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EXPLORING THE IMPACT OF BLURRED BOUNDARIES IN TELEWORKERS

by

Mary E. McCarthy

Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy

at

Dalhousie University
Halifax, Nova Scotia
June, 2001

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by Mary E. McCarthy

in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Dedication

This dissertation is dedicated to my husband, my best friend, and partner in all things, Dr. Mark J. Boyle. Mark, your unwavering belief in my abilities has sustained me during some of the darkest moments of my life. Without your commitment to my completion of this degree, in all that was required, it would not have been possible to successfully finish it. No one could ever have a more outstanding, devoted, and loving life companion. Thank you.

Table of Contents

List of Tables

Abstract

Over the past twenty years the increase in women and dual earner couples within the North American workplace has generated research interest in understanding the work-family interface. Other changes in the business world have occurred through the adoption of alternative work arrangements, such as teleworking, where employees re-locate their paid work from organizational sites to their homes. Telework arrangements provide employees with unique opportunities to enact both family and work roles within the same setting. It also gives researchers the ideal environment for testing theoretical models that address work-family linkages. The overarching purpose of this study was to advance current understanding of work-family linkages by testing specific hypotheses in teleworkers and comparing them with a balanced non-teleworking sample. It focuses on answering the following questions. Does telework blur the boundaries between work and family? If so, what effect does blurring have on existing relationships between work, family, and organizational variables? Specifically, does blurring of the boundaries between work and family lead to positive or negative consequences for the teleworkers? Thirty seven teleworkers and non-teleworkers (n = 74) participated in the study by completing questionnaires. Additionally, a subset of teleworkers was interviewed. Quantitative and qualitative results indicated that telework does indeed blur the boundaries between work and family and it may play a role in altering some important relationships between work, family, and organizational relationships.

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Chapter 1

Introduction

Over the past twenty years the increase in women and dual earner couples within the North American workplace has generated research interest in understanding the work-family interface. Other changes in the business world have occurred through the adoption of alternative work arrangements, such as teleworking, where employees re-locate their paid work from organizational sites to their homes. Telework arrangements provide employees with unique opportunities to enact both family and work roles within the same setting. It also gives researchers the ideal environment for testing theoretical models that address work-family linkages. For instance, does telework provide employees with the additional flexibility that helps them to more effectively balance the competing demands of work and family? Conversely, does it serve to blur the boundaries between work and family life, thereby, creating negative consequences for employees and their families?

The spread of teleworking suggests that it has benefits for employers and employees. However, there is little empirical research with teleworkers to support this view; the existing research is beset with both definitional and methodological problems (Hartman, Stoner, & Arora, 1991; 1992). The past research is equivocal regarding the impact of teleworking on organizational variables such as job/role stress, job satisfaction, and job performance or productivity (Gottlieb, Kelloway, & Barnham, 1998; Hartman et al., 1992; Hill, Hawkins, & Miller, 1996; Ramsower, 1985). Teleworking may be a more

complex phenomenon than has been previously recognized (Standen, Daniels, & Lamond, 1999).

The overarching purpose of this study is to advance current understanding of work-family linkages by testing specific hypotheses in teleworkers and comparing them with a balanced non-teleworking sample. It focuses on answering the following questions through the application of components of the spillover and conflict models. Does telework blur the boundaries between work and family? If so, what effect does blurring have on existing relationships between work, family, and organizational variables? Specifically, does blurring of the boundaries between work and family lead to positive or negative consequences for the teleworkers?

1.1 Overview

1.1.1 Societal Forces

Since the 1950s, the number of women working in paid employment roles outside the home has accelerated. As of the 1980s more than three out of five women worked outside the home; in the early 1950s only one out of five women were engaged in outside employment (Gutek, 1993). Canadian women's participation rate in the paid labor force is expected to increase from 58% in 1991, to 63% by 2005. Women in their prime child rearing years are projected to have the highest rate of participation (91%) of any group of women engaged in paid work (Employment & Immigration Canada, 1992).

In 1967 only one-third of Canadian husband and wife families (both with and without children) reported that both spouses were employed outside the home; by 1988 the figure had climbed to 62%. By 1991 only 19% of all husband-wife families met the criteria to qualify as "traditional" or sole earner families (Statistics Canada, 1993). Dual earner couples share the demands and responsibilities associated with the management of both the family and work arenas of life; therefore, both women and men must balance conflicting demands (Burke & Greenglass, 1987; Duxbury & Higgins, 1991; Hammer, Allen & Grigsby, 1997; Karambaya & Reilly, 1992; Westman & Piotrkowski, 1999).

One significant consequence of the increased number of women engaged in paid work and of dual earner couples is the heightened awareness of work/home conflict experienced by employees in the workplace. Women are no longer able to meet all the household needs of their families as in the past when homemaking was considered their primary role in society (Gutek, Repetti, & Silver, 1988). This change in women's roles has meant that men in families have also had to contribute to household demands in ways unlike their forefathers. Thus, they can no longer rely only on their "good provider role" (Bernard, 1981) as their primary function in meeting their families needs.

Ultimately, this social change may have contributed to the development of home management issues spilling over into the workplace. Over the years, different theoretical models have addressed work and family linkages including the segmented, compensation, instrumentality, spillover, and conflict models (Evans & Bartolome, 1984; Rice, Near &

Hunt, 1980; Staines, 1980). More recently, research attention has focused on segmentation, compensation, and spillover theories (Clay, 1995; Grzwacz & Marks, 2000; Standen et al., 1999). Each of these theories will be reviewed later in more detail.

1.1.2 Technological Forces

Concomitant with these changes in family and work life has been a rapid spread of technology and an increase in global competition throughout the market place. As a consequence, the business community has employed new strategies to enhance its competitive edge and productivity, while at the same time helping its employees balance the competing demands of work and family (Bernardino, 1996). Companies have experimented with a number of different work arrangements that allow employees more flexibility in dealing with the management of family issues, including teleworking or telecommuting. Most broadly defined, teleworking refers to "performing job-related work at a site away from the office," either at home or at a remote/satellite office (Nilles, Carlson, Gray, & Hanneman, 1976).

1.1.3 Teleworking

Since Nilles coined this term in the 1970s, teleworking has continued to grow in popularity; by 1992, the United States workforce included 30 million teleworkers. It is difficult to get accurate figures on the number of teleworkers, despite the figures given above. DuBrin & Barnard (1993) included freelance workers, home-based entrepreneurs

and contractors who are not "true teleworkers." According to the Hudson Institute the number of teleworkers in the U.S. workforce is expected to reach 90 million by the year 2030 (Wilkes, Frolick, & Urwiler, 1994). In Canada, the number of teleworkers increased a full 60 per cent between 1991 and 1992 (Russell, 1992). In Europe, nine million workers, or 7.5% of all employees, were reported to be working at home in the mid 1990's (Drohan, 1995).

Despite the above figures, there is a general confusion over what work arrangements constitute "teleworking" (Hartman et al., 1992; Kraut, 1987). The extent of the spread of teleworking remains controversial. Some business forecasts endorse the idea that teleworking is not just a passing phenomenon (McGee, 1988). Other sources, however, indicate that teleworking has not grown and is not likely to expand to predicted levels (Caudron, 1992). Notwithstanding the difficulties in defining and accurately determining the spread of teleworking, it is a viable work arrangement and one that allows for a unique examination of the linkages between work and family.

