating the importance of face-to-face interactions. The findings provide organizations with information that could be used in the development of strategies and practices that increase the job satisfaction of home-based teleworkers. The attunement of

organizational leaders to the needs and concerns of teleworkers could counteract or prevent the professional and social isolation experienced by some teleworkers.

Nature of the Study

The nature of this quantitative correlational study, using an electronic survey, was to determine whether, and to what extent, a relationship exists between the independent variables (telework frequency, ICT, and demographic factors) and the dependent variable (job satisfaction). A correlational study was the most appropriate methodology over other potential research approaches. Several critical factors guided the selection of the research design for this study.

In addition to correlational design, three qualitative designs—phenomenological, case study, and grounded theory—received consideration, but were not appropriate because of their underlying methodological purpose. The purpose of phenomenological research is to gain understanding of a phenomenon by describing the essence of lived experiences of individuals who have experienced the phenomenon (Sokolowski, 2000). The fundamental objective of case study research is to examine a case or cases to gain an in-depth understanding of issues and peculiarities of that case (Stake, 1995). The purpose of grounded theory design is to develop a theory that explains a phenomenon (Corbin & Strauss, 2008).

Though a qualitative design provides the opportunity to gain in-depth understanding of a phenomenon for which little empirical or theoretical knowledge exists (Creswell, 2009), a quantitative design, specifically a correlational research study, provides the opportunity to examine the relationship between variables based on existing

theory. As noted by Simon (2006), a correlational study is a suitable line of inquiry when the primary purpose is to "determine relationships between variables" (p. 43). Correlational design was the most appropriate methodology to examine relationships among telework frequency, ICT, demographic factors, and job satisfaction.

The study used a correlational coefficient (between -1.00 and +1.00) to determine whether a relationship exists among the variables (J. Miles & Shevlin, 2007). A correlation coefficient near +1.00 means that the variables have a strong positive linear relationship, where as one increases or decreases, so does the other. A correlational coefficient of -1.00 means that there is a strong negative correlation between the variables, where as one decreases or increases, the other moves in the opposite direction. A correlation coefficient of 0 indicates no association among the variables.

Researchers commonly use surveys in social science research to collect data from a sample for the purpose of generalizing or suggesting findings to a larger population (Creswell, 2009). The proliferation of Internet use in the United States has created an efficient medium for collecting data via the use of electronic surveys (Singleton & Straits, 2005). This study used an electronic survey. The practical advantages of using an electronic survey are cost-effectiveness, time savings, and enhanced efficacy of collecting data from geographically dispersed participants (Singleton & Straits, 2005). A self-administered electronic survey also minimizes the role of the researcher in the data collection process, which can reduce distortion of responses stemming from the effects of social desirability (Fowler, 1995).

The study population consisted of home-based teleworkers in both the federal and the private sectors who met these inclusion criteria: (a) perform paid work from home as an employee of an organization, (b) have teleworked for at least 1 year, and (c) are 21 years or older. The basis for participant selection was purposive sampling. Potential participants received an e-mail that explained the purpose of the study and the intended use of the information collected; outlined criteria for participation; assured anonymity; discussed potential risks to participants; required informed consent; and provided the hyperlink to access the survey. A power analysis established adequate sample size at 119 (see chapter 3).

Job satisfaction was operationalized using the nine-facet scale of the Job Satisfaction Survey (JSS) developed by Spector (1994). Permission to use the instrument was granted (see Appendix A). The JSS uses Likert-type scale items to assess job satisfaction. The items were entered into SurveyMethods.com, a web-based survey portal. Because the JSS is a validated instrument extensively used in organizational and academic research studies, a pilot study was not required.

In addition to the JSS, other items were added to the electronic survey to collect demographic, telework frequency, and ICT information. Respondents were asked to provide demographic data (e.g., age, gender, child-care or eldercare responsibility, occupation) to determine whether correlations exist among these variables and job satisfaction. To measure ICT, respondents indicated the types of technology media they use to work from home. Telework frequency was measured by the number of days respondents work per week and the number of days they work from home.

While the use of Likert-type items helps to "simplify and more easily quantify people's behaviors and attitudes" (Leedy & Ormrod, 2010, p. 190), the items lack valuable information that explains why respondents feel the way they do. Therefore, the survey included three open-ended questions about social interaction, recognition, and career advancement. The questions were meant to elicit greater depth of information than would be achievable with Likert-type items. As described in chapter 3, the responses to the open-ended questions were coded and analyzed for patterns, consistency, and discrepant cases. The themes derived from the content analysis provide information that could aid organizational leaders in developing strategies to increase job satisfaction of home-based teleworkers. Chapter 3 provides a more detailed discussion of the selected research methodology, sample design, survey instrument, data collection and analysis procedures and describes the steps taken to ensure the ethical protection of research participants.

Theoretical Framework

Sociotechnical theory was the theoretical framework used in the study. The theory's fundamental principles provided the theoretical base for understanding how technical variables, such as ICT media and telework frequency, interact with and influence social variables, such as dimensions of job satisfaction. Sophisticated ICT has enabled the transition of organizations into virtual enterprises with teleworkers dispersed in myriad spatial contexts. However, professional and social isolation (Cooper & Kurland, 2002; Golden et al., 2008; Harris, 2003; Potter, 2003; Raghuram, Wiesenfeld, & Garud, 2003; Taskin & Devos, 2005) experienced by some teleworkers has indicated that

critical psychosocial components are missing from the virtual environment. The success of virtual organizations hinges on the commingling of technical and social subsystems (Applebaum, 1997; Crandall & Wallace, 1998).

Sociotechnical theory is an open-systems concept influenced by Bertalanffy (1950). Psychologists and social scientists at the Tavistock Institute of Human Relations generated the principles of sociotechnical theory in the 1950s to improve "the quality of working life with technical change" (Mumford, 2006, p. 319). The theory posits that each sociotechnical system is embedded in an internal and external environment that "affects the way it behaves" (Mumford, 2006, p. 321). The goal of sociotechnical theorists is to leverage technology to enrich job design, create opportunities for employee development, and enhance human relations.

The sociotechnical perspective is concerned with the joint optimization of variables in two core subsystems within organizations: technical and social (Cartelli, 2007). On a broad scale, technical subsystems include technology, processes, tasks, and equipment. Social subsystems include the humanistic aspects of organizations encompassing hierarchal structure; organizational culture and norms; and employees' skills, values, morale, and needs (Applelbaum, 1997; Bostrom & Heinen, 1977; Mumford, 2006). Appelbaum (1997) explained that "because the social and technical elements must work together to accomplish tasks, work systems produce both physical products and social/psychological outcomes" (p. 453). Researchers have found that social subsystems, such as employees' values and needs, affect job satisfaction (Locke,

1969; Spector, 1985). Figure 1 depicts the interrelationships among core variables in the sociotechnical theoretical framework.

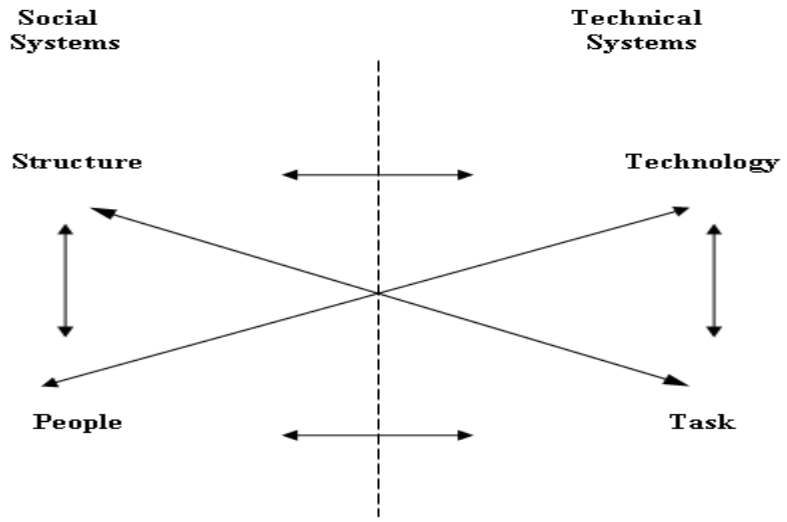

Figure 1. Sociotechnical theory schematic. From "Socio-technical Theory and Knowledge: Towards New Pedagogical Paradigms?" by A. Cartelli, 2007, *Issues in Informing Science and Information*, *4*, p. 2. Copyright 2007 by Issues in Informing Science and Information. Reprinted with permission.

Central to sociotechnical theory is the fundamental proposition that technology will maximize organizational performance to the extent that the interdependency of core subsystems is explicitly recognized and all subsystems function in harmony (Applelbaum, 1997; Bostrom & Heinen, 1977; Mumford, 2006). The primary objective of sociotechnical theory is to generate and sustain equilibrium between humanistic and technical subsystems by recognizing the interplay of human behavior and technology. Even in robust, technologically integrated work environments, humanistic value

principles should hold equal importance with the target outcomes of technologically driven initiatives (Mumford, 2006).

Theorists such as Herzberg (1976), Maslow (1970), and McGregor (2006) embraced the humanistic principles of sociotechnical theory. Bostrom and Heinen (1977) explained that McGregor's Theory Y management perspectives informed sociotechnical theory, which viewed employees as productive, competent, and contributory members of the organization. During the 1970s, proponents of sociotechnical theory were optimistic that technology could improve working conditions through job redesign and by enabling employees to acquire new knowledge and enhance skills. Optimism, however, declined as new process-oriented management philosophies and approaches gained momentum (Mumford, 2006). According to Mumford (2006),

> The 1990s proved very frustrating to the exponents of sociotechnical design. Companies recognized the need for change and were motivated to make changes but chose methods such as lean production and 'business process reengineering' that took little account of employee needs and did not produce good human results. (p. 332)

Despite Mumford's (2006) assertion that interest in sociotechnical theory declined in the 1990s, literature on management and telework has indicated that salient points of sociotechnical theory still apply to the challenges that leaders of 21st-century virtual organizations face (Avolio, Kahai, & Dodge, 2001; Cooper & Kurland, 2002; Das & Jayaram, 2007; Golden et al., 2008; Harris, 2003; Potter, 2003; Taskin & Devos, 2005; Venkatesh & Vitalari, 1992). Research conducted since 2004 indicated a resurgence of

concerns about the interplay of mediating factors within social and technical subsystems. Grenway (2008) explained that sociotechnical theory "points out that the key ingredient leading to operational success is the organizational ability to foster an environment where human qualities can be effectively intermingled with various mechanical aspects" (p. 26). Researchers continue to strive for deeper understanding of how to synergize social and technical subsystems in virtual organizations. For example, Clear and Dickson (2005) noted that the solutions to managing a spatially dispersed workforce rest in exploring questions at the sociotechnical level rather than focusing primarily on the caliber of available ICT.

In essence, telework has recast where, when, and how employees perform work in 21st-century organizations. While researchers have placed much emphasis on improving elements of the technical subsystems, such as improving data security, managing electronic workflow, and monitoring productivity, they have directed little attention to understanding psychosocial factors that connect teleworkers to the virtual organization. According to Crandall and Wallace (1998), virtual organizations "can succeed only if they effectively marry people and technology" (p. 1). Organizational leaders must seek to leverage technology in ways that enhance psychosocial constructs.

The lack of information about factors that affect the job satisfaction of teleworkers inhibits organizational efforts to achieve equilibrium in social and technical subsystems. The challenges that organizational leaders face demonstrate a need for empirical research to advance understanding of how humanistic factors and technology interface in virtual work environments. The goal of sociotechnical theory is to "optimize

the uniqueness of the organization's technical requirements along with the needs and values" of its employees" (Bostrom & Heinen, 1977, p. 14). Telework has changed the core characteristics of the work environment and sociotechnical theory provides a lens through which understanding can be informed.

Research Questions and Hypotheses

This quantitative correlational study examined whether relationships exist among telework frequency, ICT, demographic factors, and the job satisfaction of home-based teleworkers. The independent variables were telework frequency, ICT, and demographic factors. The dependent variable, job satisfaction, was operationalized using Spector's (1994) JSS. The research questions that guided the study were as follows:

1. What is the relationship between telework frequency and overall job satisfaction?
2. What is the relationship between ICT and overall job satisfaction?
3. What is the relationship between demographic variables and overall job satisfaction?
4. What are primary concerns of home-based teleworkers regarding social interaction, recognition, and career advancement?

Congruent with the postpositivist research paradigm, hypothesis testing involved statistical procedures to determine the existence, strength, and direction of relationships between the variables (Creswell, 2009). The following hypotheses were tested in this study.

H_{01}: There is no relationship between telework frequency and the overall job satisfaction of home-based teleworkers.

H_{a1}: There is a relationship between telework frequency and the overall job satisfaction of home-based teleworkers.

H_{02}: There is no relationship between ICT and the overall job satisfaction of home-based teleworkers.

H_{a2}: There is a relationship between ICT and the overall job satisfaction of home-based teleworkers.

H_{03}: There is no relationship between demographic variables (gender, age, number of years teleworking, regionalization, and child-care or elder-care responsibility) and the overall job satisfaction of home-based teleworkers.

H_{a3}: There is a relationship between demographic variables (gender, age, number of years teleworking, and child-care or elder-care responsibility) and overall job satisfaction of home-based teleworkers.

Definition of Terms

Throughout this study, several terms are used repeatedly. Because some terms are abstract and might convey various meanings, it is necessary to delineate what the terms mean in the context of this study.

Home-based teleworker: An employee who performs paid work from home (Harris, 2003).

Job satisfaction: The perception that one's job fulfills or allows the fulfillment of one's important job values (Locke, 1969, 1976; Spector, 1985).

Job Satisfaction Survey (JSS): A nine-facet questionnaire that assesses employee attitudes about specific elements of a job (Spector, 1994).

Psychological needs: Human needs for social interaction, self-esteem, and self-actualization (Maslow, 1970). Maslow (1970) and Herzberg (1976) identified career advancement as a form of self-actualization. In the context of this study, career advancement was synonymous with self-actualization.

Psychosocial: *P*sychological and social aspects that affect relationships (Bass, 1990, p. 921).

Spatial hybridity: The concept of work occurring across multiple spatial locations, encompasses domestic, organizational, and virtual space (Halford, 2005).

Telework: Employee-employer work arrangements that enable employees to perform paid work at home or at other locations away from the traditional brick-and-mortar establishment (Sullivan, 2003).

Telework frequency: Refers to the proportion of work time spent working remotely (Sullivan, 2003). The typical measure of telework frequency is in terms of days per week (Mokhtarian, Salomon, & Choo, 2005).

Virtual organization: A business entity that uses integrated information and communication technology to link spatially and temporally dispersed employees who work from a location other than the traditional brick-and-mortar establishment (Bleecker, 1994; Werther, 1999).

Assumptions

The design of this study included several assumptions. The first assumption was that participants would provide honest responses because of the voluntary and anonymous nature in which data were collected. The second assumption was that the inclusion of participants from a wide range of industries and occupations would yield the degree of variation in the data that was necessary to achieve depth in emergent concepts and themes. The third assumption was that only participants who met the inclusion criteria would complete the survey. Potential participants received an e-mail that explained the purpose of the study and listed the criteria for participation. The third assumption included a secondary assumption that individuals read the criteria and completed the survey only if they met the requirements.

Scope and Limitations of the Study

The scope of this quantitative correlational study involved the use of an electronic survey to collect data to examine the relationship among telework frequency, ICT, demographic factors, and job satisfaction. Job satisfaction was operationalized using the nine-facet scale of the JSS developed by Spector (1994). In addition to the JSS items, the survey included questions to elicit information about the primary concerns of teleworkers regarding social interaction, recognition, and career advancement. The target population was home-based teleworkers in both the federal and the private sectors.

Two delimitations served to confine this research study. First, only salaried home-based teleworkers were included in this study. As such, teleworkers who worked at customer sites, satellite locations, and mobile offices were excluded from the study.

Second, self-employed home-based teleworkers were also excluded from the study. The exclusion of specific telework typologies was based on the rationale advanced by some researchers (Haddon & Brynin, 2005; Halford, 2005; Hislop & Axtell, 2007; Standen et al., 1999; Sullivan, 2003), which indicated that where work is performed and the nature of the contractual arrangement with an organization "makes a difference to working practices and to organizational and personal relationships" (Halford, 2005, p. 20). Thus, spatial and employment factors influence how teleworkers experience remote work.

While the findings of this study make a significant contribution to telework literature, it is important to acknowledge limitations. One limitation of this study was the use of a nonprobability sampling method to recruit a specific segment of the telework population. Specifically, a purposive sample of home-based teleworkers who met the criteria for inclusion in the study completed the survey. Although nonprobability sampling weakens the external validity of research findings, use of this method is appropriate to reach a specific segment of the target population from which the most salient information can be gleaned (Merriam, 1998).

A second limitation of this study was in the nature of its design. Correlational research involves a search to identify and measure relationships among variables and lacks the necessary criteria for making causal inferences (Singleton & Straits, 2005). Aczel and Sounderpandian (2006) cautioned that the "existence of a correlation between two variables does not necessarily mean that one of the variables causes the other one" (p. 452). Thus, while statistical analysis revealed a positive relationship between ICT and

job satisfaction, a claim cannot be made that ICT causes higher job satisfaction among home-based teleworkers.

Summary

Many organizational leaders do not understand the factors that affect the job satisfaction of home-based teleworkers. Failure to address the challenges organizational leaders face could have a potential adverse impact on employee productivity, organizational commitment, and voluntary turnover. With stronger federal legislation promoting the implementation and expansion of telework programs (Schwemle, 2008), the topic warrants scholarly research. Sociotechnical theory provides the theoretical base for understanding how ICT media and telework frequency, interact with and influence dimensions of job satisfaction. A correlational design is an appropriate methodology to examine whether relationships exist among telework frequency, ICT, and job satisfaction.

Chapter 2 is a literature review essay that identifies and explains key studies in the telework, leadership, motivation, organizational change, and job satisfaction literature. The studies discussed are germane to understanding the interplay of technical and social subsystems in virtual organizations. The chapter builds upon the sociotechnical theoretical framework introduced in chapter 1 and explicates how telework has changed core elements of the employee-employer relationship. Chapter 2 contextualizes the current study within the broader telework literature and provides further justification for examining the relationship among the study variables.

Chapter 3 explains the rationale for using a correlational design. The chapter describes the methodology employed to answer the research questions and test the

hypotheses. Information on the survey instrument, the data collection and analysis procedures, and the steps taken to ensure the ethical protection of research participants is provided. The chapter explains how the study variables were operationalized.

Chapter 4 describes the demographic characteristics of the respondents (N = 218) who completed the electronic survey. The chapter is arranged around the research questions and hypotheses. The results of the Pearson product-movement, multiple regression, and pattern matching analyses are provided. The statistical tests reject or fail to reject the null hypotheses.

Chapter 5 provides an interpretation of the research findings. The chapter explains the implications for social change, offers recommendations for action, and identifies areas warranting future research. Unexpected findings are also discussed.

Chapter 2: Literature Review

In the United States, the number of teleworkers increased by 17% from 28.7 million in 2006 to 33.7 million in 2008 (WorldatWork, 2009). Despite the significant increase, a review of the literature revealed a lack of information on factors that affect job satisfaction of home-based teleworkers. Hence, this study examined the relationship among telework frequency, ICT, and job satisfaction as well as identified primary concerns of teleworkers regarding social interaction, recognition, and career advancement.

The challenges that many organizational leaders face with managing and engaging teleworkers are multidimensional and require examination of several management and psychosocial phenomena and theories. For this reason, the literature review encompassed historical and contemporary theories as well as research concerning leadership, motivation, organizational change, and job satisfaction. A complex phenomenon such as telework is influenced by broader organizational constructs.

Chapter 2 contains analyses and syntheses of germinal and contemporary research studies and paradigms on leadership, motivation, technology, and organizational change theories that inform the understanding of the telework phenomenon and associated organizational challenges. The chapter includes an explication of the rationale for selecting the study variables and builds on the sociotechnical theoretical framework introduced in chapter 1. As depicted in Figure 2 and explained in the literature review, the germinal theories and empirical research studies contextualize the challenges organizational leaders face in understanding the factors that influence the job satisfaction

of home-based teleworkers in the broader continuum of management and organizational change literature.

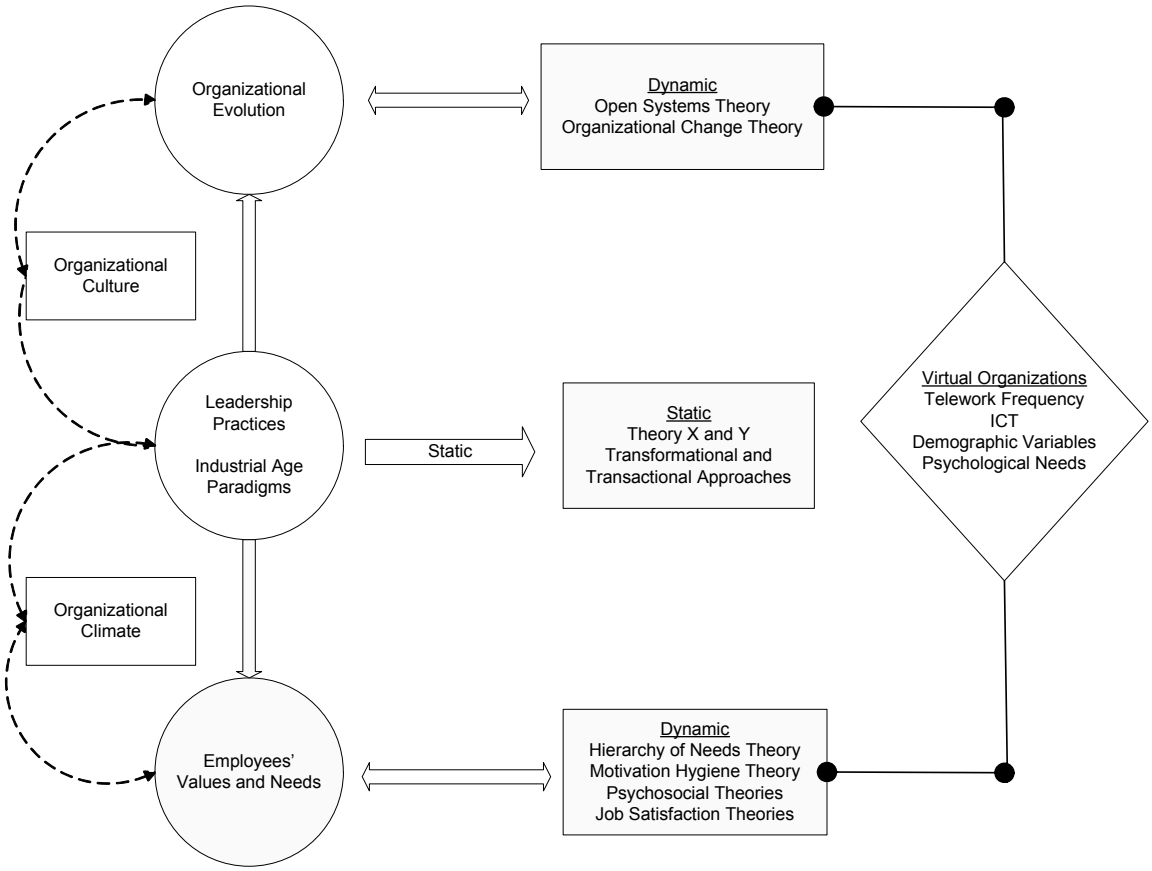

Figure 2. Graphical representation of the interrelationships of paradigms and theories that inform the literature review.