People may be reluctant to engage in teleworking arrangements because they fear exploitation and the loss of the clear boundary between work and home life (Zedeck & Mosier, 1990). Teleworking clearly challenges the long held myth of "separate worlds of work and home" (Kanter, 1977). Given the physical proximity of both home and work demands, teleworking may blur the boundaries between work and family life. To date, however, empirical research has not tested whether this blurring occurs in organizational teleworkers and, if so, what are the effects of blurred boundaries.

Indeed, there is little empirical work on teleworking (Hartman et al., 1992; Hill et al., 1996; Ramsower, 1985). Such a major change to work arrangements is proceeding in the absence of knowledge on how it affects individual employees, their supervisors and co-workers at their regular office environment, and their family members at home. Businesses that choose to adopt teleworking arrangements need to determine its effects on their teleworking and non-teleworking employees.

It is important for organizational researchers to expand their vision beyond answering general questions concerning the impact of teleworking. Teleworkers provide an opportunity to study both work and family roles in the same setting and to test specific models that examine the interaction of work and family structures.

1.2 Background on Teleworking

1.2.1 Historical Perspective of Teleworking

Telework was initially forecast as early as the 1950s. However, the introduction of personal computers and portable modems in the 1970s made it a practical reality (U.S. Department of Transportation, 1993; cited in Hill et al., 1996). The alternative term telecommuting was introduced in 1973 to highlight the fact that telework could be used to replace the commute to work (Nilles, 1994). Companies initially considered using telework as a means to offset the fuel shortages occurring during the OPEC oil crisis in

the early to mid 1970's (Tolbert & Simmons, 1994; cited in Hill et al., 1996). Since these earlier times, the motivation for companies and employees to choose to adopt teleworking has varied. Their choices appear to be influenced by personal, organizational, and geographical factors.

1.2.2 Current Extent of Teleworking

National data collection agencies use different definitions of telework making it difficult to determine the "true" numbers of persons engaged in this alternative work option. Unfortunately, the use of different definitions also interferes with generalizing findings across studies (Mirchandani, 1998).

Data from the 1991 Canadian Census indicated there were 1.1 million members of the employed work force (8% of the labor force) who worked at home. This included farm workers, pieceworkers, home-based salaried professionals, and self-employed entrepreneurs. Statistics Canada attempted to measure the number of wage or salary earners at home in 1991 by excluding farm and self-employed workers through the Survey of Work Arrangements; which indicated that 600,000 people, or six percent of the salaried workers in Canada, did some or all of their scheduled paid work at home. This estimate, however, included employees who conduct over-time work at home beyond the regular work week hours (Siroonian, 1993; cited in Mirchandani, 1998). A 1991 Canadian Gallup poll produced widely discrepant estimates, indicating that 23 percent (2 million people) worked at home and approximately three percent (260,000 people) were

salaried workers who spent all or part of their work day at home instead of at the office (Orser & Foster, 1992).

Over the past decade the number of American teleworkers has rapidly increased. Twelve years ago there were fewer than one million employees who worked at home eight or more hours per week (Callentine, 1995, cited in Hill et al., 1996). As of 1995, this number had grown to about 8.4 million (Henkoff, 1995) and was projected to grow a further 10 - 20 percent through the 1990's to reach an estimated 10 - 20 million workers (Greengard, 1994).

Several reasons have been put forward to explain the slower growth in teleworking than was originally forecast by Greengard, (1994; cf; 8.4 million; Henkoff, 1995). Some of the most common ones include fears of a negative impact upon organizational culture and an increase in sense of social isolation. Other reasons are the potential for blurring of home and work boundaries and managerial resistance due to the perception of the difficulties associated with attempting to manage and control employees from a distance (Armstrong-Stassen, 1998; Caudron, 1992; Hamilton, 1987; Olson, 1982; 1989; Zedeck, 1992). Although it no longer seems about to become the dominant form of work, teleworking is common and its impact upon work and family boundaries warrants study.

1.2.3 Defining Teleworking

There are a number of different alternative work arrangements currently in practice throughout North American workplaces including: part-time employment, temporary or contingent employment, flextime, compressed workweeks, and teleworking. Unlike some of the others, telework continues to remain controversial (Armstrong-Stassen, 1998). Teleworking is sometimes classified as "a type of home based work." This type of work often has multiple labels "home-based work, cottage industry, telecommuting, telework, and remote work" (Pratt, 1987, p. 56). In many cases teleworking is defined so broadly that it includes those who engage in all at-home work or other forms of remote activities. This includes people who are self-employed, those who work exclusively at home, or those who are regular organizational employees that use technology for overtime work. Unfortunately, lack of a standard definition of teleworking makes it difficult to generalize findings across studies, and precludes researchers from ascertaining the true impact from the dynamics associated with organizational teleworking (Hartman et al., 1992).

Currently, there is no generally accepted definition of telework. Typically, teleworking involves working at a different location from one's traditional place of work using telecommunication devices for the electronic processing of information and engaging in this practice on either a full-time or part-time basis (Gray, Hodson, & Gordon, 1993). It may encompass working regularly from home, undertaking a dual

work arrangement in which the employee works both at home and at the traditional office site, or working from satellite offices (Long, 1987).

According to Gordon (1988), teleworkers must be organizational employees who work regularly from their homes one or more days per week. This is consistent with the definition adopted by most organizations (Hartman et al., 1991) and for the sake of generalizability is the one that is adopted in this study. Furthermore, this form of teleworking, in which the employee stays at home up to four days per week, and then works at their traditional office site for the remaining portion of work time, is the most dominant form found throughout most countries (Bussing, 1997). Other forms of teleworking such as satellite offices are less prevalent and therefore are not considered further within this study.

There are two outstanding issues related to the definition of teleworking as a dual work relationship. These are the impact of the number of days per week spent teleworking and the impact of the length of time employees have teleworked. Currently, few studies have examined how either of these issues affects teleworking outcomes (Hartman et al., 1991; Ramsower, 1985; Standen et al., 1999). These studies have methodological weaknesses that preclude making clear statements regarding impact of days teleworked or impact of teleworking tenure. For the purposes of this study teleworking is defined as organizational employees who work regularly from their home office between one and four days per week. Therefore, it is necessary to determine if the number of days teleworked has an impact on organizational variables, or is it such that

the act of teleworking alone, irrespective of the number of days alters outcomes? If the number of days teleworked does not indicate a differential effect on the outcome variables then it is possible to treat the teleworkers as a homogenous group. Given that participants in this study varied in the number of days teleworked the first step in the analysis will be to determine whether this variable impacts any of the study's hypotheses. In other words, can the teleworkers be treated as a homogenous group?

Control Analysis 1: There will be a significant difference across the number of days per week teleworked on Role Stress, Job Satisfaction, and Job Performance.

Given the general lack of attention to impact of teleworking tenure on outcomes it is important to determine how teleworking tenure affects the work related variables, role stress, job satisfaction, and job performance used in this study. This will be determined by analyzing the relationship between tenure and the main variables of the study.

Control Analysis 2: Teleworking tenure will be related to Role Stress, Job Satisfaction, and Job Performance.

1.2.4 Advantages and Disadvantages of Teleworking

The most frequently documented benefit of teleworking is the flexibility it offers, in making it easier for people to integrate work and family life. The most commonly cited drawback identified for teleworkers is social isolation (DiMartino & Wirth, 1990; Huws, Korte, & Robinson, 1990).

General benefits, beyond the increased flexibility and autonomy for teleworkers, include the reduction of costs for clothing, dry cleaning, transportation, car repairs, and meals outside the home (Caudron, 1992). As well, stress reduction, through the elimination of the daily commute is a cited benefit (Salomon & Salomon, 1984). There are also reports of increased job satisfaction, productivity (through less work interruptions), and better physical working conditions/comforts (Hamilton, 1987; Frolick, Wilkes, & Urwiler, 1993). Organizations that have implemented telework programs report a variety of gains such as: improvements in employee productivity, improvements in loyalty and morale, and an enhanced ability to attract and retain a more diversified pool of talented workers (such as minorities, sick, or disabled workers) (Furger, 1989). Further benefits include reduced turnover, absenteeism, and expenditures on office space (Gordon, 1988; Wilkes et al., 1994). The larger community receives benefits through reduced automobile emissions, pollution, and traffic congestion (Salomon & Salomon, 1984).

Despite the numerous stated advantages of teleworking there are also a variety of drawbacks. Negative factors frequently reported by teleworkers are increased potential for burnout, exploitation, and blurred boundaries, as well as a potential for negative impact upon career development and/or decreased promotion opportunities (Caudron, 1992; Hamilton, 1987; Zedeck & Mosier, 1990). Disadvantages for firms include increased security risks, increased equipment and training costs, decreased communication with managers and peers, and decreased managerial control (Roderick & Jelley, 1989).

1.2.5 Review of Empirical Studies of Teleworking in Organizational Employees

There are few peer-reviewed scholarly articles on telework (Hill, et al., 1996) and fewer that have addressed important issues occurring when organizational employees adopt teleworking (Hartman et al., 1991; 1992).

Ramsower (1985) investigated teleworking using a quasi-experimental field study approach, which was an improvement on past research. Ramsower collected data longitudinally through questionnaires and interviews from 12 teleworking employees and a control group of 14 matched office workers. The imbalance in sample size affected the degree to which the teleworking and control groups could be matched. Attempts were made to select control subjects by supervisors evaluating the employees as potential teleworking candidates. Subjects were matched as much as possible on job task and work organization. Some of the teleworkers split their time between the office and home work

site, while others worked full-time at the home work site. Data were collected prior to the initiation of teleworking and also at three and six month intervals. Due to the exploratory nature Ramsower generated a large number of hypotheses that focused on examining job satisfaction and performance. Differences across the various dimensions of job satisfaction depended on whether the teleworker was working at the home office on a full or part-time basis. Specifically, the full-time teleworkers experienced decreased job satisfaction with their ability to work alone on the job, the amount of variety on the job, job security, office working conditions, and opportunities for job advancement. This pattern of findings differed for the part-time teleworking group who reported experiencing increased job satisfaction with their ability to work alone on the job and with job security. Telework was not associated with any increases in job performance (Ramsower, 1985).

Despite the attempt by Ramsower (1985) to enhance the methodological rigor of the study through the use of pretest and posttest measures, a number of limitations existed which highlight the difficulties inherent in undertaking this type of quasi-experimental field research. The subjects were not randomly assigned to groups; they were recruited from across five different work organizations. There were gender differences across the full-time and part-time teleworkers. The full-time teleworkers differed in that they were not provided with the opportunity to telework on a reduced basis. Other study limitations concerned data collection tools used, as only one of the many different measures was standardized and had exhibited prior reliability and validity properties (Ramsower, 1985).

In a more recent study of organizational teleworkers Hartman et al. (1991) examined productivity issues by expanding the range of variables that had been normally associated with teleworking, including job satisfaction and the effects of family disruptions. Teleworker satisfaction was significantly related to both the emotional and technical support that the teleworkers received from their supervisor. However, their satisfaction was negatively correlated with family disruptions. Productivity was also negatively related to the ratio of teleworking to total work hours; that is productivity decreased as more time was spent teleworking. Demographic and occupational variables such as age, nature of the job, occupational classification, gender, educational attainment, and preference for changing the amount of telecommuting work time, were not significantly correlated with either the satisfaction or the productivity experienced by the teleworkers. There were a number of limitations associated with Hartman et al's. (1991) study. Although the number of teleworkers (n= 97) was higher than in previous studies, the sample was obtained from eleven different work organizations. It comprised mixed occupational classifications of professional/technical, managerial, and clerical workers. There were no pretest measures collected, nor was there a control group of non-teleworkers. Similarly, as in most telework studies, the study did not use standardized measures and did not include an interview component.

In keeping with Armstrong-Stassen's (1998) suggestions for improving research on the impact of alternative work arrangements, more recent studies have compared teleworking with a number of other work arrangements including full-time, full (with flexible hours), part-time, flexitime, job sharing, and compressed work week

arrangements. Three large studies were conducted across the above work arrangements to examine the effects of work arrangement on productivity, employee stress, work-family conflict, commitment, and job satisfaction (Gottlieb et al., 1998). After controlling for demographic differences, employees in altered work arrangements did not differ in productivity or in stress compared to the employees in more conventional work arrangements (full-time, part-time). No differences in work-family conflict could be attributed to teleworking or working flexible hours, but those who worked less hours (part-time and job sharing) did report less work interference with family. Teleworking does not appear to have a consistent effect on job satisfaction and commitment as an increase in job satisfaction and commitment was found in only one out of the three studies. However, employees who had a choice in teleworking reported less work stress, work-interference with family, and greater well-being. They were also were rated higher on performance measures by their managers (Gottlieb et al., 1998).

Despite the difficulties associated with previous teleworking studies, telework can provide researchers with the opportunity to investigate salient issues. Studies suggest that teleworkers experience productivity gains (Frolick et al., 1993; Hartman et al., 1991; 1992) and increased control over their work (Bailyn, 1989). The work and family interface may be more thoroughly examined in greater detail via teleworking arrangements. Olson and Primps (1984) reported the potential for differential gender, occupational, or family effects from teleworking. Professional males reported decreased work stress and distractions, as well increased leisure time and a better work

environment. Female clerical teleworkers with child-care responsibilities, however, reported that teleworking increased work pressure, stress, and reduced their leisure time.

1.2.6 Overview of Methodological Problems in Teleworking Studies

Teleworking research is beset by a number of methodological difficulties. Some of these problems are exacerbated through the overlap and confusion of terms used throughout these studies. Specifically, the home-based work literature often uses the word 'home-working' without clarifying the type of worker (full-time, part-time, self-employed, organizationally employed, etc.), or clearly identifying the occupational levels, gender, or parental status of the workers (Kraut, 1989). Not only does this contribute to the problem of imprecise estimates of current teleworkers, it also makes it difficult to generalize across study findings.

Most of the published work on teleworking, particularly the earlier work, is primarily anecdotal with the predominate focus limited to the benefits and detriments of teleworking. For example, there were 47 popular articles published on telecommuting between 1979 and 1985 (Risman & Tomaskovic-Devey, 1989). Approximately 70 percent of these articles, which were published in business and computer magazines, focused primarily on how formal telework programs, that is, programs that were vetted by Human Resources and Management Divisions, affected 'clericals,' (i.e., non-professional women with children) (Gray et al., 1993).