Strategy for Searching the Literature

The primary sources for the literature review included germinal books, refereed journal articles, dissertations, professional websites, and federal government publications. Articles were accessed through the following Walden University search engines: EBSCOhost, ProQuest Central, Science Direct, InfoSci, and ERIC. Extensive database searches were conducted using single key words and phrases, including *telework,*

telecommute, information communication technology, computer-mediated communication, job satisfaction, motivation, voluntary turnover, social and professional isolation, and virtual organization. Variations on terms (e.g., telework, teleworking, telecommute, telecommuting) were also used to locate articles that might have been otherwise missed. The search strategies yielded over 200 articles. A total of 154 were germane to the topic.

Leadership and Management Evolution

Since the 15th-century publication of Machiavelli's *The Prince*, leadership and management have been the subject of scholarly debate and inquiry (Bass, 1990). As a result, myriad theories and definitions appear in the management literature. While the exact wording varies, a common conceptualization is leadership as a process that involves influencing followers to work toward shared goals (Gelatt, 2005). Burns (1978) emphasized that purpose, values, motivations, and needs of both leaders and followers were critical variables in leadership processes and outcomes. "Leaders are agents of change—persons whose acts affect other people more than other people's act affect them. Leadership occurs when one group member modifies the motivation and competence of others in the group" (Bass, 1990, p. 20). Leaders influence employees' behaviors and perceptions.

During the past 3 centuries, leadership and management practices have evolved in response to myriad societal, economic, and technological factors. As an example, in the late 18th century and for the first time in U.S. history, people transitioned from working on farms to working in factories, which created the need to organize, coordinate, control,

and monitor a new workforce (Drucker, 1989). The centralization of labor in the Industrial Age spurred the classical management movement. The principles of classical management emanated from military practices as the army was the "only large permanent organization around" at the time (Drucker, 1989, p. 183). According to Drucker, "Not surprisingly, therefore, its [the army's] command-and-control structure became the model" (p. 223). Weber (1947) inspired the defining characteristics of classical management, which included hierarchal structure, division of labor, rules and technical competence, management separate from ownership, position accounts for power, and formalized record keeping (as cited in Frank, 2005).

The need to increase efficiency in factories led to the scientific management approach, which was a subfield of the classical management movement (Taylor, 1967). The focus of the approach was primarily on using technology to increase productivity and reduce production costs by standardizing assembly-line procedures and training factory workers to perform routine tasks (Draft & Marcic, 2001). Although scientific management improved employee wages and reduced production cost, the approach received criticism for dehumanizing workers (Frank, 2005). Social critics contended that scientific management practices encouraged the treatment of employees like machines (Bass & Barrett, 1981). Emphasis on productivity without adequate consideration of employees' psychological needs coupled with the deterioration of the social context of the work environment led to workplace conflict and job dissatisfaction (Draft & Marcic, 2001). According to Taskin and Edwards (2007), "Debates on telework parallel those of the invention of the factory system" because both periods (the 19th and 21st century) are

marked by advances in technological innovation and issues concerning management practices (p. 196). Telework is changing the role of managers in virtual organizations.

A pivotal turning point in the history of modern leadership occurred in the 19th century as a result of the Hawthorne Studies of 1927–1932 (Draft & Marcic, 2001). Mayo and colleagues conducted a series of studies to examine the how physical work conditions (e.g., lighting, temperature, and humidity) affected employee productivity. Although they did not find a correlation between improvements in the physical work environment and increased productivity, the study suggested that when employees received humane treatment and were involved in decision-making processes, their production increased. As a result of the study, organizational leaders took measures to improve the physical work environment. However, after physical conditions improved, social critics began to focus on the "meaningfulness of an individual's job" (Bass & Barrett, 1981, p. 54) and the concept of job satisfaction became a central concern. Though researchers have challenged the findings and research methods of the Hawthorne studies, Mayo's work drew attention to the idea that psychological needs moderate productivity, organizational engagement, and job satisfaction (Frank, 2005). The concepts derived from the Hawthorne studies prompted a fundamental shift from the classical to the human relations management movement.

Leadership: Theory X and Y

McGregor (2006) was an important contributor to the human relations movement, whose Theory X and Y propositions explained how managerial assumptions affected organizational climate. The significance of the theory to understanding the interplay

between leadership and organizational constructs rests upon the notion that "different climates stimulate or arouse different kinds of motivation, generate distinctive attitudes about a person's relationship with others, and strongly influence both feelings of satisfaction and performance level" (Litwin & Stringer, 1968, p. 188). According to eminent scholars (Bass, 1990; Litwin & Stringer, 1968; McGregor, 2006), leadership style is the most important determinant of organizational climate.

McGregor (2006) posited that the perceptions managers held toward employees influenced managerial strategy and practices, which in turn influenced employees' behavioral and psychological outcomes. Theory X is predicated on the assumption that employees inherently despise work and must be coerced, directed, and monitored to ensure that assigned tasks are completed. Leaders who subscribe to a Theory X management philosophy view employees as lazy, incompetent, incapable of responsibility, and untrustworthy; thus, they rely on positional power to influence and manipulate employees. Theory X managerial strategies engender a work climate that deprives workers of physiological and psychological needs.

In contrast, because Theory Y leaders view employees as competent, trustworthy, and productive members of the organization, the leaders focus on building relationships and enhancing organizational commitment by promoting initiative, participation, self-direction, and empowerment (McGregor, 2006). Theory Y strategies strengthen social exchange processes and facilitate the achievement of physiological and psychological needs in the workplace. McGregor's propositions had an influence on other leadership and organizational theories, including Maslow's (1970) hierarchy of needs and

Herzberg's (1966) motivation-hygiene theories. Additionally, the principles of theory Y leadership informed the sociotechnical theoretical framework utilized in this study (Bostrom & Heinen, 1977).

McGregor's (2006) propositions concerning the influence of managerial assumptions on practices and strategies provide insights into why some managers might resist telework. A review of the literature on telework indicated that managerial resistance is among the top challenges facing organizational leaders who seek to implement and expand telework (Felstead et al., 2003; Kurland & Cooper, 2002; Mello, 2007; Taskin & Edwards, 2007; Watad & DiSanzo, 2000). From the theoretical perspective of Theory X, some managers might view telework as a disruption to the status quo and this perception could hinder their efficacy in managing remote employees. Although Kurland and Cooper (2002) asserted that "telecommuting can diminish a manager's perceived control as it physically removes the employee from the conventional work environment" (p. 109), their findings derived from a grounded theory study did not support this assertion. Some scholars have contended that the techniques employed to manage home-based teleworkers are direct reflections of managers' assumptions about employees' disposition and personal characteristics (Felstead et al., 2003).

Leadership: Contemporary Approaches

Despite the magnitude of organizational changes that have occurred since the centralization of work in the Industrial Age to the present Information Age, the theoretical underpinnings of the scientific and human relations management approaches are still prevalent in 21st-century management paradigms (Neidig, 2005). In general,

leadership practices have not evolved in tandem with organizational change (Nilles, 1998). The entrenchment in control and coercive practices has stagnated the emergence of new paradigms (Avolio et al., 2001). One of the central issues of concern in the telework literature is the need to adopt new management paradigms (Nilles, 1998).

While many leadership approaches remain wedded in Industrial Age practices of controlling, monitoring, and directing employees, the transformational leadership approach employs more humanistic methods of influencing employees. The transformational leadership approach further expanded McGregor's Theory Y leadership principles. Some scholars have contended that transformational leadership is perhaps the most effective and desired leadership approach in contemporary organizations as it engenders transformation at the individual, group, and organizational level (Bass & Riggio, 2006).

The two key points of focus in the transformational approach are developing people and moving the organization in the direction of envisioned change. Transformational leadership creates the enterprise framework that poises an organization for long-term strategic growth by anticipating changes in market trends and aligning resources with strategic initiatives to optimize potential gains in rapidly changing markets (Burns, 1978). At the individual or follower level, the transformational leader connects with the follower by taking interest in, and devising policies aimed at, employee development and growth. Because of perceived favorable leadership attributes, the transformational leader stimulates follower alignment with organizational goals. According to Burns (1978), the transformational leader "looks for potential motives in

followers, seeks to satisfy higher needs, and engages the full person of the follower" (p. 4) resulting in a reciprocal process that "converts followers into leaders and may convert leaders into moral agents" (p. 4). For these reasons, the transformational leader is commonly characterized as a visionary and as a catalyst for change.

Whereas transformational leadership elicits follower support and compliance through the stimulation of intrinsic motivational drivers, the transactional approach is an exchange schema of contingent rewards and punishment. The primary functions of the transactional leader are to amplify and sustain compliance with organizational policies and high productivity. Bass (1990) noted, "In the transactional process, leaders are the agents of reinforcement for the followers. At the same time, the followers' compliance or noncompliance makes them the agent of reinforcement of the leader" (p. 321). Similar to the transactional approach, path-goal leadership centers on accomplishing three objectives: (a) crystallizing what the employee must do to receive rewards or to avoid punishment, (b) removing obstacles that stand in the way of the employee accomplishing performance goals, and (c) evaluating employee performance to detect deviations from established procedures (Bass). In the path-goal approach, leaders function primarily as facilitators.

Despite the virtualization of modern organizations, management practices remain predicated on physical visibility of employees and face-to-face contact. However, as telework replaces "face-to-face interactions in the workplace, many Industrial Age ways of establishing human relationships and acquiring social support in organizations are being threatened or eliminated" (Neidig, 2005, p. 104). Telework challenges

organizational leaders to devise new means of engendering social exchange processes in virtual organizations. Scholars have noted that e-leadership, which is a social influence process mediated by information technology to influence behavioral and attitudinal outcomes, plays a critical role in the sustainability of virtual organizations (Avolio et al., 2001). Moreover, the telework phenomenon challenges managers to develop new approaches to manage, motivate, and engage a disperse workforce. According to McGregor (2006), "established theories of control are not abandoned easily, even in the face of clear evidence of their inappropriateness" (p. 23). McGregor's assertion indicates that recognizing the need for new practices might be easier for managers than enacting new management techniques.

Employee Motivation: Maslow's Hierarchy of Needs

In the continuum of discourse on job satisfaction, motivation theories have provided insights into cognitive mechanisms that drive human behavior and enhanced understanding of how social and technical subsystems affect employee behavior and attitudes in the workplace. Linder (1998) defined motivation as the "inner force that drives individuals to accomplish personal and organizational goals" (p. 3). The motivation literature has shown that although organizational leaders have positional power and they establish policies designed to yield higher productivity, several cognitive factors affect the extent to which leadership efforts are successful in influencing desired outcomes.

More specifically, Maslow (1968, 1970, 1971, 1982, 1998, 2000) asserted that psychological and physiological needs, not organizational tactics, motivate employees.

Renowned for making significant contributions to the human relations movement, Maslow's hierarchy of needs theory and concept of self-actualization improved work conditions in the post-Industrial era. The hierarchy of needs theory presented a countervailing perspective of employee motivation and management principles that radically differed from the scientific management movement.

Maslow's (1968, 1970) hierarchy of needs theory posited that human beings are motivated by physiological and psychological need gratification. From Maslow's perspective, need gratification was "the most important single principle that binds together the multiplicity of human motives" (Maslow, 1968, p. 64). The theory is grounded in the premise that five core intrinsic stimuli motivate human beings with varying ranges of importance. Maslow conceptualized the theory in terms of five rungs on a pyramid. At the base of the pyramid are the basic physiological needs for survival, food, and shelter. The second rung is the need for safety, and the third is the need for social interaction.

According to Maslow (2000), lower level needs, namely physiological, safety, and social, must be sufficiently satisfied for human beings to experience psychological growth and perform at an optimal level. Maslow explained, "Physiological needs are the most prepotent of all needs" (p. 254). Succinctly, a deficiency of a physiological, safety, or social nature precludes gratification of higher level needs.

Recent literature on telework has begun to call into question the extent to which employees' needs are satisfied in virtual organizations. For example, Thatcher and Zhu (2006) raised concerns regarding the effects of telework on workplace identification and

explained that some teleworkers might experience a "lack of security in their relationship with the organization" (p. 1080) because of the absence of reassuring cues from the virtual context. Thatcher and Zhu explained that employees' concerns about the quality of their employment relationship might affect the enactment of organization-related identities and contribute to feelings of social isolation.

The need for social interaction stems from an inner desire to feel a sense of belonging, acceptance, friendship, and love (Maslow, 1968; McGregor, 2006). McGregor (2006) noted that social deprivation leads to resistance, antagonism, and uncooperative behavior. Empirical researchers have begun to illuminate significant issues regarding social interactions in virtual work environments, specifically in the case of home-based telework. For example, Cooper and Kurland (2002) found that some teleworkers experience professional and social isolation due to spatial separation from the organization and a lack of meaningful social contact in the virtual environment. According to West and Anderson (2005), "Feelings of isolation may lead to perceptions of alienation, and diminished attitudes toward organizational attachment, in turn affecting employee motivation, job satisfaction, and commitment" (p. 116). As asserted by Potter (2003), the organizational context is the nucleus of social interaction and friendship for workers in the United States. These issues and perspectives underlie the rationale for examining the primary concerns of teleworkers regarding social interaction in this study.

The fourth rung on Maslow's (1970) hierarchy of needs pyramid is esteem. In the organizational context, esteem is the need for a sense of self-worth and accomplishment. Recognition stimulates esteem by acknowledging noteworthy performance achievement

and engendering a sense that the employee has made a worthy contribution to the organization (Maslow, 1998). Ward and Shabha (2001) conducted a study of teleworkers in the United Kingdom and found that 90% of participants perceived that the recognition they received from the organization satisfied their needs for esteem and self-actualization, although few researchers have examined the psychological needs of employees in virtual organizations. The current study involved examining the primary concerns of teleworkers regarding recognition.

The fifth and most elusive rung on the pyramid is self-actualization. According to Maslow (1998), self-actualization refers to the desire for self-fulfillment, namely, the intrinsic urge to achieve one's fullest potential. The hierarchy of needs theory presents a fluid and dynamic perspective of human motivation triggered by a perpetual drive to satisfy oscillating physiological and psychological needs. Based on Maslow's theory, human beings have an inherent predisposition to focus on lower level needs and can only fulfill higher needs (e.g., esteem and self-actualization) when lower level needs have been adequately satisfied (Maslow, 1998, 2000). The current study involved examining self-actualization from the perspective of career advancement. Although Illegems and Verbeke (2004) and Kurland and Egan (1999) found that telework does not hinder career advancement, Cooper and Kurland (2002) and Standen et al. (1999) suggested that telework impedes promotional opportunities. The conflicting perspectives indicate a need for additional research in this area.

An implicit paradox in Maslow's theory lies in the notion that due to physiological limitations, human beings have a continual need to gratify lower level

needs and thus can never permanently exist in the psychological realm of self-actualization. Maslow (1970) asserted that some individuals who have achieved self-actualization "may become autonomous, no longer depending on lower need gratifications" (p. 72). Yet, according to Maslow (1971), even in an economically and socially developed society such as the United States, only a "small proportion of the human population get to the point of identity, or of self-hood, full humanness, self-actualization" (p. 24). Maslow (1971) contended that "fear of one's own greatness" (p. 34) blocks some individuals from self-actualizing, which he called a "Jonah complex" (p. 34). Maslow's proposition provides insight into why some employees may not seek career advancement.

The basis of the hierarchy of needs theory was Maslow's studies conducted with "mostly older people" (Maslow, 2000, p. 287). Viewing the theory within the context of the generational diversity in contemporary work environments has promoted several critical observations pertaining to whether a theory of human motivation based primarily on studies conducted on individuals in the latter stages of the life cycle is relevant in the current multigenerational workforce. More specifically, the literature on multigenerational diversity in organizations has indicated that generational cohorts (traditionalists, baby boomers, Generation X, and Generation Y) have different values and different motivational drivers. For example, Eisner (2005) asserted that differences in values, expectations, and frames of reference cause each cohort to respond differently to variables within the organization. Cognitive variances in perceptions, expectations, technological aptitudes, and values complicate the management and motivation of an

intergenerational staff (Eisner). The literature indicated that to unleash the full potential of a multigenerational workforce, managers must not only be cognizant of these differences and implications, but must also adjust managerial practices, revamp company policies, and redesign job requirements to successfully attract, engage, and retain Generation Y employees (DeSantis & Durst, 1996; Eisner, 2005).

Employee Motivation: Herzberg's Motivation-Hygiene Theory

Herzberg (1966, 1976) was another important contributor to the human relations movement, whose motivation-hygiene theory posited that two core elements affect motivation in the workplace. The first element includes hygiene factors, such as company policy and administration, supervision, salary, interpersonal relations, and working conditions, that can lead to job dissatisfaction (Herzberg, 1966). Herzberg explained that while the presence of negative hygiene factors, such as inadequate pay, poor supervision, and workplace conflict, caused job dissatisfaction, the absence of these factors from the work environment does not yield job satisfaction. While having good hygiene factors in an organization prevents job dissatisfaction, the factors have little or no influence on stimulating positive job attitudes.

Similar to Maslow's (1970) perspectives on self-actualization, Herzberg (1966, 1976) believed that job characteristics and the work environment should create opportunities for employee growth and personal development. By allowing workers to plan, control, and assume greater job responsibilities, Herzberg contended that employers could "provide the psychological stimulation by which the individual can be activated toward self-actualization needs" (p. 78). Using data from a survey of 200 accountants

and engineers, Herzberg, Mausner, and Snyderman (1967) identified five growth principles that ranked highest among factors that influenced job satisfaction. Although Locke (1969) discredited Herzberg's theory based on methodological grounds, some contemporary scholars (Bassett-Jones & Lloyd, 2007; Smerek & Peterson, 2007) have asserted that Herzberg's propositions provide useful insights into factors that motivate employees in contemporary work environments. Table 1 lists the motivator factors and corresponding growth principle.

Table 1

Herzberg's Five Motivator Factors

Motivator	Growth principle
Achievement and recognition for achievement	Opportunity to increase knowledge
Responsibility	Opportunity to increase understanding
Possibility for growth	Opportunity for creativity
Advancement	Opportunity to experience ambiguity in decision making
Interest	Opportunity to individuate and seek real growth

Maslow (1968) and Herzberg (1966, 1976) believed that enabling employees to self-actualize is the primary means through which employee motivation and job satisfaction are achieved. Yet despite the parallels identified in Herzberg's and Maslow's theories, Herzberg criticized Maslow's hierarchy of needs theory on the basis that Maslow's theory "has not worked in application because the biological and psychological needs of man are parallel systems, rather than either one assuming initial importance" (p. 48). That is, to Herzberg physical and the psychological needs are equally important. Both must be satisfied for human beings to experience motivation. Herzberg believed that employee motivation and job satisfaction could be influenced and sustained by

intrinsic mediators, namely, higher level needs of growth, development, and self-actualization. According to Herzberg, negative hygiene factors result in job dissatisfaction, and positive hygiene factors do not result in job satisfaction. From Herzberg's perspective, only intrinsic stimuli motivate employees and result in job satisfaction.

Employee Motivation: Contemporary Perspectives

Herzberg's (1966, 1976) and Maslow's (2000) theories presented several parallel concepts of factors that motivate employees. However, some contemporary scholars have questioned the efficacy of these theories in explaining employee motivation in modern work environments. For example, Sajeva (2007) asserted that although germinal theories increased understanding of human motivation, they are somewhat "limited in explaining the motivation of today's workforce" (p. 647). To transcend this potential limitation, the current section includes an examination into contemporary paradigms of employee motivation.

Task Significance

As previously discussed, Herzberg (1966) and Maslow (1968) posited that meaningful work motivates employees. Empirical research has corroborated the proposition and shown, for instance, that individuals who have high affinity for their work reported high levels of motivation. For example, Sajeva (2007) found that knowledge workers (e.g., doctors, lawyers, professors, accountants, and analysts) derived motivation from performing work that is personally fulfilling. Knowledge-intensive jobs require high cognitive and abstract reasoning skills and are "characterized by outputs

which are not as easily measured" (Daniels et al., 2001, p. 1154). These jobs involve greater autonomy, concentration, and on-the-job training as well as require "complex interactions with clients or colleagues" and less routine tasks and supervision (Daniels et al., 2001, p. 1154). Knowledge workers invest extensive time and financial resources into achieving and sustaining the educational and professional expertise necessary to excel in their profession (Sajeva). According to Sajeva, traditional forms of compensation do not motivate knowledge workers. Instead, challenging, meaningful, and intellectually stimulating work motivates knowledge workers.

Social Impact Theory

In line with the personal gratification associated with the concept of task significance, researchers have found that the notion of performing work that has social impact motivates employees. The basic premise of social impact theory is that employees who perceive that their work has a significant positive impact on other human beings are more motivated than those who perceive that their work consists of meaningless tasks. Grant (2008) conducted two studies to test the impact of task significance on productivity and job satisfaction and found that task significance was a significant mediator of employee motivation. When employees perceived that their work had positive social impact, they became motivated, productivity increased, and they experienced greater job satisfaction. Grant explained that task significance "enables employees to make a psychological link between their actions and potential positive outcome for others" (p. 110). For some employees, the significance of the work they perform acts as a motivation stimulus.

Moynihan and Pandey (2007) found that perceived positive social impact was a major motivation stimulus among government sector employees who were far less apt to receive pay and tangible incentives that were comparable to their private sector counterparts. According to Moynihan and Pandey, public service motivation is an intrinsic motivator primarily found in federal and state employees who are more driven by the desire to provide socially beneficial public service than they are to receive large compensation. Having a perception that the work they perform is "worthwhile and serves the need of citizens" is a primary motivator among public servants (Moynihan and Pandey, p. 814).

Although Stum (2001) noted that the need for work–life balance among 21st-century employees replaced elements of Maslow's concept of the need for self-actualization, more recent research (Grant, 2008; Moynihan & Pandey, 2007; Sajeva, 2007) has shown that some of the salient points of Herzberg's (1966) and Maslow's (1968) theories hold utility in modern work settings. Specifically, studies have found that the nature of the work motivates employees. A significant implication to organizations is that specific characteristics of job design needs addressing. Grant (2008) and Sajeva (2007) indicated job design is a critical mediating mechanism in motivating employees in the 21st century. Grant explained that the focus on "perceptions of social impact and social worth moves toward 'socializing' job design and social information processing theories by emphasizing the relational mechanisms through which task significance connects employees' jobs and actions to other people" (p. 119). Social impact theory

raises questions regarding whether job design and nature of work play a critical role in the job satisfaction of teleworkers.

Social Identity Theory

A reoccurring theme in contemporary literature on motivation is the notion that organizational affiliation affects employees' perceptions and behavioral outcomes. Within social identity theory, the psychological linkage between the employee and the organization moderates employee motivation. According to Latham and Pinder (2005), the psychological linkage stems from multiple factors, such as the perceptions, need for affiliation, and values. Latham and Pinder explained that "people gravitate to organizations and jobs that are congruent with their values" (p. 496), which aligns with Locke's (1969) theory of job satisfaction that posited the factors they value motivate employees.