Teleworking studies often combined clerical and other occupational groups in such a way that comparisons cannot be made across the teleworking and non-teleworking divisions. It is difficult to determine whether any effects are due to teleworking or to differences in occupational groups (Hartman et al., 1991; 1992).

Most of the empirical research conducted on teleworking is based on case studies, with little quantitative research (Frolick et al., 1993). Case study research focuses on the intensive study of "the background, current status, and environmental interactions of a given social unit: an individual, group, institution, or community" (Isaac & Michael, 1985, p. 48). Case studies, because of their intensive nature help to identify the variables, processes, or interactions that warrant further research scrutiny. The rich descriptive information generated through case studies provides hypotheses that can be tested through additional experimental or quasi-experimental studies. Case studies have serious limitations. They tend to examine a large number of variables across a smaller number of subjects, are frequently conducted without the benefit of comparison groups, and use qualitative measures. There is more opportunity for subjective bias to influence the findings as the researchers have to make judgments whether to include certain data and whether to assign a high or low value to the findings (Isaac & Michael, 1985). Frolick et al. (1993) states, "many of the conclusions reached about teleworking have been based largely on the subjective opinions of researchers dealing with organizational case studies" (p. 209).

Teleworking case studies generally collect data through unstructured interviews and most have not used quantitative measures that permit statistical analysis. Although both research methods are similar in their attempts to gather information from subjects, their primary difference relates to how the information is obtained. The interview process provides opportunities to probe subjects for greater depth and understanding of the particular phenomenon in question. Interviews, however, are costly to administer and can be time consuming, as well as inconvenient (Issac & Michael, 1985).

Case studies on teleworking generally do not use equivalent telework and non-telework groups. In the ideal experimental situation a researcher would randomly assign employees to both a teleworking and non-teleworking control group. However, due to the upheaval in home and work environments it is neither feasible nor possible to do this type of assignment in organizational research. It is possible to undertake more rigorous research that builds on the information obtained through case study research by using quasi-experimental research designs that "approximates the conditions of the true experiment in a setting which does not allow the control and/or manipulation of all the relevant variables" (Isaac & Michael, 1985, p.54). Quasi-experimental studies are relatively rare in teleworking research, due to the difficulty in finding a control group that is equivalent to the teleworking group in all respects except the work arrangement.

Finally, a large number of the popular press articles available on teleworking may be biased (Frolick et al., 1993). Teleworking research conducted by consultants with a vested interest in the outcome of the research may lead to specific outcomes consistent

with the clients' perceived interests (Pitt-Catsouphes & Marchetta, 1991). Despite this danger, independent researchers experience difficulty in gaining access and entry to the work organizations and their personnel for telework research. Specific barriers relate to the differing goals of business and science, as well as the different language used by researchers and business people to describe their environments. Access to work organizations may be facilitated through having high level executives within the organization demonstrate interest in the research project. However, the benefits of this strategy may be offset if management demonstrates too much enthusiasm for the project, arousing suspicions of employees about the purposes of the study (Crouter & MacDermaid, 1990).

1.3 Work and Family Interface

1.3.1 Related Demographic Material on Work and Family Life

Historically, prior to the spread of industrialization throughout Canada, most people lived in rural areas where both men and women often worked side by side while undertaking different household activities (Armstrong & Armstrong, 1988; Duffy, Mandell, & Pupo, 1989). At that time women were not labeled "housewives", although women have always worked at many of the same household tasks that they continue to do today. By the late 1800s, however, most married women in Canada were full-time housewives and excluded from the official work force. Typically women ceased to engage in paid work (teaching or domestic service) after marriage (Duffy, et al. 1989).

The employment figures for Canadian women continued to change throughout the industrialization of the 1900s. As of 1901 slightly more than 15% of Canadian women (though mostly young and unmarried) were in the paid labor force (Duffy et al., 1989). By 1941 only 4% of married women worked outside the home for pay (Bird, 1970; cited in Duffy et al., 1989). Over the past few decades married women have moved en masse into the paid work force. In 1951 only 11% of married women were engaged in paid employment positions, versus, the approximately 57 % in 1987 (Statistics Canada, 1987).

Within these broader changes, women of child-bearing age entered the workforce in significant numbers. These women were likely under-represented in past labor force research. The U shaped distribution of past labor force participation where women of child-bearing years were much less likely to be employed outside the home, has radically changed. By the mid 1970s, this U shaped distribution had flattened out considerably (Gutek, 1993; Klein, 1975). By 1988, women in prime child bearing years were much more likely to be employed than older women. This is reflected in the 51% of American mothers of children under the age of one who were employed, and the 58.3% of their Canadian counterparts with children under the age of three who were involved in the paid labor force (Gutek, 1993; Statistics Abstract of the United States, 1990; Statistics Canada, 1990).

A recent Canadian study conducted by the Conference Board of Canada indicated that up to two-thirds of employees reported experiencing some difficulty balancing work

and home responsibilities. Another one-fifth of the workers found balancing these two spheres of life as "difficult" or "very difficult." Workers with responsibilities for the care of dependents, particularly young children or elderly persons, also reported more difficulty in balancing work/family duties. The experience of both work and family responsibility often leads to an increase in stress in the employee's lives. Over 79 % of employees reported experiencing anxiety or stress as a consequence of juggling the competing demands of family and workplace roles (MacBride-King, 1990).

1.3.2 Work and Family Literature

Increased numbers of women and dual-earner couples within the work force has led to changes in societal values, creating a new emphasis on the overlap between the work and family life (Hall, 1986; Lewis & Cooper, 1999). Typically, research has investigated "work" and "family" issues separately from one another (Zedeck & Mosier, 1990; Zedeck, 1992). Organizational researchers tend to focus on the impact of family on work life (Cooke & Rousseau, 1984; Gutek et al., 1988), whereas developmental psychologists and work-family sociologists are more concerned with the effects of work on family life (Piotrkowski, Rappoport, & Rappoport, 1987). The need to understand the balance required between family and work life has generated research from a number of different fields ranging from family sociology to industrial/organizational psychology (Hall, 1990; cited in Shamir, 1992; Westman & Piotrkowski, 1999).

1.3.3 Existing Models of Work and Family Life

A review of the literature on the relationship between work and family life indicates that five main models have been used to describe these linkages: segmented, compensation, instrumentality, spillover and conflict (Evans & Bartolome, 1984; Rice et al., 1980; Staines, 1980). The focus of all these models is on the individual rather than the family unit.

The earliest view of the relationship between work and home is that they are *segmented* or independent; i.e., they are separate from one another (Lambert, 1990). The segmented model takes the position that one's role as an employee does not influence one's role of spouse or parent, and that one's role as a family member has no influence on one's work role. This perspective treats work and family as separate entities, "either because they are inherently independent or because workers keep them that way" (Lambert, 1990; p. 241). This position supports the traditional expectation of the "myth of separate worlds" (Kanter, 1977).