Other researchers have found that a family atmosphere within the organizational culture motivates some employees. In a recent study of call center agents, Wegge, van Dick, Fisher, Wecking, and Moltzen (2008) found that employees who felt connected to the organization experienced greater job satisfaction, were more engaged in organizational citizenship behavior, and were less likely to seek outside employment (p. 67). In another study, Moynihan and Pandey (2007) found that "respondents who perceived a shared culture of mutual commitment and a family-like atmosphere felt a higher sense of loyalty to their organization and found work more satisfying" (p. 822). These researcher studies draw attention to the lack of understanding of how spatial

separation from the organization impacts teleworkers' ability to identify with their organization.

Procedural Justice Theory

A review of the motivation literature revealed that procedural justice, which concerns employees' perceptions of equitable practices in organizations, impacted motivation. Based on procedural justice theory, employees assess whether the application of promotions, awards, recognition, and sanctions is equitable throughout the organization. Those who perceive that their organizations have fair policies and practices are more motivated and experience greater job satisfaction than those who do not have the same perception. Podsakoff, Bommer, Podsakoff, and MacKenzie (2005) asserted that perceptions of procedural justice are important because they "have been found to be related to a variety of important outcomes, including employee satisfaction, commitment to the organization, trust in one's leader, withdrawal behaviors, task performance and organizational citizenship behaviors" (p. 115). Perceived procedural justice influences employees' behaviors and attitudes.

Tyler, Dienhart, and Thomas (2008) found that procedural fairness was a primary intrinsic stimulus in motivating corporate bankers to comply with ethics rules voluntarily. Tyler et al. used the term *values-based* approach to describe work cultures in which corporate values, practices, and norms influence behavior. Tyler et al. found that the approach was more effective in engendering voluntary compliance than a traditional rules-and-punishment approach. Tyler et al. further identified four factors influencing perceived fairness: decision-making fairness at the organizational level, interpersonal

fairness at the organizational level, decision-making fairness at the workgroup level, and interpersonal fairness at the workgroup level (p. 37).

The discussion of employee motivation has shown that there are different perspectives propounded in the motivation literature. Some scholars still argue in favor of intrinsic stimuli while others contend that extrinsic stimuli such as monetary awards also motivate employees. Yet other scholars, such as Galia (2008), have proposed that a complementary bundle of intrinsic and extrinsic stimuli might result in optimal employee motivation (p. 73). Galia, however, cautioned that "extrinsic factors can, in some context, undermine employees' interest in their jobs and negatively affect their intrinsic motivation" (p. 60). Future research studies should focus specifically on work environments that include the use of a complementary motivation approach. Additionally, few studies have examined employee motivation within the context of a multicultural workforce. Even fewer studies have focused on the impact of ICT usage on organizational commitment and job satisfaction in virtual organizations.

Organizational Change: Causal Model

As previously noted, organizations are open systems influenced by external and internal environmental factors (Burke & Litwin, 1992). Telework is a manifestation of how technology is changing modern organizations (Potter, 2003). To comprehend the managerial challenges associated with managing and engaging home-based teleworkers, it is important to acknowledge that the challenges exist in the broader context of the organization. Mechanisms in the total work environment moderate cognitive factors such as job satisfaction, organizational identification, and motivation. From a macro

perspective, implementation and expansion of telework programs are major organizational change initiatives that require new management paradigms and practices (Neidig, 2005). For these reasons, it is critical to understand processes and constructs of organizational change.

Of the myriad change models in management literature, the causal model provides a broad systems perspective of factors that affect organizational change. Burke and Litwin (1992) developed the open systems model to explain causal linkages between 12 subsystems that affect organizations: external environment, mission and strategy, leadership, organizational culture, structure, management practice, systems, work unit climate, tasks and skills, motivation, individual needs and values, and individual and organizational performance. Based on the causal model, there are bidirectional linkages between motivation, individual needs and values, work unit climate, tasks and individual skills, and organizational performance.

The basis of the causal model is the premise that the intermediating dynamics of organizational culture and climate determine the success or failure of organizational change initiatives. Burke and Litwin (1992) defined culture as an "enduring set of values and norms that underlie a social system" and climate as "perceptions that individuals have of how their local work unit is managed" (p. 527). Though researchers have begun to examine the effects of telework on aspects of organizational culture, there is a lack of information concerning how organizational values and norms are engendered and reinforced in the virtual realm. Wiesenfeld et al. (2001) found that the employees' need for affiliation and work-based support affected organizational identification, which is an

employee's perceptions of belonging to an organization. Additional studies are necessary to increase understanding of mechanisms that affect cultural and social norms in virtual environments.

The causal model was founded on the theoretical principle that organizational change is influenced by variables operating in two core systems: transactional and transformational. Burke and Litwin (1992) further posited that five subsystems forge an interrelationship that comprises the transformational dynamics within organizational change. The subsystems are external environment, mission and strategy, leadership, organizational culture, and individual and organizational performance. Transformational and transactional leadership theories influence the underlying principles of the causal model. Burke and Litwin explained that the transactional and transformational subsystems within the organization must exist in harmony for desired outcomes of a change initiative to fully manifest. Further, Burke and Litwin contended that three of the five transformational variables, namely mission and strategy, leadership, and organizational culture, are direct manifestations of the leaders' philosophical orientations and assumptions. The causal model expanded upon McGregor's (2006) Theory X and Y propositions. According to Burke and Litwin, transformational variables

> can be thought of more realistically as being in the minds of organizational leaders and as part of their behavior, not in organizational categories. . . . The strategic driving force is a manifestation of the company leader's beliefs about how to succeed in a particular industry or line of business. Beliefs are part and parcel to corporate culture, and the leadership category is where they (strategy

> and culture) come together in the minds of organization leaders and as part of their behavior. (p. 536)

The transactional variables in the causal model encompass structure, management practices, work unit climate, policy and procedures, tasks and individual skills, motivation, individual needs and values, and individual and organizational performance. The variables, according to Burke and Litwin (1992), affect organizational climate. The climate motivates employee alignment with change. According to Litwin, Bray, and Brooke (1996), "Human nature is flexible and capable of change but for motivation to be harnessed there must be a confluence of need, expectations, and perceived values" (p. 203). This assertion amplifies the significance of drawing upon motivation and job satisfaction literature to increase understanding of employees' needs and values.

While the causal model involved identifying variables that influence and are influenced by organizational change, a notable limitation is the absence of a step-by-step prescription or a list of directives for decomposing the complex processes involved in implementing major change initiatives such as telework programs. Despite this limitation, the model ties together important paradigms and themes from leadership, motivation, and systems theory and enhances understanding of intermediating variables that affect organizational change. The systems perspective of the model compliments the sociotechnical theoretical framework in that it explicates factors that influence the social variables within organizations.

Role of Leadership in Organizational Change

Given the importance of leadership in modern organizations, several scholars have commented on the role of leadership in change processes. Kotter (1996) asserted, "Only leadership can motivate the actions needed to alter behavior in any significant way. Only leadership can get change to stick by anchoring it in the very culture of the organization" (p. 30). Further, the literature on telework indicated that the transformation from the traditional organization to one that is virtual requires new leadership paradigms and strategies to engender cultural norms and values. According to Litwin et al. (1996), rather than wielding executive power, leaders must provide the guidance needed throughout the change process. The primary role of leadership and management "is infusing the organization with a sense of purpose, thereby realizing the energy and motivation of people hungry for meaningful work. . . . The essence of leadership is, after all, 'leading towards' something tangible and meaningful" (Litwin et al., p. ix). Traditional roles of leaders that are based on authority should be replaced with roles that provide guidance (Litwin et al.). Litwin et al. further explained that guidance engenders clarity of purpose, alignment with envisage change, and individual growth. Litwin et al. wrote, "Guidance means slowly and carefully instilling in another the sense of purpose, value, and meaning that is necessary to go forward and be a leader" (p. 129). This proposition suggests a need for leaders in virtual organizations to develop strategies that guide teleworkers towards goal alignment and accomplishment.

Psychological Mediators of Organizational Change

Prior to the Industrial Revolution, the family taught social and work values (Potter, 2003). During the late 18th century, the Industrial Revolution resulted in a transition from individuals working on rural farms to working in urban corporations and organizations. The spatial shift in where work was performed occurred in parallel with a psychosocial (psychological and social) shift in "allegiances away from family, church and community life to the corporation or organization" (Frank, 2005, p. 40). The new allegiance marked the beginning of the contractual and psychological bond between the organization and the employee (Frank, 2005).

According to Potter (2003), "Telecommuting offers the prospects of fragmenting and shredding the workplace as the basis for both societal and corporate values in a way not ever seen in American history" (p. 75). Telework has the potential to threaten the psychological linkages that bind the employee to the corporation and might create the emergence of a new employee–organization relationship (Crandall & Wallace 1997; Dambrin, 2004; Wiesenfeld et al., 2001).

Understanding psychological factors and mechanisms that affect employee behavioral outcomes in the change process is a central concern in contemporary change management literature. Findings derived from empirical research studies have illuminated key psychological factors and the extent to which the factors influence employees' organizational commitment and turnover intentions. For example, Cunningham (2006) investigated the relationship between three types of commitment: affective, normative, and continuance. In a study of 299 employees of National

Collegiate Athletic Association divisions, Cunningham found that employees' ability to cope with organizational change significantly affected the relationship between affective commitment to change and turnover intentions and that coping behavior served as an intervening variable in the negative relationship between affective commitment and turnover intentions. That is, employees with strong psychological coping skills tend to view change from a positive perspective, possess greater psychological readiness for change, are more likely to participate in change processes actively, and are less likely to consider employment opportunities elsewhere. Cunningham explained,

> Affective commitment to change entails supporting the initiative based on the belief that it will provide benefits to the organization. Normative commitment to change reflects a sense of obligation to support the change programme. Continuance commitment to change involves supporting the change initiative because of the recognition of the costs associated with failing to do so. (p. 31)

Given the rapid pace in which large-scale changes, such as telework implementation, are occurring in modern work environments, the findings indicated organizational leaders should exercise prudence by providing employees with training that enhances coping skills. The findings further indicated that organizations that experience constant major changes might want to assess the coping abilities of potential candidates for employment prior to extending job offers. Thus, coping skills might be among the key skills employers seek when hiring potential employees to work in virtual settings.

Another reoccurring theme in organizational change literature is that trust is an important ingredient in how employees perceive and react to change. According to Neidig (2005), "Trust determines an organization's ability to successfully implement meaningful change" (p. 96). Some scholars view trust as one of the most critical factors in successful telework programs (Clear & Dickson, 2005; Kowalski & Swanson, 2005; Nilles, 1998). "As a social construct, trust is in the centre of relationships, influencing each party's behavior toward the other" (Neves & Caetano, 2006, p. 353). Social exchange theory centers on the principle that "trust emerges from the successive exchange of benefits between the involved parties. Successful social exchanges lead to trust because they involve unspecified obligations for which no binding contract can be written" (Neves & Caetano, 2006, p. 353). Neves and Caetano (2006) defined trust as the

> willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party. (p. 352)

In a study of 120 employees in a metallurgic factory, Neves and Caetano (2006) found that perceived organizational support was an antecedent of organizational trust. Employees' perception of interpersonal fairness and of being valued by their organization positively affects the degree to which they trust their supervisor. High levels of trust generate affective commitment to change. Continuous and honest communication with employees engenders support and readiness for the change, "creating a sense of control over the events taking place. This sense of control influences how employees see the organization they are part of, influencing several work outcomes" (Neves & Caetano,

2006, p. 361). These findings indicate that the quality of employee–employer relations within the organizational culture at the time the change effort is introduced might predicate successful organizational change. In organizations where employees lack trust in their supervisor and the organization as a whole, they are less inclined to believe management's justification for why change is necessary. On the opposite end of the spectrum, employees who possess high levels of trust in both the supervisor and the organization might have more inclination to believe management communications regarding change.

Telework researchers (Podsakoff et al., 2005; Tyler et al., 2008) have found that employees' perceptions of procedural justice affect whether they trust management. For example, Harris (2003) found that lack of work-based support from managers resulted in teleworkers' diminished levels of trust toward the organization. Other scholars have noted that a lack of managerial trust toward teleworkers is a primary reason why some managers resist telework (Felstead et al., 2003). Trust, or a lack thereof, affects the techniques mangers use to assess work and interact with teleworkers. Successful telework programs require mutual trust between the teleworker and the manager (Nilles, 1998).

The findings and theoretical implications of contemporary studies (Cunningham, 2006; Neves & Caetano, 2006; Podsakoff et al., 2005; Tyler et al., 2008) support the importance of the humanistic principles posited in sociotechnical theory. The studies showed that employee perceptions, social exchange processes, and organizational culture significantly influence the outcomes of organizational change initiatives. Implicit in the

research findings was the notion that both the psychological needs of employees and the potential benefits of the change effort are equally important.

Telework

Organizations are open systems that evolve in response to broader societal issues (Burke & Litwin, 1992; Kotter, 1996; Litwin et al., 1996). Telework is an example of how changes within organizations occur in response to social phenomena. Nilles (1975, 1997) first introduced the concept of decentralized work environments in the 1970s as a strategy to address the issue of escalating gas prices. Nilles proposed that reducing the number and distance of employees' commutes by enabling them to work from home or from a location closer to home could mitigate the fuel consumption problem. According to Van der Wielen, Taillieu, Poolman, and Van Zuilichem (1993), telework is a manifestation of "fundamental changes in the nature of work and organizational restructuring caused by turbulent environmental conditions" (p. 147). Telework reflects the dynamic nature in which organizations interact with and are influenced by external mechanisms.

Since the 1970s, telework has become as an international phenomenon promoted by governments and used in organizations in the United States and around the globe (e.g., Canada, Finland, Belgium, United Kingdom). Telework is a business strategy used to achieve a wide range of organizational and societal objectives. For example, European governments promote telework as a means for reducing traffic congestion and expanding employment opportunities to spatially dispersed individuals who are unable to commute to the employer's worksite (Mello, 2007). Telework is also a promising way for

organizations to increase employment opportunities for people with disabilities who are unable to access the physical work environment (P. M. Baker, Moon, & Ward, 2006; Office of Personnel Management, 2008; Sanford & Milchus, 2006; West & Anderson, 2005). Mello (2007) described the following benefits of telework:

1. From an environmental perspective, these include reduced traffic and pollution and reduced strain on public transport systems, fewer highway accidents, and reduced gasoline consumption.

2. From a societal perspective, these include providing employment opportunities to those with disabilities, the elderly, new parents, and others who may not be physically able to get to work.

3. From an employer perspective, these include increased productivity, improved morale and motivation of employees, enhanced customer and client service, reduced operating costs, reduced employee absenteeism and turnover, continuity of operations, and geographic dispersion that can reduce vulnerability in case of terrorist attack or global pandemic, increased recruitment options.

4. From an employee perspective, these include increase job satisfaction, savings in personal expense and time, increased productivity, and enhanced employment opportunities (Mello, 2007, p. 254).

Despite the benefits of telework, the researchers of several studies have reported that poorly managed telework programs result in negative organizational outcomes. Some of the most noted unfavorable outcomes are professional and social isolation (Cooper & Kurland, 2002; Golden et al., 2008; Harris, 2003; Potter, 2003, Taskin &

Devos, 2005), infringement on family life (Standen et al., 1999), and lack of managerial control (Felstead et al., 2003; Taskin & Edwards, 2007). Though much attention has been directed to dichotomizing telework outcomes as either positive or negative, little attention has been given to factors such as telework frequency and ITC usage that might moderate potential negative outcomes.

Telework Typologies

During the 1980s and 1990s, telework evolved into a plethora of work arrangements ranging from employees working from home to working from customer premises, satellite offices, and even nomadic locations with some employees working from multiple locations throughout the workweek (Halford, 2005). Telework encompasses distinct typologies primarily characterized by frequency, ICT usage, spatial factors, and contractual arrangement (Sullivan, 2003). Sullivan explained that frequency, nature of contractual arrangement, and spatial location (e.g., home office, satellite location, customer site, or mobile context) should serve as major discerning elements in delineating telework typologies as these factors affect telework outcomes at both individual and organizational levels. Researchers (Haddon & Brynin, 2005; Hislop & Axtell, 2007; Standen et al., 1999; Sullivan, 2003) have asserted that characteristics of the spatial context of the remote location influence the social, psychological, and managerial processes.

Home-based telework is one of several forms of telework. Even within the specific typology of home-based telework, wide variations in key elements exist including frequency and ICT usage. Home-based telework tends to vary on a broad

continuum, with one end consisting of employees working from home 5 days per week and the opposite end with consisting of those who work at home as few as 1 day per month (Sullivan, 2003). Another continuum exists with employees who use sophisticated ICTs to telework and those who do not. Variations in spatial, technological, and contractual dynamics have led to disagreement in the telework literature concerning the nature and characteristics of work that should be included in telework discourse and research studies.

Disparate perspectives on the defining characteristics of telework have resulted in varying definitions of the term, with most conceptualizations based on differential criteria related to frequency, technology, contractual, temporal, and spatial dynamics. Although the lack of a universal definition has contributed to wide discrepancies in determining the number of teleworkers in the United States (Mokhtarian et al., 2005), Haddon and Brynin (2005) and Sullivan (2003) identified problematic issues with the idea of adopting a broad universal definition. Instead they recommended project-specific conceptualizations. Sullivan (2003) challenged the notion that the lack of a single definition of telework impedes academic research.

Another area of dissent in the literature on telework concerns the types of employees and nature of work suitable for telework. Although some researchers (Clear & Dickson, 2005; Daniels et al., 2001; Felstead, Jewson, Phizacklea, & Waters, 2002; Nilles, 1998; Taskin & Edwards, 2007) have asserted that knowledge workers are suitable for telework because they experience a higher degree of autonomy and work independently, others have offered different perspectives. Pyoria (2003) explained that

knowledge work is "founded upon a culture of close collaboration, physical proximity among team members and a continuous flow of social interaction, all of which are hard to sustain over electronic media" (p. 171). A growing concern in the literature on telework is the potential deterioration of tactic knowledge in virtual organizations (Belanger & Allport, 2008).

Organizational and Managerial Challenges

Implementation and expansion of telework in organizations have spawned myriad issues on individual, managerial, and organizational levels. At the organizational level, some of the most critical challenges concern performance measurements, impact on teamwork, safety and liability, sufficiency of technology, security of information, selection of eligible employees, provisions of telecommunication hardware, and supervisor discomfort (Mello, 2007). Finding ways to share knowledge and facilitate group processes has been an ongoing challenge for leaders of virtual organizations (Andres, 2006; Belanger & Allport, 2008; Belanger, Collins, & Cheney, 2001; Finholt & Sproull, 1988; Raghuram, 1996). Some scholars (e.g., Ellison, 1999; Lupton & Haynes, 2000; Nilles, 1998; Shin, Liu Sheng, & Higa, 2000) have identified managerial resistance to telework as a major organizational challenge. According to Illegems and Verbeke (2004), one of the major challenges that organizations face is understanding the subsequent effects of telework on job satisfaction.

From as early as the 18th century with the classical management movement, the basis of traditional modes of managing employees was visibility and control (Draft & Marcic, 2001). In modern organizations, managerial roles are still oriented toward

control. In virtual organizations, managers must adopt new paradigms and roles. Some managers resist telework because of the fear of losing control over employees and concerns that productivity will decline when employees are not monitored (Dimitrova, 2003; Van der Wielen et al., 1993). Cascio (2000) asserted that the two largest managerial challenges are shifting from managing time to managing results and overcoming concerns about whether managers will be valued within the organization if they manage employees who are spatially dispersed. Managing dispersed employees requires a shift from a presence management philosophy to one that focuses on managing by results (Martinez-Sanchez, Perez-Perez, de-Luis-Carnicer, & Vela-Jimenez, 2007; Martinez-Sanchez, Perez-Perez, Vela-Jimenez, & de-Luis-Carnicer, 2008; Nilles, 1998). Taskin and Edwards (2007) conducted a study of public sector teleworkers in Belgium and found that telework required redefining management control and a shift from traditional management control based on presence and visibility.

Konradt and Hoch (2007) examined the perceived importance of line managers and middle managers in virtual teams regarding roles and functions that were necessary to promote virtual team success and improve performance. Konradt and Hoch used the competing values framework, which is based on the premise that a "broad repertoire of leadership activities permit the leaders to successfully engage and sustain members motivation and performance" (p. 27). The competing values framework characterizes leadership functions into four quadrants: (a) adaptability leadership function, (b) people leadership function, (c) stability leadership function, and (d) task leadership function (Konradt & Hoch, p. 19). Based on competing values framework, leadership roles

include broker, innovator, mentor, facilitator, monitor, coordinator, director, and producer. Konradt and Hoch found that managers perceived that fewer roles were necessary to successfully lead teams in the virtual context than needed to lead face-to-face teams. Konradt and Hoch also found that most significant roles were motivating the team to meet expected goals; making team members' roles clear; and clarifying priorities, direction, and efficient ways to increase behavioral certainty.

Telework has also been found to have a profound impact at the individual level. Teleworkers not only cope with balancing work and home responsibilities in the same spatial context, but also deal with the spatial separation from colleagues and friends. Some teleworkers cope with concerns regarding whether telework impedes career opportunities and career development (Cooper & Kurland, 2002; Standen et al., 1999; Tung & Turban, 1996). According to Baruch (2000), telework affects employees in the following five ways:

1. Identity: changed conceptions of oneself as an employee, family member, career aspirant
2. Skills: development of atrophy of skills, including social and time management skills
3. Context: changed awareness of communications, distractions, use of time and space
4. Role demand: changed priorities, demands, constraints and supports in relation to elements of tasks and relationships

5. Role outcomes: changed attitudes and satisfactions, felt stress, performance, and material rewards/costs (p. 37).

Spatial separation from the organization has resulted in professional and social isolation for some teleworkers. According to Diekema (1992), isolation is an "asymmetric form of aloneness resulting from the termination of social relationships or the lack of desired social interaction" (p. 495). Professional isolation is the perception that one is disconnected from others in the workplace. Researchers (Kurland & Egan, 1999; Taskin & Devos, 2005) have suggested that the lack of face-to-face interaction leads to social isolation, which in turn has an adverse impact on organizational commitment. Potter (2003) noted that "the workplace is the locus of social interaction and friendship for most workers" (p. 81) and questioned whether telework will "allow family and neighbor to replace ongoing socialization and collegiality of the workplace as well as corporate culture" (p. 81). Scholars have examined the impact of telework on aspects of employees' psychological well-being (Duxbury, Higgins, & Thomas, 1996; Hartig, Kylin, & Johansson, 2007; Lapierre & Allen, 2006; Lundberg & Lindfors, 2002; Mann, Varey, & Button, 2000; Standen et al., 1999; Sullivan, 2000; Vega & Brennan; 2000) and found inconsistent findings.

Although researchers disagree on the extent to which teleworkers experience professional isolation, they tend to agree that isolation has a significant negative impact on organizational constructs. In a study of home-based sales associates of a manufacturing company in the United Kingdom, Harris (2003) found that 63% of teleworkers reported feeling isolated and that the lack of face-to-face communication

impeded problem solving. A study conducted by Cooper and Kurland (2002) found that the extent to which teleworkers experienced social isolation was linked to the presence of personal networking, informal learning, and mentoring opportunities in the virtual work environment. In a study of 261 teleworkers of a high-tech corporation, Golden et al. (2008) found that professional isolation had a negative impact on job performance. Specifically, job performance was low among employees who felt isolated from their organization.