Compensation, in contrast, may be held to occur when there is dissatisfaction within either the work or family arenas. The compensation model postulates that individuals compensate for dissatisfaction in one arena by attempting to obtain more satisfaction in the other (Lambert, 1990). For example, an employee who may be experiencing difficulties within the work world may become more absorbed in family life.

Instrumentality occurs when one environment is regarded as a means through which an individual can obtain something beneficial in the other environment (Zedeck & Mosier, 1990). Examples include employees observing paid work as the means through which they can obtain the resources to enjoy family life.

Spillover occurs when the effects of work or family spill over from one to the other (Lambert, 1990). An individual's work experiences influence his or her family experiences and vice versa and they can be either positive or negative (Zedeck & Mosier, 1990). *Positive spillover* addresses how family life can support, enhance, or facilitate work life, and vice versa, while *negative spillover* focuses on how family life can make work life more problematic, difficult, or unsatisfactory, and vice versa (Kirchmeyer, 1992). Most research has focused primarily upon understanding the impact of work on non-work domains. However, one study that examined both positive and negative aspects of spillover in workers found that family life had some impact upon work life (Crouter, 1984), leading to a demand for additional research into the potential influence of non-work on the work sphere of life (Kirchmeyer, 1992). Recent research has identified the need for further application of the spillover perspective to account for changes within the work-family boundary (Grzywacz & Marks, 2000; Lewis & Cooper, 1999) particularly within teleworking situations (Standen et al., 1999).

Conflict occurs when "participation in the work (family) role is made more difficult by virtue of participation in the family (work) role" (Greenhaus & Beutall, 1985,

p. 77). Constraints on time needed or on psychological resources makes role participation more difficult (Piotrkowski, 1979). The sources of conflict are threefold. Participation in one role may require sacrifices be made in another (Zedeck & Mosier, 1990). This is observed when employees become less committed to their jobs in order to become the type of parents they believe are acceptable. Work and family may be observed to be "incompatible because they have distinct norms and requirements" (Zedeck & Mosier, 1990, p. 241). One example of this is when a work schedule conflicts with the required child care arrangements. Finally, pressures may exist within one arena that interferes with one's ability to participate in the other domain (Kopelman, Greenhaus & Connolly, 1983). Since the development of conflict theory, researchers have conducted a significant amount of research into issues of work and family balance under the heading of work-family conflict (Allen, Herst, Bruck & Sutton, 2000; Greenhaus & Beutell, 1985; Greenhaus, Parasuraman, & Collins, 2001; Gutek, Nakamura, & Nieva, 1981; Kelloway, Gottlieb & Barnham, 1999; Kopelman, et. al, 1983).

1.3.4 Work-Family Conflict Research

Role conflict is defined as the "simultaneous occurrence of two or more sets of pressures such that compliance with one would make more difficult the compliance with the other" (Kahn, Wolfe, Quinn, Snoeck, & Rosenthal, 1964, p. 19). This definition laid the basis for the study of work-family conflict (e.g. Greenhaus & Beutell, 1985). The simplest definition of work-family conflict is that "it reflects an individual's perceptions of the extent to which the demands and /or the thoughts, and feelings associated with one

sphere of life intrude upon the other" (Gignac, Kelloway, & Gottlieb, 1996, p. 527). Current models of work-family conflict are predicated on two assumptions. First, work-family conflict arises when the demands occurring from participation in one sphere of life are incompatible with meeting the demands associated with the other key life domain. Second, this ensuing conflict has important effects upon the quality of both work and family life (Adams, King, & King, 1996; Allen et al., 2000; Burke, 1988; Burke & Greenglass, 1999; Greenhaus & Beutall, 1985; Kopelman et al., 1983; Perrewe, Hochwarter, & Kiewitz, 1999).

The term "work-family conflict" implies a conceptual distinction between the two constructs; yet, most of the earlier research predominantly approached conflict from a single direction. That is, these studies have only assessed work interference with family, or have used mixed directional measures that do not explicitly separate the two domains (Barling, MacEwen, Kelloway, & Higginbottom, 1994; Duxbury & Higgins, 1991; Greenhaus & Beutall, 1985; Pleck, Staines, & Lang, 1980). Indeed, the actual structure of the "work-home" or "work-family conflict" label implies, as does the phrase itself, a uni-directional, or work to non-work relationship (Bacharach, Bamberger, & Conley, 1991). More recent studies, however, separate work-family conflict into two components by using a bi-directional perspective, in that there is (a) work interference with family and (b) family interference with work (Allen et al., 2000; Eagle, Miles, & Icenogle, 1997; Frone, Russell, & Cooper, 1992; Gignac et al., 1996; Greenhaus, et al., Gutek et al., 1991; Kelloway et al., 1999; Netemeyer, Boles, & McMurrian, 1996).

Organizational researchers have examined the consequences of work-family conflict using two broad classes of outcomes. First, there are studies that focus on work outcomes, such as job satisfaction (Frone et al., 1992, Perrewe et al., 1999) or organizational commitment (O'Driscoll, Ilgen, & Hildreth, 1992). Others address more non-work type variables that can affect well-being, such as marital or life satisfaction (Bedian, Burke, & Moffett, 1988; Perrewe et al., 1999), health outcomes (Frone, Russell, & Cooper, 1997; Frone, Yardley & Markel, 1997), daily moods (Williams & Alliger, 1994) and person variables like family or work role salience (Frone, Russell, & Cooper, 1995). The bi-directional approach to work-family conflict identifies different consequences related to work interference with family and family interference with work. For instance, work interference with family is related to outcomes such as job stress (Judge, Boudreau, & Bretz, 1994), burnout (Bacharach et al., 1991), depression (Thiede-Thomas, & Ganster, 1995), marital maladjustment and psychological symptomatology (Hughes & Galinsky, 1994), and life stress (Parasuraman, Greenhaus, Rabinowitz, Bedian, & Mossholder, 1989). Consequences associated with family interference with work include increased job stress (Frone et al., 1992; Judge at al., 1994), decreased organizational commitment (Wiley, 1987), and depression (Reifman, Biernat, & Lang, 1991).

More recent research into the effects of work-family conflict has begun to expand the focus beyond impact upon specific variables such as depression or job stress (Allen et al., 2000; Burke & Greenglass, 1999; Greenhaus et al., 2001; Lewis & Cooper, 1999). One study considered broader impacts on the work-family interface by identifying the

significant correlates of multiple dimensions of work-family spillover. They reported that both negative spillover from either family to work or work to family and positive spillover from either work to family or family to work were distinct work-family experiences (Grzwacz & Marks, 2000).

1.3.5 Work-Family Conflict in Teleworkers

Previous research, although lacking in empirical rigor suggests a number of possible mechanisms through which telework may have an impact on work-family conflict. Telework provides greater flexibility in the timing and location of work (Hill & Wiener, 1994; Weijers, Meijer, & Spoelman, 1992; cited in Hill et al., 1996) which may help dual-earner couples more easily balance the competing and often overwhelming demands from work and family (Jenson, 1994, cited in Hill et al., 1996). Teleworkers tend to be more satisfied than non-teleworkers with their ability to plan for child-care arrangements that suggests a positive spillover between telework and the management of family demands (DuBrin, 1991). Teleworkers may benefit from the flexibility of child-care arrangements (Nilles, 1994), even though teleworkers are often cautioned not to overlap paid work with child or elder care responsibilities (Hill et al., 1996; Riley, 1994). Telework may also facilitate combining paid work with household tasks (Gordon & Kelly, 1986; Hill et al., 1996).

In addition to altering the management of household activities, telework changes the amount of interaction between family members. Break times usually spent with co-

workers are traded for communication with family members (Nilles, 1994). Teleworkers report better relationships with their children (Olson & Primps, 1984) and an enhanced ability to respond to family emergencies or last minute schedule changes (Hill et al., 1996). This is frequently a major problem for dual earner couples with dependents requiring care and is likely to increase as baby boomers care for aging parents as well as their own children (Neal, 1993).

It is possible that teleworking influences work interference with family and family interference with work through the increased physical proximity of the work and family roles. Teleworking may make it easier for employees to meet and manage the obligations associated with both arenas of life. However, there are few studies that use empirical measures to determine the impact of organizational teleworking on work-family balance (Hill et al., 1996). At a telework conference in 1994 Duxbury reported that female teleworkers experienced a greater reduction in their role overload, work interference with family, family interference with work, and perceived stress than male teleworkers (Duxbury, 1994).

Despite the possible family benefits that may result from teleworking, concern exists that telework may "blur the boundaries between work life and family life which may lead to negative spillover and increased work-family conflict" (Hill et al., 1996, p. 294). The lack of spatial separation between the two different arenas may lead to increased stress among family members (Gurstein, 1991). Negative relationships between satisfaction with telework and family relationships have occurred (Hartman et

al., 1991). At this point the research is equivocal about whether teleworking is a benefit or a detriment in balancing family life with work place demands.

Many people who work at home experience great difficulty in creating boundaries that serve to separate the work and home domains (Hall & Richter, 1988). Without sufficient boundaries functioning between the two differing domains "work demands might spill over too much into the territory of the home role" and that "unless the employee can set clear boundaries, both physical and psychological such arrangements can increase rather than decrease work and family stress" (Hall & Richter, 1988, p. 219).

1.4 Testing Models of Work-Family Linkage in Teleworkers and Non-Teleworkers

The earlier models of work-family linkage were more likely to view and to classify the different aspects of work-family interaction as distinct entities. Despite the existence of these differing theoretical views of work-family linkage the most popular view at present is that they spillover or affect one another (Grzywacz & Marks, 2000; Lambert, 1990). Researchers, however, have used terms like spillover and conflict interchangeably, or have been using measures of work-family conflict to reflect levels of spillover. For example, "spillover theory has also been used to explain the relationship between work conflict and family conflict" (Burke, 1986; Evans & Bartolome, 1984; Staines, 1980). Within the broader category of "home" workers, past research on work-family relationships has been based on the application of spillover and conflict patterns (Shamir, 1992). When working at home, "one may be more likely to experience the

simultaneous conflicting demands on their time, attention, and energies" (Shamir & Salomon, 1985). Disagreements may occur over household roles; family tensions or difficulties with the spousal relationship may also develop (Solomon & Solomon, 1984).

Recent teleworking research has explored the work-non-work relationship by examining the effect of non-work factors on teleworking outcomes (Hartman et al., 1992; Hill et al., 1996). Hartman et al., (1992) assessed the support and influence of family on organizational teleworkers in relation to productivity and satisfaction. They identified two distinct factors. One reflected positive support and family satisfaction, while the other reflected negative effects of teleworking on the family through family disruption. The relationships between family satisfaction and work productivity and family satisfaction and teleworking satisfaction were not significant. Similarly, family disruptions were not significantly correlated with teleworking productivity. There was, however, a significant negative correlation between family disruption and teleworking satisfaction, which suggests that spillover is possible through teleworking arrangements. This possibility warrants further empirical attention.

Spillover theory provided the theoretical framework for another recent investigation into how teleworking affects work-family balance. This study compared mobile teleworkers (n = 157) with regular office workers (n = 89) at a large national American corporation (Hill et al., 1996). Unlike "traditional" home based teleworkers, mobile teleworkers differ in that "they can spend most of their time out of the office, either on the road, or in customers premises" (Gray et al., 1993; p. 3). This type of work

arrangement facilitates the "anytime, anyplace office" (Galinsky, 1992 cited in Hill et al., 1996, p. 294) as employees can choose to work from "whatever venue that best accommodates balancing work and family needs" (Illingworth, 1994, cited in Hill et al., 1996, p.294). The principal investigator of this study was employed by the work organization and recruited mobile teleworkers across a wide geographical area throughout the north western United States.

Study outcomes indicated that the mobile teleworkers reported much greater work flexibility in their timing and location of work. Specifically, three-quarters of the mobile teleworkers reported that they had personally benefited from the increased mobility and a majority indicated that it had also had a positive influence on their home life. However, when compared with the control group the mobile employees were not more likely to report that they had sufficient time for family life. Within sub-groups of mobile teleworkers those with young children were more likely to report that the alternative work arrangement was beneficial in providing them with increased flexibility in meeting their work/family balance demands. Mobile teleworking had little influence in managing household demands and child care except for those workers with pre-school aged children. Although relatively weak, there was some support for positive spillover occurring between the increase in mobility and on family relationships. Once again, this finding was strongest for mobile teleworkers with pre-school aged children (Hill et al., 1996). Specific limitations of this study include lack of pre-test measurement, relative short length of duration of the program, as most participants had been mobile teleworking for less than one year, and lack of interview component.

Despite methodological problems, the above studies suggest that the "blurring of boundaries" does occur through teleworking arrangements. Most likely, telework alters the permeability and blurs the boundary between work and family as teleworking employees no longer have the distinct physical separation between these two spheres of life. The physical proximity and overlap of work and family demands taking place simultaneously, by their nature, invites the perception of the blurring of boundaries between work and family domains. Furthermore, unlike their non-teleworking colleagues, teleworkers have the opportunity to make several transitions a day across both life domains (Hall & Richter, 1988). Yet, little is known about the impact of these increased transitions. What is needed is an empirical investigation of whether teleworkers do in fact experience blurred boundaries. One indication of blurred boundaries for the teleworkers would be a stronger relationship between work interference with family and family interference with work. This stronger relationship would be predicted from spillover theory in that interference flowing from work to family would also flow back from family to work and vice versa since "spillover occurs when the effects of work or family spill over from one to the other" (Lambert, 1990; Standen et al., 1999). This relationship would not be expected to be as strong in non-teleworkers who have a distinct physical boundary or separation that clearly delineates the work from family and the family from work domains.

H1: The positive relationship between Work Interference with Family and Family Interference with Work will be stronger for teleworkers than non-teleworkers.

1.5 Work Related Variables

Role or job stress, job satisfaction, and job performance or productivity are three variables that have been extensively investigated by organizational researchers (Sauter & Keita, 1992; Spector, 1996). They have also been studied in previous telework research (Hartman et al., 1991; 1992; Standen et al., 1999) as well as in research involving work-family balance (Gottlieb et al., 1998). These variables will be used to examine how blurred boundaries may affect previously established work, family, and organizational relationships.