Professional and social isolation has the potential to threaten the psychosocial relationships between teleworkers, colleagues, and the organization (Wiesenfeld et al., 2001). Researchers have found that professional isolation has a negative impact on employees' perceptions of belonging to an organization (Thatcher & Zhu, 2006; Wiesenfeld et al., 2001). Organizational identification is a determinant of organizational commitment and organizational citizenship behavior (Wiesenfeld et al., 2001).

Another area of concern regarding the impact of telework on employees stems from the principles of social comparison theory, which posits that employees compare their performance and abilities with those of others (Conner, 2003). According to social comparison theory, employees reduce uncertainty of their own abilities and improve self-esteem through the continuous process of engaging in social comparisons. Conner noted that virtual work environments provide limited opportunities for employees to engage in social comparison processes.

Telework Frequency

Researchers have begun to investigate possible linkages between telework frequency, which is the proportion of work time spent working remotely, and specific individual and organizational outcomes. The typical measurement of telework frequency is in terms of the average number of days per week spent working remotely (Golden et al., 2008; Helminen & Ristimaki, 2007; Mokhtarian et al., 2005). Of the 33.7 million Americans who teleworked in 2008, 40% worked from home 5 days per week (WorldatWork, 2009). These statistics support the concept of spatial hybridity advanced by Halford (2005) wherein employees perform work within overlapping domains that encompass domestic, organizational, and virtual space. As organizations seek to optimize the full benefits of real estate cost savings by implementing and expanding telework opportunities, full-time telework arrangements could potentially increase. Wiesenfeld et al. (2001) predicted that "virtual work may become the norm, and employees may never experience" the traditional workplace (p. 226).

Empirical research has shown that telework frequency influences outcomes at the individual and organizational levels. However, studies have yielded inconsistent findings. Some studies indicated that greater frequency yielded negative outcomes. For example, in a study of 321 professional-level teleworkers, Golden and Veiga (2005) found a curvilinear inverted U-shaped relationship between telework frequency and job satisfaction. Using hierarchal regression analysis, Golden and Veiga found that job satisfaction initially increased as the extent of telework rose; however, at higher levels of teleworking, satisfaction started to level off and eventually declined.

Potter (2003) noted that full-time teleworking is more likely to "produce more negative organizational and behavioral effects than telecommuting on a part-time basis" (p. 82) because employees who work a portion of the workweek at the centralized work office have the opportunity to engage in face-to-face interactions and build relationships that engender positive communication. Potter's assertion has been supported by studies conducted by other scholars (Duxbury & Neufeld, 1999; Halford, 2005). Halford (2005) found that employees who worked 2 to 3 days per week from home and the remaining days at the traditional centralized office felt that their in-office days "meet various needs for face-to-face interactions" (p. 31). Halford's findings suggest that there is a relationship between telework frequency and perceived need for face-to-face interactions.

Other researchers have examined the relationship between telework frequency and important work–life and organizational constructs. For example, in a study of 393 professional-level teleworkers in one organization, Golden (2005) found that as frequency increased, job satisfaction increased and turnover intentions decreased. In a separate study, Golden, Veiga, and Simsek (2006) found that employees who teleworked more days per week experienced reduced work-to-family conflict but had a higher degree of family-to-work conflict.

Increased telework frequency has also had a negative impact on employees' sense of connectedness with an organization. In a study of 261 professional-level teleworkers and their managers, Golden et al. (2008) found a positive relationship between increased telework frequency and professional isolation. A review of the literature on telework revealed that professional isolation is among the challenges facing leaders of virtual

organizations. Scholars have commented on techniques that might reduce the professional isolation experienced when employees telework on a full-time basis. Pyoria (2003) recommended that managers provide opportunities for meetings and engage employees in informal social activities. The current study involved an examination into whether telework frequency affects job satisfaction among home-based teleworkers.

Information Communication Technology

Although telework existed prior to the technological proliferations of the 1980s and 1990s, researchers have cited ICT as a primary contributing factor in the exponential increase in teleworkers (Mello, 2007; Scott & Timmerman, 1999; Tung & Turban, 1996). A review of the literature on telework has shown that the primary focus of research has been mostly on technological and managerial issues of control and surveillance and not on psychosocial issues. Inadequate attention has been directed to developing and understanding ways to integrate technology to strengthen psychosocial and communication processes in the virtual workplace.

Some scholars have raised concerns about the extent to which telework affects organizational communication, psychosocial aspects, and social exchange processes (G. Baker, 2002; Fritz, Narasimhan, & Rhee, 1998). Wiesenfeld et al. (2001) suggested that telework breaks down the psychosocial ties (i.e., organizational commitment, organizational identification, and organizational citizenship behavior) that bind the employee–organization relationship and noted that organizational leaders have not given adequate consideration to the humanistic elements of telework. Whereas ICT enables social and informational linkages in organizations, equilibrium between social and

technical subsystems must be achieved to optimize the full potential of telework (Bostrom & Heinen, 1977; Cherns, 1987; Mumford, 2006). This study examined the relationship between ICT and job satisfaction of home-based teleworkers to identify correlates between technology media and levels of satisfaction.

Although the ICT infrastructure that supports telework might vary, a typical infrastructure includes four categories: devices, databases, telecommunication networks, and software (Tung & Turban, 1996). Common devices include telephone, laptop, computer, personal digital assistant, printer, scanner, mobile phone, fax machine, printer, and high-speed modem (Nilles, 1998). In robust infrastructures, teleworkers typically use organizational databases accessed via a secured remote connection. Mello (2007) noted, "Remote access to networks and data is critical to ensuring and maintaining productivity and telework employees can not have technical specialists 'troubleshoot' problems as readily when they are at home or working remotely than when they are physically on-site" (p. 256). Telecommunication networks include, but are not limited to, hardware and software such as e-mail and messaging systems, Internet, desktop video teleconferencing and user interface, user interface software, screen sharing, and workflow software. To address issues concerning data security, a typical teleworker might receive a laptop that has preloaded antivirus protection, task-related software, and an Internet browser. Teleworkers often must execute an authentication process to move though their employer's firewall to gain access to the network (Butcher-Powell, 2006; Pearce, 2009).

A review of the literature on telework indicated that the nature of the technology medium utilized in virtual organizations constrains or facilitates social and

communication exchange processes (Bekkers, 2003; Belanger, Collins, & Cheney; 2001; Dirksen, 2001; Wellman et al., 1996). Although some ICT media might enable rich communication exchanges that are similar to face-to-face interactions, others provide basic or somewhat deficient means of communication. For example, whereas e-mail is asynchronous communication void of transmitting contextual information, videoconferencing facilitates real-time interactions and provides important cues, such as voice tone, posture, and facial expressions, which enrich communication exchange processes (Wellman et al., 1996). Such cues provide contextual information that indicates awareness of, and agreement or disagreement with, the information conveyed (Andres, 2006). The significance of media-rich communication, according to Avolio et al. (2001), is that it promotes the "emergence of trust by influencing the perception of ability, benevolence, and integrity" (p. 655). Studies have shown that trust plays a critical role in social exchange processes.

Given the importance of communication within organizations, scholars have begun to examine the role of specific types of ICT media in facilitating communication within virtual organizations. For example, Scott and Timmerman (1999) found that while basic phone, voicemail, fax, word processors, and e-mail were used more frequently, computer conferencing, videoconferencing, meeting room videoconferencing, voice recognition, and desktop conferencing were considered the most important. This study suggested that the importance of specific ICT media should not be assessed based on the frequency of usage, but instead importance should be determined based on the richness of communication it enables.

In the telework literature varying streams of thought exist regarding the role of ICT in facilitating communication, social, and managerial processes in virtual organizations. Ellison (1999) asserted that computer-mediated communication could potentially mitigate some of the negative interpersonal and social effects of telework, such as social isolation. Potter (2003) theorized that communication technology (frequent telephone and conference calls, teleconferencing, meeting on the Internet) could serve as a substitutive for face-to-face contact and that "creative use of communication technology might overcome the breakdown to direct means of communication and personal relationships among co-workers" (p. 82). Potter's proposition suggests that ICT can be leveraged to enhance social exchange processes in virtual organizations.

With a similar perspective, Mamaghani (2006) suggested that the use of sophisticated ICT might continue to reduce the need for face-to -face interactions between teleworkers and managers and coworkers. Empirical studies have begun to enhance understanding of how ICT media could improve communication in virtual organizations. For example, Wiesenfeld et al. (1999) examined organizational identification of 276 employees of a large international computer company and found that ICT usage strengthened the extent to which teleworkers' identified with their organization. Andres (2006) conducted an experiment to assess the effectiveness of video-conferencing media in facilitating communication among virtual team members and found that videoconferencing had a positive effect on collective identity among members of the virtual team and influenced the extent and patterns of information

exchange. In a more recent study, Olaniran (2009) found that 71% of participants (N = 39) preferred not to have the camera focused on them.

Other research has indicated that in addition to organizations investing in communication-enriching ICT media, technical support and training is also a critical factor in successful telework programs. In a study of 50 teleworkers from 20 organizations, P. M. Baker et al. (2006) found a positive relationship between technical support and job satisfaction. A limitation of this study was the small number of respondents.

Another area of contention in the scholarly discourse on telework is the efficacy of ICT as a replacement for face-to-face communication. Hardill and Green (2003) asserted that while ICT enables collaboration in virtual enterprises, it does not "replace the powerhouses of personal interaction which drive teamwork and creativity" (p. 216). Some scholars believe that the success of organizations still hinges upon traditional modes of human interaction. In a study of 261 professional-level teleworkers in a high-technology corporation, Golden et al. (2008) found that access to communication-enhancing technologies did not moderate the feelings of professional isolation experienced by teleworkers.

Other scholars have contended that emphasis placed on ICT might be displaced in the discussion of telework efficacy. Clear and Dickson (2005) conducted a study of 38 small and medium sized firms in London and found that for telework to be successful it was

> not enough for the work processes to be transformable into telework nor the availability of technology for long distance work; an organizational culture oriented towards evaluating results and the promotion of autonomy and responsibility of human resources is also necessary. (p. 230)

Clear and Dickson noted that issues at the sociotechnical level, such as organizational culture and managerial style, were more critical to implementing and managing successful telework programs than the types of ICT media teleworkers had at their disposal.

Shin et al. (2000) asserted that state-of-the art ICT offers an effective mechanism to mitigate managerial resistance to telework by enabling information management, monitoring performance, and facilitating communication and collaboration. Shin et al. further noted that additional "research is needed in the area of media use by teleworkers and consequent work performance" (p. 94). Because employees' perceptions of belonging to an organization affect feelings of professional and social isolation (West & Anderson, 2005), it is important to leverage ICT to engender a sense of community in virtual work environments. The current study involved an examination into the relationship between ICT media usage and specific aspects of job satisfaction, such as communication and interactions with coworkers.

Job Satisfaction

In addition to illuminating the relationship between employees' psychological needs and productivity, the Hawthorne studies drew attention to how the social context affects job satisfaction (Frank, 2005). Locke (1969) defined job satisfaction as "the

pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating the achievement of one's job values" (p. 316). Decades after the Hawthorne studies, researchers directed considerable attention to identifying determinants of job satisfaction, but their studies yielded dismal results. In 1969, Locke asserted,

> There is still confusion over whether the determinants lie solely in the job itself (the 'intrinsic view'), whether they reside wholly in the worker's mind ('the subjective view'), or whether satisfaction is the consequence of an interaction between the worker and his work environment. (p. 309)

Whereas Herzberg's (1968) theory of job satisfaction centered on the gratification of needs through job characteristics, Locke argued that the employee's subjective values play a more significant role. According to Locke (1969), job satisfaction or lack thereof is an emotional response to an employee's perceptions about aspects of the job, what the employee values, and the subjective assessment of whether the values have been met. From Locke's perspective, career advancement, bonuses, or the work itself produces job satisfaction only to the extent that the employee values these variables. Locke explained that because value systems differ across employees, variations in job satisfaction levels exist among the workforce. In general, employees desire interesting work, equitable pay, fair promotion practices, safe and appealing working conditions, friendly coworkers, honest and fair supervisors, and competently managed organizations that demonstrate consideration for employees (Henne & Locke, 1985).

The focus of contemporary job satisfaction literature has been on variables that generally fall into one of four categories: monetary and monetary rewards, job

characteristics, work characteristics, and personal characteristics (DeSantis & Durst, 1996). In a study comparing job satisfaction of public- and private-sector employees, DeSantis and Durst (1996) found that both groups valued socially impacting work, a pleasant work environment, friendly coworkers, and variations in work tasks. DeSantis and Durst (1996) also found that determinants of job satisfaction differed for younger employees and suggested that managers need to develop strategies to attract and retain Generation X employees.

To some extent, the confusion Locke (1969) described still exists in contemporary job satisfaction literature. There is considerable dissent among theorists about factors that affect job satisfaction. Sajeva (2007) found that a direct correlation between employee motivation and job satisfaction, but posited that perceptions of job satisfaction influence employee morale. Smerek and Peterson (2007) noted, "The predictors of job satisfaction may be partly contingent upon the subculture" (p. 235) of the business unit or department rather than the organization as a whole. Additional research is necessary to examine factors that influence levels of job satisfaction.

Contrary to notions found in popular press, research has shown no direct correlation between job satisfaction and employee productivity. Locke and Latham (1990) asserted that "satisfaction exerts no consistent or inevitable effects on performance" (p. 244). However, the literature indicated that job dissatisfaction leads to absenteeism, which in turn affects productivity. Fisher (2003) found a relatively small correlation between satisfaction and performance, but found a strong correlation between satisfaction and organizational citizenship.

Job dissatisfaction has serious implications for organizations. Henne and Locke (1985) identified two potential outcomes of job dissatisfaction: absenteeism and voluntary turnover. "Job dissatisfaction may produce reactions which are detrimental to the achievement of the goals of the firm" (Henne & Locke, 1985, p. 221). It is, therefore, critical for organizational leaders to determine whether employees are dissatisfied and take corrected action to increase employee job satisfaction (Henne & Locke).

In a nationwide study of 1,095 workers in the United States, Lambert et al. (2001) found that the work environment more strongly affected job satisfaction than demographic factors, and that job satisfaction was a significant antecedent of turnover intentions. Other researchers (Harvey, Harris, & Martinko, 2008; Igbaria & Guimaraes, 1999) have found correlations between job satisfaction and turnover intentions. The correlation between job satisfaction and voluntary turnover has serious implications. The cost to replace an employee is 150% of the employee's annual compensation (Bliss, 2009). The potential cost associated with dissatisfied employees ranks the need to understand factors that affect job satisfaction of home-based teleworkers among critical topics requiring scholarly research. The current study involved an examination into the relationship between telework frequency, ICT, and job satisfaction among home-based teleworkers.

Relationship of the Study to Previous Research

The literature review summarized the key challenges organizations face with managing a virtual workforce and explained the importance of understanding mediating factors that influence employee job satisfaction. As discussed in the review, little

attention has been given to factors that affect the satisfaction of home-based teleworkers, which is surprising because although one of the most popular cited benefits of telework in the media is that it increases job satisfaction, there is little empirical evidence to support the claim (Bailey & Kurland, 2002). In general, researchers have not taken job satisfaction into account in telework research. Empirical research has shown that spatial separation from the physical organizational context affects several cognitive constructs. For example, studies have shown that some teleworkers experience social isolation and disengagement and these findings have significant implications to job satisfaction in the virtual organization. Lack of information regarding factors that mediate job satisfaction of teleworkers impedes organizational efficacy of managing a virtual workforce and the aim of this study was to redress the neglect in this critical area.

The variables selected for examination in the current study are logical extensions of the literature given the existing gaps related to information on mediators of job satisfaction of home-based teleworkers. The first question this study was designed to answer is whether a relationship exists between telework frequency and job satisfaction. Although Hartman et al. 1991 examined the relationship between telework frequency and job satisfaction, their study was conducted over 18 years ago and the specific focus was on satisfaction with the telework arrangement and not on aspects of overall job satisfaction. In a more recent study of 321 professional-level teleworkers, Golden and Veiga (2005) found a curvilinear link between telework frequency and job satisfaction wherein satisfaction initially increased with frequency, but then declined as frequency increased. However, ICT was not among the variables examined in the study and job

satisfaction was measured using a three-item scale. The current study involved examining the relationship between telework frequency, ICT, and job satisfaction using a 36-item scale that assessed nine aspects of job satisfaction, which enabled a more in-depth analysis of frequency and aspects of job satisfaction such as communication, nature of work, coworkers, and supervision.

The second question in the current study is whether a relationship exists between ICT and job satisfaction. The question stemmed from concern in the literature regarding the role of technology in virtual organizations. Although Potter (2003) asserted that computer-mediated communication (i.e., frequent telephone and conference calls, teleconferencing, and meeting on the Internet) could potentially mitigate some of the negative individual and social effects of telework, such as professional isolation, there is a lack of research concerning the extent to which ICT media usage correlates with aspects of job satisfaction of home-based teleworkers. In a study of 50 home-based teleworkers, E. Baker et al. (2006) found a significant correlation between both satisfaction and telework frequency and technology-related support from the employer, appropriate technology, and employees' perception of being trusted by their manager. In addition to the small sample size, the study was conducted in Australia, which raises questions pertaining to differences in cultural norms and values.

Further, there is dissent in the literature regarding the efficacy of ICT in replacing face-to-face communication. For example, Potter (2003) asserted that communication technology can substitute for face-to-face contact and that "creative use of communication technology might overcome the breakdown to direct means of

communication and personal relationships among co-workers" (p. 82). Golden et al. (2008) found that access to communication-enhancing technologies moderated the effect of professional isolation among teleworkers. Although interest in these issues is increasing, there is a clear need for more research to enhance the understanding of how ICT mediates psychosocial processes in virtual work environments. The current study involved an examination into the relationship between ICT media usage and specific aspects of job satisfaction, such as communication and interactions with coworkers.

The third question in this study was what the primary concerns of home-based teleworkers are regarding social interaction, recognition, and job satisfaction. Existing research has shown that engendering social interaction in the virtual context is a critical challenge facing organizations. "Professional isolation, by definition, occurs when telecommuters, because they are off-site and out-of-sight, miss important organizational rewards" (Cooper & Kurland, 2002, p. 519). Cooper and Kurland (2002) found that some teleworkers experience professional and social isolation due to spatial separation from the organization and a lack of meaningful social contact in the virtual environment. Potter (2003) asserted that the organizational context is the nucleus of social interaction and friendship for workers in the United States. The current study involved eliciting information from teleworkers on their primary concerns regarding recognition. According to Maslow (1998), employees need to receive recognition from the organization to feel appreciated and to garner a sense that they are making a worthy contribution (Maslow, 1998). Ward and Shabha (2001) conducted a study of teleworkers

in the United Kingdom and found that 90% of participants perceived recognition as meeting their needs for esteem and self-actualization.

In Maslow's hierarchy of needs theory, self-actualization is at the apex of human motivation drivers. In the context of the current study, an examination of self-actualization occurred from the perspective of career advancement. While Illegems and Verbeke (2004) found that telework does not hinder career advancement, Cooper and Kurland (2002) and Standen et al. (1999) noted that telework does impede promotional opportunities. Conflicting perspectives suggest a need for additional research in this area. Concerns expressed by teleworkers could provide organizational leaders with information that could be useful in the development of strategies to motivate and engage teleworkers. The issues underlie the rationale for examining the primary concerns of teleworkers regarding social interaction, recognition, and career advancement in the current study.

Studies Using the JSS

Job satisfaction was measured using Spector's (1994) JSS. The JSS was appropriate for the current study for three reasons: (a) it is available for academic research purposes, (b) it measures nine aspects of job satisfaction, (c) and it has been used extensively in doctoral research studies. For example, Puderbaugh (2006) used the JSS in a correlational study of work–family conflict and job satisfaction. Boone (2003) used the JSS to examine the relationship between job satisfaction and turnover intent of mental health professionals in residential settings. Tanner (2007) used the JSS in a correlational study of job satisfaction, organizational trust, and organizational commitment in an acute-care hospital.

Spector developed the JSS in 1985 to assess job satisfaction of employees in the field of human services. Since then, the JSS has been updated and used in a wide range of disciplines, organizations, and academic research studies (Spector, 1997). According to Spector (1985), the JSS "was predicated on the theoretical position that job satisfaction represents an affective or attitudinal reaction to a job" (p. 694). Spector's perspective of job satisfaction is consistent with the propositions advanced by Locke (1969).

Spector analyzed the literature on job satisfaction and identified nine salient facets that mediate job satisfaction (Spector, 1985). The JSS is a 36-item measurement designed to assess nine facets of employee job satisfaction. The subscales are pay, promotion, supervision, benefits, contingent rewards, operating procedures, coworkers, nature of work, and communication. Each subscale consists of 4 items with 17 items worded positively and 19 items worded negatively (Spector, 1985).

The items are measured using a 6-point Likert-type scale, where 1 indicates *disagree very much* and 6 indicates *agree very much.* Negatively worded items require reverse scoring before summing with positively worded items. The JSS yields an overall job satisfaction score that ranges from 36 to 216. Mean scores of 4 or more represent satisfaction, whereas means scores of 3 or less represent dissatisfaction. Scores between 3 and 4 are ambivalent (Spector, 1994).

Testing the validity and reliability of the JSS has occurred through its extensive use in various academic and organizational settings. Initial validity was established using data from 3,148 respondents comprised of 19 separate samples (Spector, 1985). Respondents consisted of employees from a wide range of occupations including social

workers, clerks, secretaries, research specialists, nurses, and managers. Spector conducted a test–retest reliability procedure using the same respondents from two of the 19 samples 18 months after initial test. The correlation coefficient ranged from .37 to .74 for the subscales and was .71 for the entire scale. The current version of the JSS has an overall correlation coefficient of .91 based on a sample of 2,870.

Summary

Telework has changed core elements of the psychosocial exchange processes in virtual organizations. Empirical research has shown that some teleworkers experience professional and social isolation due to the lack of face-to-face interactions with managers and co-workers. The literature review indicated that psychosocial bonds (e.g., organizational identification and organizational commitment) are adversely affected by telework. Some studies have suggested that ICT may play a critical role in facilitating rich communication exchanges in virtual organizations. The leadership and motivation theories discussed in the literature review illuminated the lack of equilibrium that exists between social and technical subsystems in the implementation and expansion of telework programs. While researchers have placed much emphasis on discussing the benefits of telework, improving aspects of data security, and overcoming managerial resistance, few studies have focused on understanding factors that influence the job satisfaction of home-based teleworkers. Job satisfaction is influenced by employees' needs and values. Studies have found that as telework frequency increases job satisfaction decreases and these findings raise concerns because the number of teleworkers is expected to increase due to federal legislation that requires agencies to

implement and expand telework programs. The lack of research regarding factors that affect job satisfaction of teleworkers is a critical gap in the telework literature that needs scholarly research.

Chapter 3 is a detailed account of the methodology employed in this study. Chapter 4 explains the data analyses performed to test the hypotheses and provides the results that answer the research questions. Chapter 5 provides the interpretations of findings, implications for social change, recommendations for action, future research topics, and conclusions drawn from the study.