1.5.1 Role or Job Stress

Stress in the workplace has been identified under a variety of titles such as role, job, work, or occupational stress (Spector, 1996) and was one of the leading social and work-place health concerns of the 1990's" (Sauter & Keita, 1992). Stress can arise because the work environment does not satisfy the needs of the employee or because the demands associated with work exceed the employee's capabilities. Other major contributors to work related stress can include features such as work task, job structure, and intra or extra organizational factors. Different types of organizational factors such as role ambiguity, role conflict, and a lack of respect, recognition, or autonomy from management may affect worker health (Baker, 1989). Unfavorable job conditions appear to adversely affect employee health and well-being (Cooper & Cartwright, 1994). The

reduction of job or role stress is an on-going issue of considerable concern for both employee well-being and organizational effectiveness.

Currently, little is known about how teleworking affects job or role stress. Earlier studies suggest that teleworking may reduce stress (Olson, 1987; Olson & Primps, 1984). More recently, a small pilot survey compared the perceived stress and social support among teleworkers (n = 15), home workers (n = 9), and office workers (n = 14). The office workers and teleworkers reported receiving more social support than the home workers, but the three groups did not differ in their levels of perceived stress (Trent, Smith, & Wood, 1994).

Anecdotal accounts suggest that employees receive benefits from teleworking. The stress from long commutes may be reduced through less energy expenditure (Shamir & Salomon, 1985). The elimination of the shift between the office and home may provide more control over one's work schedule leading to a decrease in role conflict (Ahrentzen, 1990). On the other hand, there may be benefits from commuting in that it provides opportunities for decreasing the transfer of stress from one sphere of life to the other (Salomon & Salomon, 1984).

An earlier study compared female clerical employees working at home to those who worked at an office site on the social and emotional effects of home work. Home workers, who were subjected to simultaneous demands of work and family, were expected to experience more role conflict or demands than their office worker

counterparts. The clerical home workers, in fact, said they were subjected to less role related stress as measured by role conflict and role overload. The clerical home workers reported being interrupted less frequently, having fewer people making demands on them, and that the demands from the different spheres of their work/non-work lives were not incompatible (Gerson & Kraut, 1988; Kraut, 1989).

Role theory proposes "that people will experience role conflict when they are presented with incompatible demands such that the compliance with the expectations of one role makes performance of the other role more difficult" (Katz & Kahn, 1978; cited in Judge et al. 1994, p.769). This type of role conflict, which exists between the work and family roles, is termed inter-role conflict. It can lead to the development of job stress because workers are pulled to meet mutually exclusive demands within the different domains of work or family at the same time. The need to work long hours at the job conflicts with the need to spend substantial time with family, and leads to job stress (Cooke & Rousseau, 1984; Duxbury & Higgins, 1991). Both work-family and family-work conflict influence job stress (Judge et al., 1994). Work-family conflict may also lead to job stress when workers seek to attain and maintain certain images of themselves and are prevented from doing so by obstacles that represent a threat to their self-identity (Frone et al., 1992). Conflict between work and family roles represent obstacles in the path of self-fulfillment and may create job or role stress.

Since teleworking removes the separation from the physical locations of work and family life it may be that teleworkers experience greater family interference to work

through the blurring of boundaries and this may in turn be reflected in their role stress as measured by role ambiguity, role conflict, and role overload. Since this study emphasizes the impact on the role related aspects of work stress future references to this variable will be subsumed under the specific title of role stress.

H2: The positive relationship between the Family Interference with Work measure of Work-Family Conflict and Role Stress will be stronger for teleworkers than non-teleworkers.

1.5.2 Job Satisfaction

Locke (1976) views job satisfaction as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (p. 1300). Spector (1996), on the other hand, has more broadly defined it as "an attitudinal variable that reflects how people feel about their jobs overall as well as various aspects of them." In simple terms, job satisfaction "is the extent to which people like their jobs, job dissatisfaction is the extent to which they dislike their jobs" (Spector, 1996, p. 214).

Job satisfaction is one of the most often studied organizational constructs (Locke, 1976; Spector, 1996). It is assumed to have effects that can vary from influencing both worker health and the bottom-line financial effectiveness of the organization (Spector, 1996). Within the teleworking literature, teleworking is associated with increased job satisfaction (DuBrin, 1991; Huws et al., 1990; Olson, 1987). Employees perceive a

teleworking opportunity as a benefit and a form of recognition, which may also translate into increased job satisfaction (Gordon & Kelly, 1986).

Job satisfaction is related to work-family conflict. "Work interfering with family" is negatively related to job satisfaction, although "family interference with work" is not strongly associated with job satisfaction for traditional employees (Adams et al., 1996). However, negative relationships between satisfaction with telework and family relationships have occurred (Hartman et al., 1991). When employees are better able to balance work and family, resulting in less of a perception of work negatively affecting family, both work satisfaction and organizational commitment increase (Scandura & Lankau, 1997). The greater the tension and conflict between the roles of work and family, the greater the likelihood of job dissatisfaction (Gignac, et al., 1996). Since the tension and conflict one routinely experiences between the roles of work and family is likely affected by teleworking, it is less apparent how teleworking affects job satisfaction. If positive spillover occurs, through blurred boundaries while teleworking, it is possible that the negative relationship between work-family conflict and job satisfaction will be weakened, compared to this relationship with the non-teleworkers.

H3: The negative relationship between Work-Family Conflict and Job Satisfaction will be weaker for teleworkers than non-teleworkers.

There appears to be a negative relationship between job satisfaction and job stress in traditional office workers (Spector, 1996). This relationship may emanate from the

different facets of the job situation. In teleworking, the home environment becomes the extrinsic working environment and it is possible that this may alter the negative relationship between these two variables. Perhaps teleworking exerts positive effects on job satisfaction through decreasing the role stress experienced through role conflict and role ambiguity. This appears to have merit as the decreased interruptions, increased flexibility in managing family or personal issues, and elimination from the stressful commutes reported by teleworkers may be directly linked to the increased job satisfaction they experience (Cascio, 1989, cited in Frolick et al., 1993). If there is a positive spillover effect exerted through the blurred boundaries from engaging in teleworking arrangements, then the negative relationship between job satisfaction and role stress found in non-teleworkers will be lessened.

H4: The negative relationship between Job Satisfaction and Role Stress will be weaker for teleworkers than non-teleworkers.

1.5.3 Job Performance or Productivity

Job performance and productivity mean different things to different professions. Economists, tend to use definitions that are precise and relatively singular, while management theorists and psychologists often use terms such as effectiveness or job performance interchangeably with productivity (Weiss, 1994). The majority of teleworking studies have used the specific term productivity to determine if this type of work arrangement enhances job effectiveness or job performance. In keeping with this,

the particular label used by those study's authors will be employed when reviewing previous studies, while the more accurate term job performance will be used in this study.

Despite the on-going necessity for effective measurement of job performance or productivity it remains an area fraught with difficulty (Frolick et al., 1993; Hartman et al., 1991). These difficulties are exacerbated through alternative work arrangements like teleworking, as supervisors are no longer able to directly observe the employee undertake his or her work duties. This issue is one significant reason that many managers have remained reluctant to have their subordinates undertake teleworking.

It is generally difficult to measure changes in productivity or job performance among teleworkers (Robertson, personal communication, March, 1995). First, the manner in which productivity is operationalized becomes very important in determining any benefit. Is productivity simply being able to get more work done more quickly or is it some less tangible change in effectiveness? Gordon has suggested a move onwards from the more dated notion of productivity which, "conjures up images of widget counting to now focus on understanding whether or not alternative workplace arrangements such as teleworking actually enhance worker effectiveness" (Gordon, personal communication, March, 1995).