Chapter 3: Research Method

Although 33.7 million Americans teleworked in 2008, there is a lack of information in the telework literature concerning factors that affect job satisfaction of home-based teleworkers. Telework has transformed organizations into a new realm of virtual existence (Hill et al., 1998). With the virtualization of the modern office, the leaders of many 21st-century organizations face challenges with engaging and motivating a spatially and temporally dispersed workforce (Kurland & Bailey, 1999; Mello, 2007; Potter, 2003; Wiesenfeld et al., 2001). Despite a 17% increase in the number of teleworkers from 28.7 million in 2006 to 33.7 million in 2008 (WorldatWork, 2009), few researchers have examined job satisfaction of home-based teleworkers.

This quantitative correlational study was designed to examine relationships among telework frequency, ICT, demographic factors, and job satisfaction as well as to identify the primary concerns of home-based teleworkers regarding social interaction, recognition, and career advancement. Chapter 3 describes the (a) research design and justification, (b) questions and hypotheses, (c) population and sample plan, (d) instrumentation and data collection, (e) data analysis procedures, and (f) ethical consideration of the participants. The chapter explains the rationale for using a correlational design to answer the research questions and the procedures used to support or reject the null hypotheses. The research questions that guided the study were as follows:

1. What is the relationship between telework frequency and overall job satisfaction?

2. What is the relationship between ICT and overall job satisfaction?

3. What is the relationship between demographic variables and overall job satisfaction?

4. What are primary concerns of home-based teleworkers regarding social interaction, recognition, and career advancement?

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

H_{01}: There is no relationship between telework frequency and the overall job satisfaction of home-based teleworkers.

H_{a1}: There is a relationship between telework frequency and the overall job satisfaction of home-based teleworkers.

H_{02}: There is no relationship between ICT and the overall job satisfaction of home-based teleworkers.

H_{a2}: There is a relationship between ICT and the overall job satisfaction of home-based teleworkers.

H_{03}: There is no relationship between demographic variables (gender, age, number of years teleworking, regionalization, and child-care or elder-care responsibility) and the overall job satisfaction of home-based teleworkers.

H_{a3}: There is a relationship between demographic variables (gender, age, number of years teleworking, regionalization, and child-care or elder-care responsibility) and the overall job satisfaction of home-based teleworkers.

Population

The population consisted of salaried home-based teleworkers in the federal and private sectors located in various regions across the United States. Participants included teleworkers in a wide range of occupations who perform paid work from home and have access to the Internet to complete the online survey. A purposive sample of home-based teleworkers who met the following criteria was eligible for participation in the study: (a) perform paid work from home as an employee of an organization on a full-time or part-time basis; (b) have at least 1 year telework experience; (c) are 21 years or older.

The purposive sampling method is a form of nonprobability sampling that involves selecting research participants based on predefined criteria with a specific intent in mind (Trochim & Donnelly, 2007). Merriam (1998) explained that "purposeful sampling is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore, must select a sample from which the most can be learned" (p. 61). The basis for using purposive sampling over other sampling methods is the objective that the method would facilitate recruitment of a specific segment of the home-based telework population; eliminate inappropriate respondents such as home-based self-employed teleworkers; and enable recruitment of teleworkers in dispersed geographic regions across the United States. Singleton and Straits (2005) noted that although purposive sampling limits generalizability, it "offers stronger, less tenuous inferences than convenience sampling" (p. 134). The sampling method confined the sample to a specific segment of the telework population.

Research Design

This study involved a correlational design to examine the relationship between telework frequency, ICT, demographic factors, and job satisfaction of home-based teleworkers in both the federal and the private sectors. Correlational design is a type of descriptive quantitative research that involves examining possible relationships among variables (Leedy & Ormrod, 2010). The approach aligns with a postpositivist worldview that supports the use of scientific methods to gain an understanding of complex social phenomena by numerically measuring constructs and testing hypotheses (Creswell, 2009). This study included statistical procedures to analyze data and support or reject the hypotheses. Simon (2006) noted that "correlational studies examine variables in their natural environments and do not include researcher-imposed treatments" (p. 43).

An electronic survey instrument was used to collect data, and statistical procedures were executed to test hypotheses and answer the research questions. The independent variables were telework frequency, ICT, and demographic factors. The dependent variable was job satisfaction, measured using an established 6-point Likert-type survey instrument designed to assess nine facets of employee job satisfaction. The researcher approached the study from a neutral perspective with the objective of ascertaining whether correlates existed among the variables.

Appropriateness of Design

Correlation was the most appropriate design because the purpose of the study was to examine relationships among known variables within an existing theoretical framework. Specifically, the purpose of this quantitative correlational study was to

examine whether relationships existed among telework frequency, ICT, demographic factors, and job satisfaction of home-based teleworkers. Correlational design is a type of descriptive quantitative research that examines a problem "as is. It does not involve changing or modifying the situation under investigation, nor is it intended to determine cause-and-effect relationships" (Leedy & Ormrod, 2010, p. 182). Methodological experts (Corbin & Strauss, 2008; Creswell, 2007; Simon, 2006) affirmed that research questions or topics of investigation should guide the selection of a suitable method of inquiry. Simon (2006) explained that, "When an approach is selected to investigate a problem, it should be the most suitable approach available" (p. 37). This principle guided the selection of an appropriate research design for this study.

A qualitative phenomenological design was considered as a potential methodology, but was not selected because the approach was deemed ill-suited for the purpose of the current research study. A phenomenological approach is suitable when the objective of the study is to gain an understanding of a complex social phenomenon by describing the essence of the lived experiences of individuals who have experienced the phenomenon (Creswell, 2007). Phenomenology enables the researcher to transcend conceptually based understanding of abstract constructs and concepts to gain a more salient and in-depth understanding of how the phenomenon directly impacts human beings on a personal level (Sokolowski, 2000). According to Sokolowski (2000), phenomenology

> shows how perception should not be understood as a barrier between ourselves and things, and how things can be given in various perspectives and still maintain

> all our experiences; and it unravels the intentionalities by which the sciences are constituted out of the lived world. (p. 203)

The phenomenological approach legitimizes the value of the lived experiences of all persons who have experienced a phenomenon such as telework, but does not answer whether relationships exist among variables.

A case study design also received consideration for the current study, but was not appropriate because the approach is suitable for investigating a phenomenon within the structural constructs of a bounded system. Stake (1995) described case study as the "study of particularity and complexity of a single case, coming to understand its activity within important circumstances" (p. xi). In a similar vein, Simon (2006) described the case study as "descriptive research based on a real-life situation, problem, or incident and situations calling for analysis, planning, decision making, or action with boundaries established by the researcher" (p. 48). Case study design is appropriate for research problems or issues where the researcher "has clearly identifiable cases with boundaries and seeks to provide an in-depth understanding of the case or a comparison of several cases" (Creswell, 2007, p. 74). Case study research is also an appropriate approach for gaining an in-depth understanding of various dimensions of a specific property of a case. Simon noted, "Case study research is often used when the questions are how and why, rather than what and how many, and when particularistic, descriptive, heuristic, and inductive phenomena are considered" (p. 48). The questions delineated in the current study were oriented toward answering what the relationship between variables is and not how or why the relationships exist.

The grounded theory approach received consideration, but also was not appropriate for this study. Corbin and Strauss (2008) defined grounded theory as a "specific methodology developed for the purpose of building theory from data" (p. 1). Simon (2006) described grounded theory as "one of the most sophisticated and developed approaches to rigorous qualitative (nonnumeric) research" (p. 54). Grounded theory is an appropriate method of inquiry when scant data exist; dimensions of a phenomenon require further exploration; or existing theories are inadequate, biased, or incorrect (Corbin & Strauss). According to Simon, "What most differentiates grounded theory from other research methods is that it is explicitly emergent. Instead of testing hypotheses, it sets out to find what theory accounts for the research situation" (p. 55). The common purpose of this qualitative approach is to develop theory grounded in data to explain a specific dimension of a phenomenon (Creswell, 2007). The grounded theory approach would have been inept in a study aimed at examining relationships between variables.

Quantitative designs are oriented toward predicting, controlling, confirming, and testing hypotheses, whereas qualitative designs involved an attempt to understand, describe, and generate theories or hypotheses (Simon, 2006). Although qualitative designs provide an opportunity to gain in-depth understanding of a phenomenon for which little empirical or theoretical knowledge exists (Creswell, 2009), time, geographic, and economic factors might constrain the number of study participants. In contrast, a quantitative approach, using an online survey, could reach a large geographically dispersed population and result in time and cost savings (Singleton & Straits, 2005). The

target population for this study was geographically dispersed across the United States. For these reasons, the current study involved an electronic Likert-type survey to collect data to test the hypotheses and answer narrowly defined research questions. Statistical analyses were performed to measure the relationships between the variables and assess their significance. Simon (2006) noted that a correlational study is a suitable line of inquiry when the primary purpose is to "determine relationships between variables, and if a relationship exists, to determine a regression equation that could be used to make predictions about a population" (p. 43). Of the approaches considered, correlational design was the most appropriate methodology for this study.

Sample

The sample for the study consisted of home-based teleworkers employed by the federal government or the private sector. Using federal and national telework trade association listings, the researcher contacted telework coordinators at 50 federal and 20 private-sector organizations that had established telework programs to gain access to the sample. The telework coordinators were informed of the purpose of the study and criteria for participation and then asked for permission to survey potential participants (see Appendix B). Organizational leaders willing to participate in the study received an e-mail that included the electronic link to access the survey and the informed consent statement and were asked to forward the e-mail to their telework employees. Purposive sampling was used to recruit respondents in a wide range of occupations and from various geographical locations in the United States.

Because the use of a simplified rule-of-thumb formula to determine adequate sample size for multiple regression analyses might yield misleading results, a power analysis was performed to determine an adequate sample size for the study (Cohen, 1988; J. Miles & Shevlin, 2007). A power analysis requires (a) the significance level, (b) the number of independent variables, (c) the effect size, and (d) the appropriate level of power. J. Miles and Shevlin (2007) noted, "The calculations for power analysis are complex, and so are rarely attempted by hand" (p. 121). For this reason, a power analysis was conducted using GPower 3.0 software (Faul, Erdfelder, Lang, & Buchner, 2007) to determine the adequate sample size for the study. Table 2 contains the factors used to determine sample size.

Table 2

Statistical Factors Used to Calculate Adequate Sample Size

Factor	Input parameters	Description
Alpha level	.05	Also known as the *p* value or Type I error rate
Number of predictors	3	The total number of predictors in the model, not including the regression constant
Anticipated effect size (f^2)	.15	By convention, effect sizes of .02, .15, and .35 are small, medium, and large, respectively
Desired statistical power	.95	By convention, this value should be greater than or equal to .80
Adequate sample size	119	

Ethical Protection of Research Participants

The study was conducted in accordance with the parameters established by Walden University's Institutional Review Board (IRB) to ensure the ethical protection of

research participants. IRB approval # 08-17-09-0300050 was granted before any data were collected (see Appendix C). The underlining tenet of ethical protection is to ensure that research participants are not harmed in the course of, or as a result of, participation in a study. Trochim and Donnelly (2007) described five principles of protecting participants from potential harm: voluntary participation, informed consent, confidentiality, anonymity, and right to service. Singleton and Straits (2005) noted that it is a violation of basic human rights to "harm others, to force people to perform actions against their will, to lie to or mislead them, and to invade their privacy" (p. 518). Research studies that utilize online websites to collect data are held to the same ethical standards as those that collect data through face-to-face contacts or postal mail (Leedy & Ormrod, 2010).

Participation in this study was strictly on a voluntary basis. Potential participants received an e-mail that explained the purpose of the study, how information provided would be used and secured, risks to participants, estimated time it should take to complete the survey, and the age requirement for participation in the study (see Appendix D). Respondents were required to complete the online survey anonymously and were also informed that individual responses would not be revealed to their organization or reflected in the finished study. A consent statement was embedded in the text of the e-mail. Prior to accessing the survey questions, potential participants were required to acknowledge that they had read and understood the risks and were instructed to click on the appropriate button to participate or not participate in the study. Only those who opted to participate in the study received access to the survey questions. Participants were

provided with the contact information of the researcher. The electronic consent statements and responses were stored electronically in a password-protected database, where they will be stored for 5 years. No paper copies will be maintained.

Instrumentation

An online survey was used to collect data for this quantitative correlational study. This mode of data collection is an economical and time-efficient method that enabled the collection of data from home-based teleworkers located in different geographic regions of the United States. The survey included items to collect data on the factors summarized in Table 3. The items appeared in the survey in the order reflected in the table.

Table 3

Factors Comprising Electronic Survey

Factor	Description	Measurement scale
Demographic factors	Gender, age, child/dependent care	Nominal, ratio
Telework frequency	Number of days worked at home	Ratio
ICT	Technology media	Ratio
Job satisfaction	JSS	Interval
Primary concerns	Open-ended questions	

Demographic Factors

Demographic data were collected to identify characteristics of the participants and to determine whether relationships existed between demographic factors and job satisfaction. Fourteen demographic items were included in the survey to allow for statistical analyses of such factors as age, gender, childcare responsibilities, occupation, and number of years teleworked. A complete list of the demographic items is in Appendix E.

Telework Frequency

Telework frequency was measured with two items that asked respondents to indicate the average number of days per week that they worked for their organization and the number of days they spent working from home for their organization. The items were similar to other frequency measures used in the literature (i.e., Golden et al., 2008; Helminen & Ristimaki, 2007; Mokhtarian et al., 2005). The following items were included in the survey:

How many days per week do you work for your organization?

O 1 day per week

O 2 days per week

O 3 days per week

O 4 days per week

O 5 days per week

O 6 days per week

O 7 days per week

Of these days, how many days per week do you work from home for your organization?

O 1 day per week

O 2 days per week

O 3 days per week

O 4 days per week

O 5 days per week

O 6 days per week

O 7 days per week

ICT

Information communication technology was measured using the approach applied in prior studies concerning ICT usage (Belanger et al., 2001; Fritz et al., 1998; Golden et al., 2008; Raghuram, 1996). Specifically, respondents were asked to indicate whether they used specific ICTs to perform paid work from home. Technologies were scored either 0 (*no*) or 1 (*yes*), with resulting values ranging from 0 to 9. The following item was included in the survey.

Which of the following technologies do you use when you work from home?

Desktop or laptop computer	O yes O no
High bandwidth Internet connection	O yes O no
Remote access to employer's databases	O yes O no
E-mail	O yes O no
Instant messaging	O yes O no
Facsimile	O yes O no
Videoconferencing	O yes O no
Teleconferencing	O yes O no
Interactive whiteboards or other collaborative tools	O yes O no

JSS

To determine teleworker job satisfaction, participants completed Spector's (1994) JSS. Spector initially developed the JSS in 1985 to measure aspects of job satisfaction in

human service organizations. Since then, it has been updated (Spector, 1997) and used in various organizations and academic research studies. The JSS is a 36-item measurement instrument designed to assess nine facets of employee job satisfaction. It includes a 6-point Likert-type scale, where 1 indicates *disagree very much* and 6 indicates *agree very much*. The subscales are pay, promotion, supervision, benefits, contingent rewards, operating procedures, coworkers, nature of work, and communication. Each subscale consists of four items. Seventeen items were worded positively and 19 items were worded negatively (Spector, 1985). The negatively worded items (2, 4, 6, 8, 10, 12, 14, 16, 18, 19, 21, 23, 24, 26, 29, 31, 32, 34, 36) required reversed scoring before summing with positively worded items (Spector, 1994). For example, a rating of 6 for Item 2, which states, "There is really too little chance for promotion on my job," was reversed scored as a 1.

The JSS is a validated instrument with proven reliability. The instrument has been utilized in several dissertations and has been proven to have external validity. Table 4 includes the subscales, descriptions, corresponding item numbers, and coefficient alphas based on a sample of $N = 2{,}780$. The overall coefficient alpha is .91, which represents very high internal consistency.

Table 4

JSS Subscales and Coefficient Alpha

Scale	Description	Items	Alpha
Pay	Pay and remuneration	1, 10, 19, 28	.75
Promotion	Promotion opportunities	2, 11, 20, 33	.73
Supervision	Immediate supervisor	3, 12, 21, 30	.82
Fringe benefits	Monetary and nonmonetary fringe benefits	4, 13, 22, 29	.73
Contingent rewards	Appreciate, recognition, and awards for good work	5, 14, 23, 32	.76
Operating procedures	Operating policies and procedures	6, 15, 24, 31	.62
Coworkers	People you work with	7, 16, 25, 34	.60
Nature of work	Job task themselves	8, 17, 27, 35	.78
Communication	Communication within organizations	9, 18, 26, 36	.71
Total			.91

Note. From Spector's Job Satisfaction Survey website. Copyright 1994 by Paul Spector. Reprinted with permission of the author.

Sample JSS Questions

Participants were asked to rate each item on a scale of 1 to 6, where 1 indicates *disagree very much* and 6 indicates *agree very much*. The following four questions are samples from the JSS. For a complete listing of items, see Appendix F.

1. I feel I am being paid a fair amount for the work I do.
2. There is really too little chance for promotion on my job.
3. My supervisor is quite competent in doing his/her job.
4. I am not satisfied with the benefits I receive.

Open-Ended Questions

In addition to the 36 JSS items, telework frequency, ICT, and demographic items, the survey included three open-ended questions about social interaction, recognition, and career advancement. These questions were to elicit greater depth of information than

could have been gleaned from Likert-type items. A list of prevalent issues derived from salient topics culled from telework literature was created using the precoding technique advanced by M. B. Miles and Huberman (1994). Respondents selected from a preestablished list the two issues that were of primary concern to them regarding social interaction, recognition, and career advancement (see Appendix G). Of the items selected, the respondents were asked to provide anecdotal responses about their experiences with these issues. The collected data were coded and analyzed using the qualitative data analysis techniques described by Miles and Huberman (1994). The data analysis included tabulating the frequency of thematic categories, discerning patterns, identifying divergent cases, and developing overarching themes. The data from the open-ended questions were compared to the responses provided to the JSS items to achieve internal validity. The following three items were included in the survey in the order below:

1. Select from the following list the two issues that you are most concerned about regarding your interactions with managers and coworkers as an employee who works from home. You may select "other" to add an issue that is not listed. Which issue concerns you most and why?

2. Select from the following list two issues that you are most concerned about regarding being recognized for your work performance. You may select "other" to add an issue that is not listed. Which issue concerns you most and why?

3. Select from the following list two issues that you are most concerned about regarding career advancement. You may select "other" to add an issue that is not listed. Which issue concerns you most and why?

Data Collection

Correlational design is an appropriate approach to examine relationships between independent and dependent variables (Leedy & Ormrod, 2010). A self-administered electronic survey was used to collect data for this quantitative correlational study. Surveys are common in social science research and used to collect data from a sample for the purpose of generalizing or suggesting findings to a larger population (Creswell, 2009). The use of an electronic survey facilitated the collection of data from home-based teleworkers located in different geographic regions of the United States. The survey included 36 job satisfaction items in addition to items designed to collect data on telework frequency, ICT usage, demographic factors, social interaction, recognition, and career advancement.

Potential participants received an e-mail inviting them to participate in the study. The e-mail (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 SurveyMethods.com. The survey remained open for 2 weeks. After the first week, an e-mail was sent to remind potential participants to complete the survey. The survey was closed at the end of the 2-week period because the minimum sample size was achieved. The collected data were imported into the SPSS version 17 software program for statistical analysis. Responses to the open-ended survey questions were coded and

analyzed for patterns, consistency, and discrepant cases. The data were stored in a password-protected database.

Data Triangulation

Data triangulation is a technique that involves collecting data using multiple sources to overcome the methodological weaknesses inherent in relying on a single source or method (Singleton & Straits, 2005). As previously stated, the electronic survey included JSS, telework frequency, ICT, and demographic items in addition to three open-ended questions about respondents' primary concerns regarding social interaction, recognition, and career advancement. Data triangulation resulted from a comparison of the data from the open-ended questions compared with corresponding subcategories of the JSS. According to M. B. Miles and Huberman (1994), "Triangulation is supposed to support findings by showing that the independent measures of it agree with it or, at least, do not contradict it" (p. 266). Table 5 includes a description of how the qualitative data were used to check for collaboration or inconsistency of findings.

Table 5

Data Triangulation of JSS Items With Responses to Open-Ended Questions

Open-ended question	JSS subscale	Items
Socialization	Communication	9, 18, 26, 36
Socialization	Coworkers	7, 16, 25, 34
Recognition	Contingent rewards	5, 14, 23, 32
Career advancement	Promotion	2, 11, 20, 33

The open-ended questions were meant to elicit greater depth of information from the respondents. Respondents were asked to select from a preestablished list the two issues that were of primary concern to them with respect to social interaction,

recognition, and career advancement. Of the items selected, the respondents were asked to provide anecdotal data about their experience with these issues. The responses were coded and analyzed using the qualitative data analysis techniques described by M. B. Miles and Huberman (1994). M. B. Miles and Huberman explained that linking quantitative with qualitative data can help during the data analysis process by "validating, interpreting, clarifying, and illustrating findings" (p. 41).

Data Analysis

Data collected from the online survey was imported into SPSS version 17 for statistical analysis to determine whether correlations among between telework frequency, ICT, demographic factors, and job satisfaction. As noted by Leedy and Ormrod (2010), "Numbers are meaningless unless we analyze and interpret them in order to reveal the truth that lies beneath them" (p. 253). The nature of the data and purpose of the study were a guide in determining the most appropriate statistical procedures. As depicted in Figure 3 and further explained in this section, the data collected from the electronic survey was analyzed using several quantitative and qualitative data analysis techniques.

The first round of analysis included descriptive statistics to compute the mean, standard deviation, median, and mode of the responses to the demographic items. Pearson product–moment correlation tests were performed to examine whether a relationship existed between telework frequency, ICT, and job satisfaction. A multiple regression analysis was performed to examine whether job satisfaction scores could be predicted by demographic factors. The resulting correlation, which is a measure that ranges between -1.00 and +1.00, was used to determine whether, and to what extent, a

relationship exists among the variables (J. Miles & Shevlin, 2007). A correlation coefficient near +1.00 means that the variables have a strong positive linear relationship. As one increases or decreases so does the other. A correlation coefficient of -1.00 means that there is a strong negative correlation between the variables, such that as one decreases or increases the other moves in the opposite direction. In contrast, a correlation coefficient of 0 indicates no association among the variables. To address the potential for Type I and II errors, a *p* value of less than 0.05 supported rejecting the null hypothesis with a 95% confidence level.

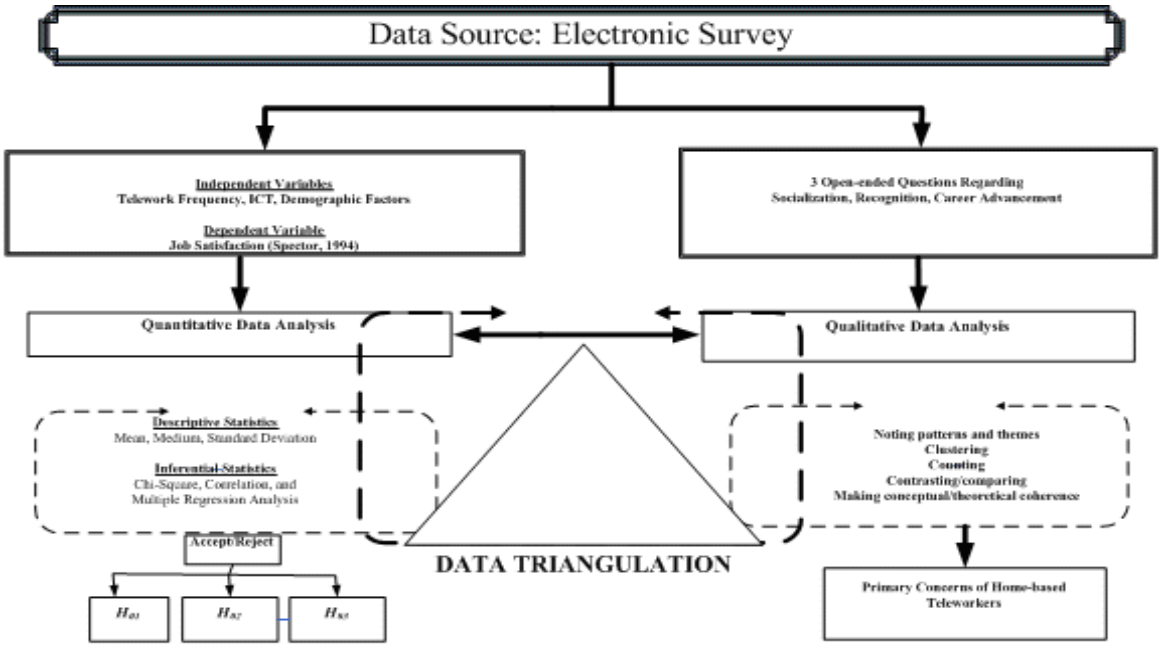

Figure 3. Graphical representation of the data analysis techniques used in the study.

In addition to the JSS, telework frequency, ICT, and demographic items, the online survey included three open-ended questions about respondents' primary concerns regarding social interaction, recognition, and career advancement. The questions were

meant to elicit a greater depth of information from the respondents than could be achieved with Likert-type items. To facilitate the data analysis process, a preestablished list of thematic categories was derived from prevalent issues found in the research literature (M. B. Miles & Huberman, 1994). Respondents were asked to select the two issues that were of primary concern with respect to social interaction, recognition, and career advancement or they could select the "other" option to add categories not listed (see Appendix G). Of the items selected or self-added, respondents were asked to explain why they selected the issue.

The responses to the open-ended questions were coded and analyzed using qualitative data analysis techniques. Coffey and Atkins (1996) explained coding can be viewed as "a range of approaches that aid the organization, retrieval, and interpretation of data" (p. 27). The following qualitative techniques described by M. B. Miles and Huberman (1994) guided the data analysis:

1. noting patterns and themes
2. clustering
3. counting
4. making contrasts and comparisons
5. making conceptual/theoretical coherence (p. 245)

In essence, the data were analyzed by tabulating the frequency of thematic categories, clustering categories, identifying reoccurring themes and patterns, and discerning divergent cases. The themes derived from the data analysis could be useful in the development of strategies to motivate and engage home-based teleworkers.

Usefulness to the Field

The findings generated from this correlational study provide valuable information to the field of management and organizational development. The review of the literature in chapter 2 described how telework has changed core elements of the psychosocial bond in the employee-employer relationship. Studies have shown that organizational identification and organizational commitment are adversely affected when teleworkers experience professional and social isolation. Empirical research has also indicated that some teleworkers feel isolated due to the lack of face-to-face interactions with managers and co-workers. Studies have suggested that ICT may play a critical role in facilitating rich communication exchanges in virtual organizations.

The results of this study show that there is a positive correlation between ICT and job satisfaction. This information could be used by organizational leaders to develop strategies that enhance social exchange processes in virtual organizations. Management practitioners could benefit from this research because the findings also provide valuable insights into the primary concerns of teleworkers. Implementing strategies that engender rich social exchange processes is crucial to optimal leveraging of human capital in the virtual work arena.

Summary

Chapter 3 described the rationale for using a correlational design as the best approach to answer the research questions on the relationship among telework frequency, ICT, demographic factors, and job satisfaction. This chapter explained the data collection and data analyses procedures employed to answer the research questions. Data

were collected electronically using a self-administered online survey comprising the JSS. The survey also included items to collect information on telework frequency, ICT usage, and demographic information and to elicit information on the primary concerns of teleworkers regarding socialization, recognition, and career advancement. The quantitative data were analyzed using the SPSS software program to execute descriptive, correlation, and regression analyses. Pearson product–moment correlations and multiple regression analyses were computed to provide statistical evidence that supported retention or rejection of the null hypotheses. The responses to the open-ended questions were analyzed using qualitative data analysis techniques and the findings were triangulated with findings derived from the quantitative analyses. The procedures that were taken to ensure ethical protection of research participants were described and the internal and external validity of the JSS instrument was established.

Chapter 4 provides a detailed account of the data analyses results, explains whether statistically significant correlations exist among the variables, and identifies the primary concerns of home-based teleworkers. Chapter 5 provides interpretation of findings, recommendations for action, implications for social change, areas for future research, and conclusions emanating from the study. The chapter also describes the limitations of the current study and explains unexpected findings.

Chapter 4: Results

The purpose of this quantitative correlational study was to determine whether relationships exist among telework frequency, ICT, and job satisfaction as well as to identify the major concerns of home-based teleworkers regarding social interaction, recognition, and career advancement. The specific problem addressed in this study was that although ICT provides the technological infrastructure that enables organizations to function as virtual work enterprises, there is a lack of information about factors that influence the job satisfaction of home-based teleworkers. Chapter 4 gives a detailed account of how the study was conducted, the data collection procedures employed, and the data analysis techniques performed. Moreover, the chapter explains the results of the analyses conducted to test the hypotheses and answer the research questions.

Data Generation and Data Gathering Processes

A total of 70 telework coordinators at federal government agencies and private sector organizations received a letter via e-mail soliciting their organization's participation in the study. Three federal and two private sector organizations 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.

The web-based survey included 58 items, of which 36 required respondents to report their attitudes toward nine dimensions of job satisfaction. Also included were 14 demographic items, two telework frequency items, one ICT item, and three open-ended

questions. The survey remained open for 2 weeks. A total of 273 respondents took the survey; however, 55 were missing data and could not be included in the analysis. This resulted in a sample of 218. Given the anonymous nature of data collection and the fact that participants from multiple organizations completed the survey, a determination could not be made regarding the response rate.

Presentations and Analysis of Data

The collected data were exported from SurveyMethods.com to SPSS 17 for statistical analyses. Respondents' job satisfaction was measured using a validated and reliable 6-point Likert-type scale (1 = *disagree very much* to 6 = *agree very much*) instrument. Prior to performing statistical analyses, 19 of the 36 JSS items that were negatively worded (2, 4, 6, 8, 10, 12, 14, 16, 18, 19, 21, 23, 24, 26, 29, 31, 32, 34, 36) were reversed scored. Descriptive statistics and frequency distributions were calculated to identify outliers and to establish a profile of the study participants. Mean scores and standard deviations were computed for the total job satisfaction score and subscales of the JSS as well as for aggregated ICT scores and individual ICT media. Correlation and regression analyses were performed to test the hypotheses. A p value of less than .05 was established to support rejecting the null hypotheses with a 95% confidence level. The responses to the open-ended questions were analyzed for patterns, consistency, and discrepant cases. Results derived from the quantitative data analyses were triangulated with the results from the qualitative data to check for consistency of findings. The findings are reported in this chapter in the following order:

1. Frequencies and percentages for selected demographic variables.

2. Descriptive statistics including means, standard deviations, and minimum and maximum values for selected demographic variables.

3. Psychometric characteristics of job satisfaction results.

4. Research questions and hypothesis testing in which Pearson product–moment correlations and multiple regression analyses were performed to examine the relationships among the variables.

5. Qualitative analyses of responses to open-ended questions.

6. Data triangulation of research findings to check for consistency.

Participants' Demographic Frequency Results

The first round of statistical analyses performed consisted of descriptive statistics to expose characteristics and demographics of the participants. Table 6 displays the frequency (*n*) counts and percentages for selected variables. Almost two thirds (64.7%) of the respondents were female and 35.3% were male. For marital status, 67.4% were married, 25.2% single, 6.9% divorced, and 0.5% separated. Forty-four percent had child-care responsibilities, 8.3% had elder-care responsibilities, and 3.7% had disabled-care responsibilities. Most (80.3%) worked in the federal government sector and 95% were full-time employees. The majority (85.5%) had at least a bachelor's degree, of which 19.3% had a master's degree, 37.2% had a professional degree, and 11.5% had a doctorate degree. Over 20 occupations were represented in the study. The most common occupations were attorney (34.9 %), patent examiner (15.6%), business analyst (4.6%), and manager (4.6%). Teleworkers in 13 states participated in the study. Over two thirds resided in the Washington, DC, metropolitan area.

Table 6

*Frequency Counts and Percentages for Selected Demographic Variables (*N = *218)*

Variable and category	*n*	%
Gender		
Female	141	64.7
Male	77	35.3
Child-care responsibilities		
No	122	56.0
Yes	96	44.0
Elder-care responsibilities		
No	200	91.7
Yes	18	8.3
Disabled-care responsibilities		
No	210	91.7
Yes	8	8.3
Marital status		
Single	55	25.2
Married	147	67.4
Divorced	15	6.90
Separated	1	0.5
Work sector		
Federal government	175	80.3
State government	5	2.3
Local government	1	0.5
Private sector	37	17.0
Education		
High school	1	0.5
Vocational school	1	0.5
Some college	30	13.8
Bachelor's degree	38	17.4
Master's degree	42	19.3
Professional degree	81	37.2
Doctorate degree	25	11.5
Occupation [a]		
Attorney	76	34.9
Business analyst	10	4.6
Human resources	6	2.8
Manager	10	4.6
Paralegal	9	4.1
Patent examiner	34	15.6
Program analyst	6	2.8
Other	67	30.6

Table 6 (*continued*)

Variable and category	*n*	%
Full-time	207	95.0
Part-time	11	5.0
State [a]		
Washington, DC	11	5.0
Maryland	80	36.7
Virginia	88	40.4
Other	39	17.9

[a] Categories with fewer than five respondents were collapsed into the "other" category.

Descriptive Statistics

Table 7 displays descriptive statistics such as mean, standard deviation, low, and high for selected demographic variables. Respondents ranged in age from 24 to 68 years with a median age of 43 years and had been employed by their organization for an average of 11 years. The average number of days worked from home was 3 ($M = 3.25$, $SD = 1.80$) and the average number of years teleworked was 3 ($M = 3.78$, $SD = 3.18$).

Table 7

*Descriptive Statistics for Selected Demographic Variables (*N = *218)*

Variable	*M*	*SD*	Low	High
Age	43.26	9.23	24	68
Distance from work to home	61.56	162.10	0	1400
Years with current employer	11.72	8.30	1	42
Years teleworked with organization	3.78	3.18	1	17
Days per week with this organization	4.88	0.88	1	7
Days per week work from home	3.25	1.80	1	7
Percent percentage of days from home	66.68	34.44	16.70	100

Participants' Job Satisfaction

As previously discussed, job satisfaction was measured using a validated 6-point Likert-type scale (1 = *disagree very much* to 6 = *agree very much*) instrument that

consisted of 36 items. Mean scores of 4 and above represented satisfaction, scores between 3 and 4 indicated ambivalent, and scores below 3 represented dissatisfaction (Spector, 1985). Table 8 displays the psychometric characteristics for the nine summated scale scores. The total job satisfaction score had a mean score of 4.42 with a standard deviation of .72. The subscales rated highest were supervision (M = 5.21, SD = 1.02), nature of work (M = 4.98, SD = 0.95), and coworkers (M = 4.98, SD = 0.87). The subscales with the lowest mean scores were operating conditions (M = 3.67, SD = 1.05) and promotion (M = 3.81, SD = 1.22). Cronbach's alpha statistic was used to assess the internal reliability of the responses. Scores above .70 indicated that the items in the instrument are consistent (Simon, 2006). The resulting Cronbach alpha reliability coefficients ranged from r = .61 to r = .93. The median alpha of r = .93 was slightly higher than the reliability coefficient (r = .91) reported by Spector.

Table 8

*Psychometric Characteristics for Job Satisfaction Scores (*N = *218)*

Subscale	*M*	*SD*	Low	High	Alpha
Pay	4.34	1.14	1	6	.84
Promotion	3.81	1.22	1	6	.84
Supervision	5.21	1.02	1	6	.87
Benefits	4.33	1.03	1	6	.68
Contingent rewards	4.21	1.14	1	6	.82
Operating conditions	3.67	1.05	1	6	.61
Coworkers	4.95	0.87	1	6	.73
Nature of work	4.98	0.95	1	6	.86
Communication	4.32	1.02	1	6	.74
Total job satisfaction	4.42	0.72	1	6	.93

Data Analysis and Results

Research Question 1

The first research question was as follows: What is the relationship between telework frequency and job satisfaction of home-based teleworkers? To answer this question, null hypothesis 1 (There is no relationship between telework frequency and job satisfaction of home-based teleworkers) was formulated. A Pearson product–moment correlation was performed on telework frequency and job satisfaction to determine whether a statistically significant relationship existed between the variables. As displayed in Table 9, the resulting correlation coefficient was $r = .13$ ($p = .059$). Because the p value of .059 was greater than the 5% level of significance, the results fail to reject the null hypothesis. There was insufficient evidence to conclude that a significant correlation existed between telework frequency and job satisfaction.

Table 9

*Pearson Product-Movement Correlations Between Telework Frequency and Job Satisfaction Subscales (*N = *218)*

Scale	Telework frequency
Total job satisfaction	.128
Pay	.104
Promotion	.138 *
Supervision	.019
Benefits	-.073
Contingent rewards	.041
Operating conditions	.152 *
Coworkers	.224 ****
Nature of work	.034
Communication	.154 *

* $p < .05$. **** $p < .001$.

The results indicate that there is not a statistically significant relationship between telework frequency and job satisfaction.

Research Question 2

The second research question was as follows: What is the relationship between ICT and job satisfaction of home-based teleworkers? To answer this question, null hypothesis 2 (There is no relationship between ICT and job satisfaction of home-based teleworkers) was formulated. Telework frequency was measured using a single item that asked respondents to indicate what technology mediums they used to work from home. Technologies were scored either 0 (*yes*) or 1 (*no*), with resulting values ranging from 0 to 9. The mean ICT score was 6.14 (*SD* = 1.64). All but one respondent utilized a desktop or laptop. Table 10 shows the number and percentage of respondents that utilized each ICT media.

Table 10

*Frequency Counts and Percentages for ICT Media Usage (*N = *218)*

ICT media	*n*	%
Desktop or laptop	217	99.5
High bandwidth Internet connection	218	100.0
Remote access to employers database	202	92.7
E-mail	216	99.1
Instant messaging	120	55.0
Facsimile	100	45.9
Videoconferencing	87	39.9
Teleconferencing	142	65.1
Interactive whiteboards or other collaborative tools	44	20.2

Hypothesis 2 was tested by computing a Pearson product–moment correlation between the aggregated ICT score and job satisfaction. Table 11 displays the results for aggregated ICT score and overall job satisfaction scores as well as correlations between

the aggregated ICT score and each dimension of job satisfaction. The resulting correlation (r = .22, p = .001) for aggregated ICT score and job satisfaction was statistically significant. The p value of .001 was smaller than the 5% level of significance, which provided sufficient evidence to reject null hypothesis 2. Because the correlation coefficient equals .22, it can be concluded that a weak positive relationship existed between total job satisfaction and ICT. Moreover, moderate positive correlations were found to exist between ICT and four of nine job satisfaction subscales: (a) pay (r = .14, p = .05), (b) contingent rewards (r = .19, p = .006), (c) coworkers (r = .161, p = .018), and (d) nature of work (r = .14, p = .043). Strong positive correlations were found to exist between ICT and promotion (r = .22, p = .001) and communication (r = .226, p = .001).

Table 11

Pearson Product–Moment Correlations Between Job Satisfaction and the Aggregated ICT Score (N = 218)

Scale	ICT
Total job satisfaction	.224 ****
Pay	.135 *
Promotion	.220 ****
Supervision	.108
Benefits	.080
Contingent rewards	.185 **
Operating conditions	.109
Coworkers	.161 *
Nature of work	.137 *
Communication	.226 ****

* $p < .05$. ** $p < .01$. **** $p < .001$.

Further analyses were conducted to determine the strength of the relationship between the total job satisfaction score and the nine individual communication media items that comprised the ICT scale. As displayed in Table 12, a significant positive relationship existed between overall job satisfaction and remote access to employer's databases ($r = .17$, $p = .01$) and instant messaging ($r = .28$, $p = .001$). No other significant relationships were found to exist between overall job satisfaction and the remaining seven communication media.

Table 12

Pearson Product–Moment Correlations Between the Individual ICT Items and the Total Job Satisfaction Score (N = 218)

ICT media	Total satisfaction
Desktop or laptop	.064
High bandwidth Internet connection	.125
Remote access to employers database	.172 **
E-mail	-.033
Instant messaging	.284 ****
Facsimile	.110
Videoconferencing	.105
Teleconferencing	.030
Interactive whiteboards or other collaborative tools	.096
Total ICT score	.224 ****

** $p < .01$. **** $p < .001$.

The results of the Pearson-product movement analysis support that a positive relationship exists between ICT and job satisfaction.

Research Question 3

The third research question was as follows: What is the relationship between demographic variables and job satisfaction of home-based teleworkers? To answer this question, Hypothesis 3 (There is no relationship between demographic variables and job

satisfaction of home-based teleworkers) was formulated. The categorical variables were dummy coded (e.g., 0 = unmarried, 1 = married). A two-pronged approach was employed to test Hypothesis 3. First, a Pearson multiple regression analysis was performed between selected demographic variables and job satisfaction to determine how well these factors could predict job satisfaction scores. Multiple regression analysis is used to determine the correlation between a combination of independent variables and a dependent variable (Simon, 2006). The 10-variable predictor model resulted in a p value greater than .05 (r =.069, p = .13). The hypothesized model failed the F test.

Second, Pearson product–moment correlations were performed between each demographic variable and job satisfaction. Elder-care responsibility (r = -.139, p = .04) and years with current employer (r = -.137, p = .04) were the only two predictor variables found to have a statistically significant relationship. Both demographic factors had weak negative correlations with job satisfaction. Regression and correlation analyses failed to reject null hypothesis 3. The data supports that demographic variables are not related to job satisfaction.

Research Question 4

The fourth research question was as follows: What are the primary concerns of teleworkers regarding social interactions, recognition, and career advancement? To answer this question, three items were included in the survey. For each item, respondents selected from a preestablished list the two issues that they were most concerned about. The list was comprised of thematic categories culled from telework literature and compiled using the precoding technique recommended by M. B. Miles and Huberman

(1994). Respondents were also given the option to enter issues not listed, asked to identify the issue of most concern, and asked to explain why the issue was of concern.

As previously discussed, the data collected in response to the three open-ended survey questions were analyzed using qualitative data analysis techniques. The data analysis process entailed tabulating the number of times each thematic category was selected, matching patterns to identify reoccurring words and phrases, checking for discrepant cases, and reducing data into themes. The following sections provide the results of the analyses. The findings are supplemented with direct quotes as expressed by survey respondents. The rationale for including quotes is to provide rich and descriptive language that encapsulates perceptions and sentiments held by the respondents. Creswell (2007) explained that quotes "bring in the voice of participants" and authenticate findings (p. 182). The selected quotes provide salient insights into respondents' perceptions.

Social Interaction

Respondents were asked to select from a list the two issues they were most concerned about regarding their interactions with managers and coworkers as an employee who works from home. Table 13 displays the 10 thematic categories and the number (*n*) of respondents that selected each theme. Respondents were also asked to explain why they selected the category.

Table 13

*Frequency Counts and Percentages for the Social Interaction Thematic Categories (*N = *218)*

Thematic category	*n*	%
Feeling socially connected with the organization	76	38.0
Having face-to-face interactions with co-workers and managers	60	30.0
Building rapport with managers and co-workers	51	25.5
Interacting with managers and co-workers	46	23.0
Misinterpreting email communication exchanges	39	19.5
Scheduling meetings with co-workers and managers	22	11.0
Feeling trusted by others and trusting others in the organization	20	10.0
Working on group projects	17	8.5
Using computer-mediated social collaboration tools	11	5.5

As shown in Table 13, the thematic category of most concern was "Feeling socially connected with the organization" (*n* = 76). Verbatim responses to this thematic category included statements such as "Working from home can create a feeling of isolation," "I often feel detached from my co-workers," "There is very little interaction with anyone from work. It feels very isolating sometimes and that can be difficult," "I do often feel that it is difficult to remain a part of the organization as a whole while working from home," and "I am in regular e-mail contact with coworkers and direct supervisor, but don't feel as much as part of a larger whole. It feels more like an organization made up of individuals rather than a cohesive unit." Overall, the respondents used words and phrases that expressed a sense of feeling socially and professionally isolated from coworkers, managers, and the organization as a whole.

The thematic category with the second highest frequency (*n* = 60) was "Having face-to-face interactions with managers or coworkers." Responses to this thematic

category included statements such as, “I think it’s important to meet people face-to-face at least some of the time. Otherwise you can’t really build relationships with your coworkers,” “Teleworkers lose out on face-to-face, spur-of-the-moment workplace interactions/updates,” “When I am participating in a meeting from home, sometimes it’s difficult to participate fully, so having face-to-face interaction is an issue,” and “Not having regular face-to-face interactions is difficult. I can complete my work from home with the help of technology, but it is also important to remain connected on a social level.” The words and phrases used by respondents to describe their concerns indicated that they desired more face-to-face communication with coworkers and managers.

Although only $n = 20$ participants identified “Feeling trusted by others in the organization or trusting others” as a major concern, this thematic category was found to have a significant negative relationship ($r = -.20$, $p = .003$) with overall job satisfaction. Study participants’ responses consisted of statements such as, “The feeling for us programmers is that they [management] don’t trust us to work and do our jobs unless they can walk by and see us doing it” and “Top leadership does not trust us so they have cancelled full-time telework arrangements. This action has undermined my confidence and trust in the organization.”

Recognition

The second item designed to answer Research Question 4 asked respondents to select from a list the two issues that they were most concerned about regarding being recognized for their work performance. Table 14 contains the six thematic categories and

the frequency (*n*) related to each issue. Respondents also provided brief narratives explaining why they selected the category.

Table 14

*Frequency Counts and Percentages for the Recognition Thematic Categories (*N = *218)*

Thematic category	*n*	%
Feeling valued by the organization	101	46.3
Receiving performance-related feedback	61	24.3
Receiving recognition from managers and peers	53	28.0
Comparing recognition I receive with recognition others receive	30	13.8
Understanding what it takes to receive recognition	28	12.8
Receiving recognition at award ceremonies	16	7.3

As reflected in Table 14, the issue of most concern to the participants was "Feeling valued by the organization" (*n* = 101). This thematic category had a statistically significant negative correlation with job satisfaction (*r* = -.30, *p* = .001). Participants' responses to this thematic category included statements such as, "My organization does not do enough to recognize its telework employees," Sometimes it is difficult to determine that the work that I do makes a difference or is valued by the organization," "I work very hard and should feel like my work, along with myself, is valued," and "I work very hard and want to know that that it is noticed and appreciated." Overall, the words and phrases used by respondents indicated that they perceived they were not valued by their organization.

The thematic category with the second highest frequency (*n* = 61) was "Receiving performance-related feedback." Responses to this thematic category included statements such as, "Performance-related feedback allows me to make improvements and identify weaknesses," "Everyone wants to know how their work performance is perceived," and

"Receiving feedback for your work is important so that you know whether to continue in your current manner or if you need to make changes in order to remain an asset." Overall, the respondents noted that receiving performance-related feedback was important to make improvements.

Career Advancement

The third survey item designed to answer Research Question 4 asked respondents to select from a list the two issues that they are most concerned about regarding career advancement. Table 15 contains the five thematic categories and the number and percentage of respondents who selected each issue. Respondents also explained why they selected the category.

Table 15

*Frequency Counts and Percentages for the Career Advancement Thematic Categories (*N = *218)*

Thematic category	*n*	%
Having promotion opportunities	91	41.7
Receiving equitable consideration	65	29.8
Trading ability to telework for career advancement	57	26.1
Having training opportunities	57	26.1
Receiving mentorship	38	17.4

As reflected in Table 15, the thematic category of most concern for the participants was "Having promotion opportunities" ($n = 91$). A Pearson product–moment correlation showed that this thematic category had a significant negative relationship with overall job satisfaction ($r = -.20$, $p = .003$). Participants' responses to this thematic category included statements such as, "My main concern about teleworking and career advancement is face time with upper management. If you are not visible, many times

your name will not be thought of as a possible candidate," "It is difficult to be considered for promotion when you work from home because you infrequently interact with supervisors," "People are seen as being more hardworking when they don't work at home, so it might hurt advancement to telework" and "While a promotion would bring a much needed salary increase, it would likely require me to give up my ability to telework, which I am unwilling to trade." Overall, the respondents expressed the perception that telework impeded career advancement opportunities due to the lack of face-to-face interactions with managers and that a promotion might require them to give up teleworking.

The thematic category with the second highest frequency (n = 60) was "Receiving equitable consideration." This thematic category was also found to have a significant negative correlation with job satisfaction (r = -.24, p = 001). Responses to this thematic category included statements such as, "I still think that people are seen as being more hardworking when they don't work from home so it might hurt advancement to telework," "My main concern about teleworking and career advancement is face time with upper management. If you are not visible, many times your name will not be thought of for open positions when a candidate is needed right away," and "Sometimes selections are based on familiarity with a person or persons rather than based on the best person for the job." Analysis of the responses to this category indicated that respondents felt that management did not perceive them as being as hard working as their in-office counterparts.

Data Triangulation

To achieve data triangulation, the data collected for Research Question 4 were compared with responses to related items comprising four subscales of the JSS: communication, coworkers, contingent rewards, and promotion. In essence, the individual scores of the items comprising the subscales were compared to the concerns expressed by respondents to assess consistency. Table 16 displays the means and standard deviations for each of the four JJS subscales.

Table 16

*Item Ratings for Job Satisfaction Subscales (*N = *218)*

Subscale and Job satisfaction item	*M*	*SD*
Communication		
9. Communication seems good with this organization.	3.85	1.44
18. The goals of this organization are not clear to me. [a]	4.78	1.26
26. I often feel that I do not know what is going on with the organization. [a]	3.78	1.40
36. Work assignments are fully explained.	4.77	1.34
Coworkers		
7. I like the people I work with.	5.29	0.92
16. I find I have to work harder at my job because of the incompetence of people I work with. [a]	5.58	1.36
25. I enjoy my coworkers	5.18	0.96
34. There is too much bickering and fighting at work. [a]	4.76	1.38
Contingent rewards		
5. When I do a good job, I receive the recognition for it that I should receive.	4.29	1.42
14. I do not feel that the work I do is appreciated. [a]	4.47	1.43
23. There are few rewards for those who work here. [a]	4.15	1.39
32. I don't feel my efforts are rewarded the way they should be.	3.92	1.40
Promotion		
2. There really is too little chance for promotion on my job. [a]	3.52	1.57
11. Those who do well on the job stand a fair chance of being promoted.	4.11	1.40
20. People get ahead as fast here as they do in other places.	3.68	1.51
33. I am satisfied with my chances for promotion.	3.90	1.45

[a] Item was reversed scored.

As previously discussed, the two social interaction categories of concern to most respondents were "feeling socially connected with the organization" and "having face-to-face interactions with managers or coworkers." Overall, the respondents used words and phrases that indicated that they perceived face-to-face communication with coworkers and managers as an important element to effective social exchange processes. Responses to this thematic category included statements such as "I think it's important to meet people face-to-face at least some of the time. Otherwise you can't really build relationships with your coworkers," and "Teleworkers lose out on face-to-face, spur-of-the-moment workplace interactions/updates." The responses were consistent with the satisfaction ratings for Item 9 ($M = 3.85$, $SD = 1.44$; Communication seem good with this organization) and Item 26 ($M = 3.78$, $SD = 1.40$; I often feel that I do not know what is going on with the organization).

The two thematic categories for recognition respondents selected most frequently were "feeling valued by the organization" and "receiving performance related feedback." Overall, the respondents noted that receiving performance-related feedback was important to make improvements. Responses to this thematic category included statements such as, "Performance related feedback allows me to make improvements and identify weaknesses," "Everyone wants to know how their work performance is perceived," and "Receiving feedback for your work is important so that you know whether to continue in your current manner or if you need to make changes in order to remain an asset." The perceptions expressed seemed consistent with the satisfaction ratings for Item 32 ($M = 3.92$, $SD = 1.40$; I don't feel my efforts are rewarded the way

they should be). However, the three remaining items comprising the Contingent Rewards subscale had mean satisfaction scores of 4.29, 4.47, and 4.15, which indicated a divergence of perceptions.

For the thematic categories comprising career advancement, respondents were most concerned about "having promotion opportunities" and "receiving equitable consideration for promotion." The responses were consistent with the mean scores for three of the four items comprising the Promotion subscale: There really is too little chance for promotion on my job (M = 3.52, SD 1.52); People get ahead as fast here as they do in other places (M = 3.68, SD 1.51); and I am satisfied with my chances for promotion (M = 3.90, SD 1.45). The analysis indicated that respondents felt that because they teleworked, they were not perceived by management as being as hard working as their in-office counterparts, which they thought had a potential adverse effect on promotion opportunities.

Summary

The data collected from 218 respondents via an online survey were imported into SPSS software program for analysis. Descriptive statistics were performed to identify demographic characteristics of the sample. Almost two-thirds (64.7%) of the respondents were female and a third (35.3%) were male. Most (85.5%) had at least a bachelor's degree and 11.5% had a doctorate degree. Teleworkers in 13 states participated in the study and the median respondent age was 43 years. The average number of days worked from home was 3 and the average number of years teleworked was 3.

A Pearson product-movement analysis was performed to determine whether a relationship exist between telework frequency and job satisfaction. The resulting correlation coefficient was $r = .13$ ($p = .059$), which failed to reject the null hypothesis. The findings support that there is no statistically significant relationship between telework frequency and job satisfaction.

A Pearson product-movement analysis was performed to examine whether a relationship exist between ICT and job satisfaction. Since the resulting correlation coefficient was $r = .22$ ($p = .001$), null hypothesis 2 was rejected. The findings indicate a positive correlation between ICT and job satisfaction.

To test null hypothesis 3, first a Pearson multiple regression ($r = .069$, $p = .13$) was performed. The hypothesized 10-variable model failed the F test. Second, a Pearson product-movement correlation analysis showed that only elder-care responsibility ($r = -.139$, $p = .04$) and years with current employer ($r = -.137$, $p = .04$) were found to have a statistically significant relationship. The results failed to reject null hypothesis 3. The findings support that there is no statistically significant relationship between demographic variables and job satisfaction.

The responses to the open-ended survey items were analyzed using qualitative data analysis techniques. The analyses indicated that the concerns of teleworkers regarding social interaction, recognition, and career advancement centered primarily on the perceived need for more face-to-face interactions with their managers and coworkers. Face-to-face interactions are viewed as playing a critical role in social exchange processes in virtual organizations.

Chapter 5 provides an interpretation of the research findings, recommendations for management practitioners, implications for social change, and suggestions for future research. Limitations of this study are also explained. The chapter discusses results that were unexpected and explicates how the findings of the current study align with or diverge from findings of prior research studies discussed in the literature review.

Chapter 5: Summary, Conclusion, and Recommendations

Overview

The purpose of this quantitative correlational research study was twofold: (a) to determine whether relationships existed among telework frequency, ICT, demographic factors, and job satisfaction and (b) to identify the primary concerns of home-based teleworkers. Factors that influence the job satisfaction of home-based teleworkers have yet to be examined in the literature. The professional and social isolation experienced by some teleworkers indicates a need for research that provides insights into social exchange processes in virtual organizations.

Chapter 4 presented the data analysis techniques performed and the study's findings. Chapter 5 is a summary of the research study and a discussion on several key concluding elements organized in the following order: (a) interpretation of key findings, (b) limitations of current study, (c) recommendations for further research, (d) recommendations for teleworkers' job satisfaction, (e) implications for management profession and social change, and (f) conclusions.

Interpretation of Findings

A sample of $N = 218$ teleworkers in the federal and private sector completed the self-administered electronic survey. Participants worked an average of 3 days per week from home ($M = 3.25$, $SD = 1.80$) and had been employed with their organization for an average of 11 years ($M = 11.72$, $SD = 8.30$). Almost 70% had an advanced degree and 80.3% worked in the federal government sector. The collected data were used to test the hypothesis and answer the research questions. A p-value of less than .05 was established

to support rejecting the null hypotheses at a 95% confidence level. This section provides an interpretation of the research findings presented in chapter 4.

Research Question 1

Research Question 1 inquired whether a relationship existed between telework frequency and job satisfaction of home-based teleworkers. Null hypothesis 1, which stated that there is no relationship between telework frequency and job satisfaction, was tested by computing a Pearson product–moment correlation analysis. The results of the data analysis ($r = .13$, $p = .059$) provided insufficient evidence to conclude that a relationship existed. Because the p value of .059 exceeded the significance level, the results failed to reject the null hypothesis.

The study results indicate that a relationship does not exist between telework frequency and job satisfaction. The findings differ from results found by Golden and Veiga (2005). In a study of 321 professional-level teleworkers, Golden and Veiga found a curvilinear inverted U-shaped relationship between telework frequency and job satisfaction. Although speculative, telework frequency might have more of an impact on job satisfaction depending upon other mediating factors such as the nature of work, the organizational culture, and respondent's personality traits.

Research Question 2

Research Question 2 asked whether a relationship existed between ICT and job satisfaction of home-based teleworkers. Null hypothesis 2, there is no relationship between ICT and job satisfaction, was tested by computing a Pearson product–moment correlation. The resulting correlation ($r = .22$, $p = .001$) was significant, which provided

support to reject null hypothesis 2. Because the correlation coefficient equals .22, it can be concluded that a weak positive relationship exists between aggregated ICT score and total job satisfaction. At the individual ICT media level, a significant positive relationship existed between overall job satisfaction and remote access to employer's databases ($r = .17$, $p = .01$) and instant messaging ($r = .28$, $p = .001$).

These results indicate that there is a statistically positive correlation between ICT usage and teleworkers' job satisfaction. These findings are not surprising given that prior studies have shown correlations between ICT and other psychological constructs. For example, Golden et al. (2008) found that access to communication-enhancing technologies moderated the impact of professional isolation among teleworkers.

It is, however, surprising that videoconferencing was not among the ICT media found to have a significant correlation with job satisfaction given that this media facilitates instantaneous face-to-face communication, albeit in the virtual realm. Thirty percent of the participants in the current study ($n = 60$) identified having face-to-face communication with coworkers and mangers as a chief concern. Eight-seven percent reported that they used videoconferencing. It is possible that teleworkers do not have access to videoconferencing or might be reluctant to use it as the survey item only inquired as to whether the respondent used the media to complete work from home. Olaniran (2009) found that 71% of participants ($N = 39$) preferred not to have the camera focused on them. Two other possible reasons videoconferencing is not a communication medium of choice for teleworkers are inadequate training on using the technology or a perception that the use of a camera in one's home for work-related purposes is intrusive.

Research Question 3

Research Questions 3 inquired whether a relationship existed between demographic factors and job satisfaction of home-based teleworkers. Null hypothesis 3, which stated that no relationship exists between demographic factors and job satisfaction, was formulated to answer Research Question 3. A two-pronged approach was employed to test hypothesis 3. First, a multiple regression analysis was performed between selected demographic variables and job satisfaction to determine how well job satisfaction scores could be predicted by these factors. Ten demographic variables were entered into the regression model: age, gender, child-care responsibility, elder-care responsibility, disabled-care responsibility, marital status, education, employment status, years with current employer, and years teleworked. The 10-variable predictor model resulted in a p value greater than .05 ($p = .13$). The resulting correlation coefficient ($r = .069$, $p = .13$) was statistically insignificant.

Second, Pearson product–moment correlations were performed between each demographic variable and job satisfaction. Elder-care responsibility ($r = -.139$, $p = .04$) and years with current employer ($r = -137$, $p = .04$) were the only two predictor variables found to have a statistically significant relationship. Both demographic variables had weak negative correlations with job satisfaction. The results of the analyses failed to reject null hypothesis 3.

The findings indicate that there is insufficient evidence to conclude that demographic factors are predictors of teleworkers' job satisfaction. This finding indicates that organizational leaders who aim to improve the job satisfaction of home-

based teleworkers do not need to factor in demographic variables when developing strategies. Further, the demographic factors need not receive consideration in the decision-making processes of hiring for positions classified as telework eligible.

Research Question 4

Research Question 4 asked, What are primary concerns of home-based teleworkers regarding social interaction, recognition, and career advancement? This research question was developed to assess the extent to which Maslow's hierarchy of needs theory applies to employees in a virtual work environment and whether needs intrinsic needs are satisfied. Maslow (1968) asserted that social interaction, esteem, and self-actualization were critical psychological factors necessary for employees to achieve their full potential. The participants' perceptions indicated that Maslow's theory still has relevance to 21st-century management challenges such as motivating and engaging teleworkers.

The results of the current study revealed that participants were most concerned about "feeling socially connected with the organization" (n = 76), "having face-to-face interactions with managers or coworkers" (n = 60), "feeling valued by the organization" (n = 101), "receiving performance related feedback" (n = 61), "having promotion opportunities" (n = 91), and "receiving equitable consideration" (n = 65). Pattern-matching analysis indicated that the overarching theme of the responses was that these concerns shared one common factor that centered on the lack of face-to-face interactions. The analyses revealed that participants perceived telework as hindering their ability to develop important interpersonal relationships with coworkers and management. The

results of the current study provide support to the results of previous studies conducted by Cooper and Kurland (2002), Kurland and Cooper (2002), and Wiesenfeld et al. (1999).

Based on the perceptions revealed in this study, some teleworkers feel that because telework reduces opportunities for face-to-face channels of communication, their chances for promotions are adversely affected. Given that the majority of participants worked from home between 3 and 5 days per week, these perceptions substantiate Potter's (2003) propositions. Potter noted that full-time teleworking is more likely to "produce more negative organizational and behavioral effects than telecommuting on a part-time basis" (p. 82) because employees who work a portion of the workweek at the centralized work office have the opportunity to engage in face-to-face interactions and build relationships that engender positive communication. Potter's assertion has been supported in studies by other scholars (Duxbury & Neufeld, 1999; Halford, 2005). Halford (2005) found that employees who worked 2 to 3 days per week from home and the remaining days at the traditional centralized office felt that their in-office days met "various needs for face-to-face interactions" (p. 31).

Limitations of Current Study

Methodological experts (i.e., Creswell, 2009; Simon, 2006; Singleton & Straits, 2005) have concurred that each research study has particular limitations based on the unique nature in which the study was designed and implemented. While the study provides information useful to organizational leaders, it is important to acknowledge key limitations. First, the majority of respondents (80.3%) worked in the federal sector, which raises concerns about whether the findings can be generalized to teleworkers in

other sectors. Second, the study utilized only one method of data collection, a self-administered survey, which precluded the researcher from asking probing questions to gain additional insights into respondents' perceptions.

Recommendations for Future Research

As previously discussed, the limitations of the current study affected generalization of the findings. Thus, future researchers might want to draw a stratified random sample of telework participants from a wide range of organizations and occupations. Such a study might yield data that could be generalized to the broader telework population. Great emphasis should be placed on achieving a balanced spread of occupations and generational cohorts (i.e., baby boomers, Generation X, and Generation Y). Although demographics were not found to play a role in job satisfaction, more research is necessary to determine whether teleworkers in Generation Y (born between 1982 and 2001) experience less social isolation because of the widespread use of ICT media such as videoconferencing and instant messaging as this cohort are technologically proficient and have embraced computer-mediated social collaboration technology.

Though the data collected for the present study met the objectives of the study purpose, the use of a self-administered survey as the only form of data collection resulted in limitations. Specifically, while the inclusion of three open-ended questions elicited a greater depth of information than could have been gained from Likert-type items, relying solely on an electronic survey to collect data precluded the researcher from asking the probing questions that could have encouraged respondents to elaborate on their responses and provide clarification where necessary. Researchers of future studies might want to

utilize a mixed-methods approach, such as a qualitative case study that includes multiple data collection procedures (i.e., face-to-face interviews, observations, and a self-administered survey). Further, a collective case study could provide knowledge that furthers understanding of organizational constructs, such as organizational culture, that might affect the job satisfaction of home-based teleworkers.

As previously discussed, the thematic category related to social interactions that was of concern to most participants (n = 76) was "feeling socially connected to the organization." Thus, another future research issue is why some teleworkers experience phenomena such as professional and social isolation whereas others do not. Prior studies such as those conducted by Cooper and Kurland (2002) and more recently Golden et al. (2008) have found that professional and social isolation negatively affects job performance and organizational affiliation.

Other researchers (i.e., Thatcher & Zhu, 2006; Wiesenfeld et al., 2001) have also found that professional isolation has a negative impact on employees' perceptions of belonging to the organization. Additional research is necessary to provide insight into how telework influences psychosocial connections with the organization and to determine whether specific personality types are more prone to experience feelings of isolation. Such studies could provide critical information necessary to reconstruct corporate culture in ways that reinvigorate norms and values in the virtual environment.

Recommendations to Increase Teleworkers' Job Satisfaction

While the overall results of the JSS (M = 4.42, SD = .72) represent satisfaction, respondents reported dissatisfaction with operating conditions (M = 3.67, SD = 1.05) and

promotion ($M = 3.81$, $SD = 1.22$). Organizations should take steps toward developing and implementing a full range of strategies aimed at improving job satisfaction in virtual environments. Research indicates that a single approach might prove inadequate. For example, Locke (1969) explained that job satisfaction is an emotional response to an employee's perceptions about aspects of the job, what the employee values, and the subjective assessment of whether the values have been met. From Locke's perspective, career advancement, bonuses, or the work itself produces job satisfaction only to the extent that the employee values these variables. This theory supports the idea of using a wide range of strategies and the idea that the first step in developing any strategy aimed at increasing job satisfaction should begin with identifying factors that motivate employees within. Strategies should be tailored toward issues that employees within the organization value.

Organizational leaders should also take steps toward reducing professional and social isolation of home-based teleworkers. The results of the current study indicate that professional and social isolation might have an adverse influence on job satisfaction. The perceptions shared by teleworkers indicated that they value the essence of face-to-face communication. In virtual organizations where increasing face-to-face interactions is not a viable option, increasing the use and effectiveness of collaborative tools that enable real-time visual communication such as videoconferences could provide a sensible alternative. Visual conferencing between two coworkers and managers could enrich communication and engender a sense of inclusion by providing a forum for rich discussion that includes facial and body language cues.

Recommendations for Organizational Leaders

As previously discussed, the number of teleworkers increased by 17% from 28.7 million in 2006 to 33.7 million in 2008 (WorldatWork, 2009). Empirical research has shown that the dispersion of the workforce brought about as a result of telework holds several serious implications that could compromise key constructs that bond the employee and organization on a psychological level. Research has indicated that professional and social isolation has adverse effects on performance and organizational commitment.

From an organizational change perspective, organizational leaders might want to consider rolling out telework programs in stages, giving a few members of a work unit the option to telework before enabling the entire unit to telework. A staggered implementation of telework would result in a more gradual transition to a virtual organization by providing employees with the opportunity to gradually become familiar with utilizing various types of ICT media. Alternatively, organizational leaders might also want to consider limiting the frequency or number of days employees telework per week. Requiring employees to work a portion of the workweek from the traditional brick-and-mortar location could provide teleworkers with opportunities to engage in face-to-face communication with managers and coworkers.

Implications for Management Practices and Implications for Social Change

The results of the study could be useful to management in making decisions regarding a broad range of organizational change practices, management practices, and organizational communication and engagement. The study results indicated that

organizational leaders should develop strategies to enhance social interactions with and among teleworkers. Although the results showed a slight to moderate relationship between ICT and job satisfaction, organizational leaders should develop strategies to incorporate videoconferencing, instant messaging, and other forms of communication media to increase and enhance communication between teleworkers and managers and coworkers. Organizations should place particular emphasis on developing comprehensive strategies aimed at engendering organizational culture in the virtual environment.

The results of this study could effect positive social change by providing organizational leaders with information that results in decisions that improve quality of life for teleworkers and improve social-exchange processes between teleworkers, coworkers, and managers in virtual work environments. As discussed in chapter 2, since the Industrial Age, the organization has been the nucleus for employees' social interaction and self-identification (Potter, 2003). Work is a key psychological mechanism in which employees derive a sense of belonging, accomplishment, and behavioral normalization. Telework presents numerous challenges to the psychological bonds between employees and the organization.

The complex nature of managing in a virtual environment will require new management practices to achieve equilibrium between technical and social subsystems. The sociotechnical theoretical framework utilized in this study indicated a need for organizational leaders to not only provide telework employees with sophisticated user-friendly communication enhancing technology media but incorporate use of such media

into the cultural fabric of the organization. Organizational leaders should seek to leverage technology in ways that engender psychosocial bonds, such as organizational affiliation and commitment, in the employee–employer relationship.

Final Summary

An effective telework program achieves equilibrium between technical and social subsystems with the virtual environment. Effective telework programs are possible with the joint optimization of technology and human factors. Although technology has made it possible for organizations to exist in a virtual sphere with employees geographically dispersed in myriad locations, emphasis must be placed on engendering psychosocial aspects of the workplace. Specifically, organizational leaders must seek strategies to engender organizational constructs such as organizational commitment, organizational affiliation, and job satisfaction. This study found a correlation between ICT and job satisfaction. Communication technology media can be used to enhance social-exchange processes between teleworkers and managers and coworkers and professional and social isolation. Limiting the number of days an employee teleworks from home could provide opportunities for face-to-face communication, although this option might not be viable for organizational leaders seeking to leverage the full benefits of telework such as reduced real estate costs and continuity of operations. Thus, organizational leaders should seek to intermingle computer-mediated communication into organizational social-exchange processes and procedures, including providing employees and management with adequate training in the use of specific communication technology media such as videoconferencing and collaborative whiteboards and utilizing the technology to engage

employees and communicate and disseminate information on a consistent basis. This research study should help organizational leaders identify potential strategies for integrating computer-mediated technology to improve job satisfaction and alleviate social and professional isolation in the virtual environment.

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APPENDIX A: PERMISSION GRANTED TO USE JSS

Date : Mon, Mar 02, 2009 12:43 PM CST
From : **"Paul Spector (PSY)" <spector@shell.cas.usf.edu>**
To : Shana Webster-Trotman <shana.webster-trotman@waldenu.edu>
Reply To : "Paul Spector (PSY)" <spector@shell.cas.usf.edu>
CC : Shana Webster-Trotman <trotos@prodigy.net>
Subject : **Re: Permission to Use JSS in Dissertation Research Project**

Dear Shana:

You have my permission to use the JSS in your dissertation. You can find details and information in the scales section of my website.

Best,

Paul E. Spector
Department of Psychology
University of South Florida
Tampa, FL 33620

On Mon, 2 Mar 2009, Shana Webster-Trotman wrote:

Dear Dr. Spector,

The purpose of this e-mail is to request your permission to use the Job Satisfaction Survey (JSS) to collect data for my dissertation research project. I am a doctoral student at Walden University in the Applied Management and Decision Sciences program specializing in leadership and organizational change.

My research study will focus on the relationship between telework frequency, ICT, job satisfaction, and dimensions of psychological needs. The problem that this study will address is the lack of information concerning factors that influence teleworkers' job satisfaction. The target population will consist of full-time telework employees in various occupations in federal and private sectors. Contingent upon your approval, the JSS 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. Thank you for your consideration.

Shana Webster-Trotman
Walden University Doctoral Candidate

APPENDIX B: LETTER SOLICITING PARTICIPATION IN RESEARCH STUDY

June 17, 2009

Dear Telework Coordinator,

The purpose of this letter is to solicit participation in a research study. I am a doctoral candidate at Walden University in the Applied Management and Decision Sciences Program specializing in Leadership and Organizational Change.

My dissertation is titled "A Correlational Study of Telework Frequency, Information Communication Technology, and Job Satisfaction of Home-based Teleworkers in the Federal and Private Sectors." The results of this study could provide information that increases understanding of factors that affect the job satisfaction of teleworkers. Moreover, the findings may be useful to organizations that are challenged with motivating and engaging spatially dispersed employees.

To collect data, I am requesting permission to survey your organization's telework employees. The survey is strictly anonymous and will be administered online. Neither the participants' nor the organization's name will be revealed in my dissertation. Potential participants will have a two-week timeframe to complete the survey and the option to decline participation.

The results of this research will be made available to all participating organizations upon completion of my dissertation. If you are willing to grant me permission to send the survey link to your telework employees or if you have any questions, please e-mail me at shana.webster-trotman@waldenu.edu. Thank you in advance for your consideration.

Sincerely,

Shana Webster-Trotman
Doctoral Candidate Walden University
Applied Management and Decision Sciences
Leadership and Organizational Change
shana.webster-trotman@waldenu.edu
301-437-3237

APPENDIX C: IRB APPROVAL

Dear Ms. Webster-Trotman,

This email is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, "A Correlational Study of Telework Frequency, Information Communication Technology, and Job Satisfaction of Home-based Teleworkers."

Your approval # is 08-17-09-0300050. You will need to reference this number in your dissertation and in any future funding or publication submissions.

Your IRB approval expires on August 16, 2010. One month before this expiration date, you will be sent a Continuing Review Form, which must be submitted if you wish to collect data beyond the approval expiration date.

Your IRB approval is contingent upon your adherence to the exact procedures described in the final version of the IRB application materials that have been submitted as of this date. If you need to make any changes to your research staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive an IRB approval status update within 1 week of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for research activities conducted without the IRB's approval, and the University will not accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in research.

When you submitted your IRB application, you a made commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the researcher.

Both the Adverse Event Reporting form and Request for Change in Procedures form can be obtained at the IRB section of the Walden web site or by emailing irb@waldenu.edu:
http://inside.waldenu.edu/c/Student_Faculty/StudentFaculty_4274.htm

Researchers are expected to keep detailed records of their research activities (i.e., participant log sheets, completed consent forms, etc.) for the same period of time they retain the original data. If, in the future, you require copies of the originally submitted IRB materials, you may request them from Institutional Review Board.

Please note that this letter indicates that the IRB has approved your research. You may not begin the research phase of your dissertation, however, until you have received the Notification of Approval to Conduct Research (which indicates that your committee and Program Chair have also approved your research proposal). Once you have received this notification by email, you may begin your data collection.

Sincerely,
Jenny Sherer, M.Ed.
Operations Manger
Office of Research Integrity and Compliance
Email: irb@waldenu.edu
Fax: 626-605-0472
Toll free : 800-925-3368 ext. 1341
Office address for Walden University:
155 5th Avenue South, Suite 100
Minneapolis, MN 55401

APPENDIX D: INFORMED CONSENT

CONSENT FORM FOR
"A Correlational Study of Telework Frequency, Information Communication Technology, and Job Satisfaction of Home-based Teleworkers"

Dear Respondent,

You are invited to participate in a research study designed to examine the relationship between telework frequency, information communication technology, and job satisfaction. You were selected as a possible participant because you telework from home and have knowledge and experience related to the topic. Please read this form and ask any questions you may have before acting on this invitation to be in the study.
This study is being conducted by Shana Webster-Trotman, doctoral candidate at Walden University.

Background Information:
The purpose of this study is to examine the relationship between the number of days an employee teleworks, the types of information communication technology utilized when the employee works from home, and job satisfaction. The study looks at the telework phenomenon from the perspectives of employees who telework from home.

Procedures:
If you agree to be in this study, you will be asked to take a brief electronic survey. The survey is anonymous and takes 20 minutes to complete.

Voluntary Nature of the Study:
Your participation in this study is strictly voluntary. No one at your organization will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during the study. Your decision whether or not to participate will not affect your current or future relations with the institution in which you are employed. If you decide not to participate or discontinue participation, there is no penalty for doing so.

Risks and Benefits of Being in the Study:
Since respondent identification will not be collected, there is no risk that your answers will be connected to you in any way. There are no physical risks to you, nor is it likely that you will suffer any adverse psychological effects. Individual participants may benefit from this study to the extent that the findings provide information that is used by organizations in the development of strategies and managerial practices that lead to better quality of worklife and improved job satisfaction of teleworkers.

In the event you experience stress or anxiety during your participation in the study you may terminate your participation at any time. You may refuse to answer any questions you consider invasive or stressful.

Compensation:
No compensation will be provided for your participation.

Confidentiality:
Any information you provide will be anonymous. No one, not even the researcher, will know who participated. Research records will be kept in a password protected media; only the researcher will have access to the records. All files will be destroyed six years following the completion of the study.

Contacts and Questions:
The researcher conducting this study is Shana Webster-Trotman. The researcher's dissertation chairperson is Dr. Walter McCollum. If you have questions, the contact information is:

Shana Webster-Trotman| 2104 Thornknoll Drive| Fort Washington, MD 20744|
Home Phone: 301-248-3357| Mobile: 301-437-3237|
e-mail: shana.webster-trotman@waldenu.edu.

Dr. Walter McCollum| Mobile: 571-215-3938|
email address: walter.mccollum@waldenu.edu.

If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 1210. Walden University's approval number for this study is **08-17-09-0300050** and it expires on **August 16, 2010**.

You may print a copy of this informed consent statement for your records.

Statement of Consent:
I have read the above information. I have asked questions and received answers.

If you select the first oval below, you will be signing this form and giving your consent to take part in the current research study.

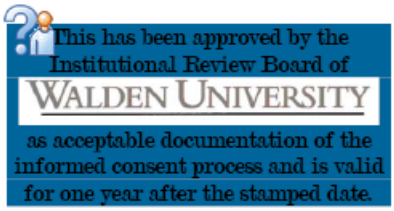
Selecting the first oval below assures the following:

I acknowledge that I understand the nature of the study, the potential risks to me as a participant, and the means by which my identity will be kept confidential. My signature

on this form also indicates that I am 21years old or older and that I give my permission to voluntarily serve as a participant in the study described.

O I understand the above statements and give consent for my information to be used in the study. (S*electing this oval will take the participant to the electronic survey.*)

O I understand the above statements and do NOT give consent for my information to be used in the study.



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APPENDIX E: DEMOGRAPHIC SURVEY ITEMS

1. Do you perform paid work from home for your employer?
O Yes
O No (If you select no, the survey is designed to end because you do not meet the eligibility requirement for participation in the study.)

2. Are you female or male?
O Female O Male

3. How old are you? _____

4. Please select yes or no to indicate your current familial responsibilities.
Do you have childcare responsibilities? O Yes O No
Do you have eldercare responsibilities? O Yes O No
Do you provide care for a disabled spouse or relative? O Yes O No

5. What is your marital status?
O Single O Married O Divorced O Separated

6. What is the highest level of education you have completed?
O Some high school O High school diploma or GED
O Trade or vocational school O Some college
O Bachelor's degree O Master's degree
O Professional degree O Doctorate degree

7. What is your current occupation? _____

8. Select the employment status that best describes your employment status.
O Fulltime O Part Time

*9. What state do you work in?*_____

10. Do you work in the same state in which you reside?
O Yes O No

11. How many miles do you live from where you work? _____

12. What sector do you work in?
O Federal government O State government O Local Government O Private Sector

13. How many years have you been employed with this organization? _____

14. How many years have you teleworked for this organization? _____

APPENDIX F: JOB SATISFACTION SURVEY

	JOB SATISFACTION SURVEY Paul E. Spector Department of Psychology University of South Florida 	
	PLEASE CIRCLE THE ONE NUMBER FOR EACH QUESTION THAT COMES CLOSEST TO REFLECTING YOUR OPINION ABOUT IT.	Disagree very much Disagree moderately Disagree slightly Agree slightly Agree moderately Agree very much
1	I feel I am being paid a fair amount for the work I do.	1 2 3 4 5 6
2	There is really too little chance for promotion on my job.	1 2 3 4 5 6
3	My supervisor is quite competent in doing his/her job.	1 2 3 4 5 6
4	I am not satisfied with the benefits I receive.	1 2 3 4 5 6
5	When I do a good job, I receive the recognition for it that I should receive.	1 2 3 4 5 6
6	Many of our rules and procedures make doing a good job difficult.	1 2 3 4 5 6
7	I like the people I work with.	1 2 3 4 5 6
8	I sometimes feel my job is meaningless.	1 2 3 4 5 6
9	Communications seem good within this organization.	1 2 3 4 5 6
10	Raises are too few and far between.	1 2 3 4 5 6
11	Those who do well on the job stand a fair chance of being promoted.	1 2 3 4 5 6
12	My supervisor is unfair to me.	1 2 3 4 5 6
13	The benefits we receive are as good as most other organizations offer.	1 2 3 4 5 6
14	I do not feel that the work I do is appreciated.	1 2 3 4 5 6
15	My efforts to do a good job are seldom blocked by red tape.	1 2 3 4 5 6
16	I find I have to work harder at my job because of the incompetence of people I work with.	1 2 3 4 5 6
17	I like doing the things I do at work.	1 2 3 4 5 6
18	The goals of this organization are not clear to me.	1 2 3 4 5 6

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

APPENDIX G: OPEN-ENDED SURVEY ITEMS

The purpose for collecting the following information is to gain an understanding of your perspective as an employee who works all or a portion of the work week at home.

1. Select from the following list the two issues that you are concerned about regarding your interactions with managers and coworkers when you telework from home. You may select other to add an item that is not listed.

- O interacting with manager and co-workers
- O feeling socially connected with the organization
- O working on group projects
- O using computer mediated social collaboration tools
- O understanding my organization's culture (norms and values)
- O feeling trusted by others in the organization or trusting others
- O scheduling meetings with supervisors or co-workers
- O having face-to-face interactions with co-workers and supervisor
- O misinterpreting e-mail communication exchanges
- O building rapport with manager and coworkers
- O other [ ]

Which issue concerns you most and why?

[ ]

2. Select from the following list two issues that you are concerned about regarding recognition for your performance. You may select other to add an item that is not listed.

- O feeling valued by the organization
- O receiving recognition from manager and peers
- O receiving performance-related feedback
- O understanding what it takes to receive recognition
- O receiving recognition at award ceremony
- O comparing the recognition I received with recognition others receive
- O other [ ]

Which item concerns you most and why?

[ ]

3. Select from the following list two issues that you are concerned about regarding career advancement. You may select other to add an item that is not listed.

- O receiving equitable consideration
- O having promotion opportunities
- O having career development opportunities
- O having training opportunities

○ receiving mentorship
○ trading ability to telework for career advancement
○ other

Which item concerns you most and why?

APPENDIX H: PERMISSION TO USE COPYRIGHTED FIGURE

Original E-mail
From: Eli Cohen <EliCohen@InformingScience.org>
Date: 06/18/2009 10:30 AM
To: 'Shana Webster-Trotman' <shana.webster-trotman@waldenu.edu>
Subject: RE: Request for Permission To Use Figure in Dissertation Research

Shana,

You are most welcome to include the figure in your doctoral dissertation. Please do acknowledge that you are using the copyrighted figure with permission and please cite the source of the figure.

All the best,
=eli

From: Shana Webster-Trotman [mailto:shana.webster-trotman@waldenu.edu]
Sent: Thursday, June 18, 2009 10:39 AM
To: Publisher@InformingScience.org
Cc: Shana Webster-Trotman
Subject: Request for Permission To Use Figure in Dissertation Research

Dear Publisher:

I am a doctoral student at Walden University and I am conducting a research study entitled "A Correlational Study of Telework Frequency, Information Communication Technology, and Job Satisfaction of Home-based Teleworkers."

The purpose of this e-mail is to request permission to include a figure published in Informing Science and Information Technology in my dissertation manuscript. The figure will provide a visual representation of the interrelationships between technical and social subsystems that impact telework outcomes. The following information identifies the figure for which the request is being made.

Cartelli, A. (2007). Socio-technical theory and knowledge construction: Towards new pedagogical paradigms? *Issues in Informing Science and Information Technology, 4*, 1-15. (Figure: Figure 1. Socio-technical theory in a draft).

Thank you in advance for your consideration.

Shana Webster-Trotman
Ph.D Candidate Walden University

CURRICULUM VITAE

SHANA WEBSTER-TROTMAN
2104 Thornknoll Drive
Fort Washington, Maryland 20744
Mobile (301) 437-3237 **Office** (571) 272-9698
E-mail: trotos@prodigy.net

SUMMARY OF QUALIFICATIONS

Results-oriented professional with over 12 years of demonstrated success in designing and implementing innovative organizational and telework programs, conducting program assessments, leading projects, formulating HR staffing projections, assessing training needs and facilitating professional development, managing fiscal budgets, and analyzing data. Expertise in performing root cause, return on investment, cost-benefit, and statistical analyses. Documented success in improving customer relationship management. Highly skilled in training, mentoring, coaching, and developing virtual teams.

EDUCATION

- Philosophy Doctorate, Applied Management and Decision Sciences, Leadership and Organizational Change, Walden University, Minneapolis, MN, February 2010
- Master of Science, Financial Management, University of Maryland University College, Adelphi, MD, December 2006
- Master of Arts, English, George Mason University, Fairfax, VA, January 1997
- Bachelor of Arts, English, George Mason University, Fairfax, VA, January 1996

PROFESSIONAL EXPERIENCE

Senior Management and Program Analyst, United States Patent and Trademark Office, Alexandria, VA 2003 - present

Provide senior executives with organizational performance data and develop transformational strategies to improve effectiveness and reduce operating expenditures. Collaborate with department head to establish, execute, and evaluate operational budget in excess of $4 million. Evaluate business processes and establish strategic initiatives to align work processes with human capital and technology objectives. Perform a wide range of root cause, cost-benefit, and statistical analyses. Develop continuity of operations strategies to minimize threats to information dissemination functions. Design and implement telework programs, identify and assess information communication tools,

and spearhead initiatives to improve human factors in virtual work environments. Work with various public and private sector stakeholders to define functional requirements and interfaces for added functionality to existing customer relationship management infrastructure. Provide consultative services to within agency business unit heads. Mentor and coach analysts and customer contact managers. Improved service level from 60% to 91%.

Manager, United States Patent and Trademark Office, Alexandria, VA 1998 - 2003

Directed the day-to-day operations of the Post Registration Division. Managed a staff of 45 employees responsible for approving trademark renewal applications. Established, executed, and oversaw $4 million annual operational budget. Reduced application processing time by 75% from 60 days to 15 days. Analyzed historical data of renewal filings to develop initiatives to reduce processing time. Developed business unit strategies and objectives to transition from paper-based to electronic work processes. Oversaw the recruitment and selection of new hires. Planned, implemented, and coordinated training and development of staff. Conducted annual employee performance assessment. Executed promotions, reprimands, and terminations.

Paralegal/Legal Examiner, United States Patent and Trademark Office, Alexandria, VA 1990 - 1998

Examined applications for adherence to filing requirements. Researched federal statues, organizational policies, and precedent cases. Developed presentations and conducted tours. Developed and managed database to track and automate workflow processes. Developed and conducted training classes to help management and staff deal with problematic application filings. Trained, mentored, and coached employees. Performed quality control on filing requests. Coordinated with attorneys and customers to resolve incomplete filings. Provided backup supervision for over 15 employees responsible for daily processing of intent-to-use filing documents.

PROFESSIONAL AWARDS

Silver Medal Award *for exceptional performance characterized by superlative contributions in organizational development, namely designing and implementing successful organizational-wide programs, which have had a direct and lasting impact within the Department of Commerce, 2009*

Tele-Vision Award *for designing and implementing best new telework program within the customer contact management environment, which leveraged technology to enhance customer satisfaction and employee quality of work-life, 2008*

Exceptional Career Achievement Award *for sustained professional excellence and contributions to improving the overall efficiency of the Trademarks Organization, 2000*

Bronze Medal Superior Performance Award *for sustained superior performance of assigned tasks leading to the achievement of Office goals, 1995*

PRESENTATIONS

Research Processes and Results of a Correlational Study of Telework Frequency, Information Communication Technology, and Job Satisfaction of Home-based Teleworkers, Argosy University, Doctor of Business Administration Course, October 2009

Tips and Strategies for Designing an Effective Approach to Completing a Doctorate Degree, Walden University, Research Forum Webinar, October 2009

Leveraging Resources in Tough Economic Times, High Tech High Touch Solutions Webinar, February 2009

Motivating a Virtual Workforce, Walden University, Research Forum Webinar, January 2009

The Case for Virtual Workers, Digital Government Institute Customer Service Conference and Expo, December 2008

FAST Approach to Completing a Doctoral Degree, Walden University, Research Forum Webinar, June 2008

Case Study of a Successful Telework Program, Government Customer Support Conference and Expo, May 2008

ACADEMIC ONLINE INSTRUCTION

Serve as a Lead Peer mentor to 30 doctoral students at Walden University from 2008 to present in the College of Management and Technology. Utilize E-college and Live Meeting technology media to manage biweekly student research presentations. Review learning agreements and assist students with writing knowledge area modules (KAM). Provide students with guidance and support in the areas of time management; creating a strategic approach to completing the doctoral program; decomposing long-term goals into intermediate objectives and milestones; and identifying and optimizing resources. Assist faculty mentor with the development of best practices that cultivate an online learning community that engenders student-centeredness, collaboration, and positive social change.

PROFESSIONAL MENTORSHIP EXPERIENCE

Designed and implemented an organization wide mentoring program to support and facilitate professional development at the USPTO. Serve as Lead Peer Mentor to 25 employees from 2007 to present. Provide mentees with strategies and techniques for achieving career and educational goals. Coach employees in the area of balancing work, personal, and academic related responsibilities. Provide moral and spiritual support; conduct focus groups; and facilitate self-introspection processes to assist mentees with aligning behavior and decision making with target objectives. Develop and conduct training courses to help program participants identify success barriers and develop strategies to overcome obstacles.

SPECIAL QUALIFICATIONS

- Proficient in web-based course delivery systems to include WebTycho, Angel, and E-college online platforms
- Proficient in Microsoft Office 2007 Applications to include Excel, PowerPoint, Word, Visio, and Project
- Proficient in the use of Statistical Process for Social Sciences software
- Demonstrated expertise in managing and motivating virtual/telework employees
- Demonstrated ability in data mining techniques
- Demonstrated expertise in program and project management
- Proven expertise in organizational development and design
- Recognized capability in change management
- Extensive experience in virtual workforce management to include Computer-Based, Web-Based, Video, and Teleconferencing
- Type 65 WPM
- **SECRET** Security Clearance

RESEARCH INTERESTS

Interrelationships between leadership, organizational change, and organizational culture in virtual organizations. Psychosocial aspects of technology mediated communication in virtual organizations. Impact of mentorship and career development on succession planning within virtual enterprises.

Doctoral Studies in Applied Management and Decision Sciences
Specializing in Leadership and Organizational Change
Walden University
Courses Completed

Foundation Requirement

- Foundation for Doctoral Study

Foundation Research Sequence

- Foundation Research Seminar I: Human Inquiry and Science
- Foundation Research Seminar II: Design in Applied Management and Decision Sciences Research
- Foundation Research Seminar III: Data Analysis in Applied Management and Decision Sciences Research

Principles of Human Development

Analyzed germinal and contemporary perspectives of human development theories with particular emphasis on understanding the extent to which internal and external motivation stimuli influence behavioral patterns in the workplace. Major theoretical frameworks synthesized from multiple disciplines including biological, socio-cultural, cognitive and moral, and psychological drivers of human behavior. Developed comprehensive strategies to motivate and retain a multigenerational telework staff.

Principles of Leadership Development

Analyzed historical and modern perspectives of leadership development with particular focus on understanding the efficacy of transformational, transactional, and laissez-faire leadership styles in virtual organizations. Gained in-dept understanding of how frame of reference factors such as socialization, psychodynamic, gender, and ethnicity influence leadership emergence and style. Demonstrated mastery of key leadership paradigms through the development of recommended strategies for leading diverse employees in virtual organizations.

Organizational Change Models

Examined a broad range of germinal and contemporary organizational change models to gain greater understanding of the interplay between technological and humanistic factors in organizational change management. Applied sociotechnical theory to assess the outcomes of a organizational realignment and develop recommendations to improve morale and productivity.

Research Methodology

Analyzed the theoretical underpinnings of quantitative and qualitative research methodologies to gain greater understanding of philosophical tenets and practical techniques. Demonstrated ability to apply quantitative techniques to design and execute doctoral research.

Statistical Analysis/Qualitative and Quantitative Analysis

Formulated hypotheses and performed statistical procedures inclusive of random sampling, correlation and regression analyses. Developed interview protocols, surveys, and coding systems.

Master of Science, Financial Management
University of Maryland University College
(Courses Completed)

- Organizational Communication and Group Development
- Organizational Leadership
- Manager in a Technological Society
- Statistics for Managerial Decision Making
- Program and Project Management
- Financial Management in Organizations
- Financial Management of Current Operations
- Capital Markets, Institutions, and Long-Term Financial Management
- Investment Valuation
- Multinational Financial Management
- Strategic Management Capstone