Second, employees chosen to telework frequently have a prior track record of trustworthiness, commitment to work, and productivity at their regular office sites. This may contribute to the difficulty in accurately determining the true impact of changing

locations to a home office as there may be little room left for improvement in their productivity,(i.e., ceiling effects) (Frolick et al., 1993). Nonetheless, even highly productive employees who are permitted to telework may become more effective through reduced interruptions from co-workers, decreased distractions, and quieter work environments (Frolick et al., 1993; Hamilton, 1987).

Third, due to the types of job tasks and projects undertaken by employees, it is often difficult for supervisors to measure job performance effectively, even when they deal on a face to face basis with employees. This is further exacerbated when the amount of "face time" is reduced when employees telework. Due to the above problems, and in the absence of well defined objective measures, this study will attempt to assess job performance by tailoring the taxonomy of tasks used in a 1994 pilot study of teleworkers for Statistics Canada (Duxbury & Higgins, 1995) into a questionnaire for both teleworkers and their supervisors. (See Method Section).

Despite the difficulty in productivity assessment past research outcomes suggest that productivity is increased through teleworking. Claims of improvement in productivity frequently range from 10 to 50 per cent (DuBrin, 1991; Frolick et al., 1993; Hamilton, 1987). However, closer scrutiny often indicates difficulty in determining how these gains were specifically quantified.

There are a number of different mechanisms through which teleworking may have a positive impact on employee job performance. Productivity may be enhanced by the

quieter work environment at home, reduction of absenteeism, lessened time and energy expenditure through the daily work commute, and through decreasing the number of interruptions from other employees (Salomon & Salomon, 1984; Shamir & Salomon, 1985). On the other hand, teleworkers may experience difficulties in undertaking job tasks at home because they lack immediate access to work files and materials and they may encounter delays in contacting others through electronic or voice mail (Hamilton, 1987).

Productivity is related to issues of work-family balance. Workers who are parents of children under the age of 18 had significantly more days absent, were late for work or left work early, and dealt with more family issues while on the job than did their non-parent colleagues (Emlen & Koren, 1984). Anecdotal evidence about this problem is wide spread with several businesses reporting that corporate switch boards become increasingly active once the school day is finished as parents and children communicate with each other (Googins, 1991). With the continuous erosion of social supports and resources within their communities and networks, employees who are parents often are in situations where they need to use some portion of their work time to manage their family responsibilities. Management of family problems, responsibilities, and crises may negatively affect worker productivity wherever that work is carried out (Googins, 1991).

Difficulties in successfully managing work and family balance may have a negative impact upon job performance. Little is known at present about how this relationship is affected through teleworking arrangements. If boundaries are blurred as

predicted from a positive spillover process through teleworking then it is reasonable to expect that these distinct relationships between work-family conflict and job performance may be weakened or cease to exist under this condition.

H5: The relationship between Work-Family Conflict and Job Performance will be weaker for teleworkers than non-teleworkers.

1.6 Quasi-Experimental Field Research Issues

Ideally, a researcher would like to be able to obtain access to as large a number of subjects as possible. Despite efforts at maximizing the number of subjects there are a number of different factors that can interfere and hamper one's ability to enter work organizations for research purposes to obtain appropriate subjects. These issues are particularly relevant when attempting to recruit teleworking subjects.

Generally, there may not be large numbers of teleworkers readily available for recruitment purposes that fit the stricter inclusion criteria of this study. "Only 100,000 people presently fit within this stricter version of teleworking" (Gordon, 1991, cited in Hartman et al., 1992; p. 36). According to DiMartino and Wirth (1990), "teleworking in Canada is still in its infancy" (cited in Armstrong-Stassen, 1998; p. 117). Companies are frequently reluctant to initiate alternative work arrangements, like teleworking, due to increased costs required for start-up, especially for unproven benefits (Caudron, 1992; Hamilton, 1987). This number may be further reduced through a variety of other factors.

Companies often undertake teleworking on an informal basis, that is, with only permission of the immediate supervisor (Gray et al., 1993) and employees may telework only on an occasional, not regular basis. Job tasks may change so that it no longer remains feasible for employees to continue teleworking. With the large amount of downsizing occurring throughout the workforce employees may be more suspicious than usual about completing any measures or providing personal information regarding their work and home lives. Even if they are candidates, they may choose not to participate in studies. All of these factors can have a negative impact on the numbers of teleworkers one may be able to enlist for research purposes. Non-teleworking controls may also be difficult to obtain as they may not believe the study has relevance for them and thus choose not participate.

Many companies do not advertise their involvement in teleworking arrangements. This adds to the difficulty in determining within the larger community whom one should initially contact. After identifying specific companies that may be involved in teleworking arrangements there is frequent difficulty in arranging to meet the decision makers within the organization. It is often a lengthy process to build the trust necessary so that one is able to successfully gain access to the organization. Negotiating and designing questionnaire packages are often protracted procedures as corporations are usually sensitive regarding what types of information they are willing to have exposed and examined. Therefore, one is frequently not able to obtain access to the preferred

information and material. Even at the last minute before surveys are administered changes may be imposed from within the business.

All of the above factors had a negative impact upon recruiting teleworkers and control subjects in this study. Notwithstanding these difficulties, the present study acquired a balanced sample on the basis of marital and parental status of 37 teleworkers and 37 non-teleworker control subjects. These balancing variables were chosen based on previous research and with awareness that the primary focus of the study was on better understanding of work family balance issues (Baruch & Barnett, 1986; Boles & Babin, 1996; Rice, Frone, & McFarlin, 1992).

Beyond wanting to have access to as large a sample as possible, organizational researchers would also ideally like to be able to obtain pretest measures of employees well before any intervention is planned or undertaken. However, unless one is already a trusted and proven entity within the organization, thereby being privy to the potential changes or interventions planned within the organization, one is highly unlikely to be able to undertake these types of pretest measurements. Being a consultant may be beneficial regarding obtaining access to organizational employees and facilitate the collection of pre and post measures, but other issues regarding conflicts of interest and employee reluctance to participate may work to offset some of this advantage. As a result of these factors and difficulties obtaining access to organizations it was not possible to obtain pretest measures in this study.

"Randomized experiments are characterized by the use of initial random assignment for inferring treatment caused change. It is more difficult to assign individuals to treatments at random in field settings than in laboratory settings. The field researcher is often a guest at the sites where he or she works while the laboratory researcher has almost total control over the setting and acts as the respondent's host" (Ramsower, 1985; p. 30). Teleworking arrangements are undertaken on a voluntary basis due to the upheaval for the work organization, employees, and their families and are based on a number of different conditions being met. As a result, it is virtually impossible to randomly assign employees to teleworking arrangements and the best research design possible in these circumstances is a quasi-field experiment (Frolick et al., 1993; Ramsower, 1985).

1.7 Methodological Strengths of the Present Study

This study was designed to overcome as many of the methodological problems and shortcomings as feasible that are noted above in the previous studies. Similar to the Ramsower (1985) study, this study is quasi-experimental in nature, while improving on a number of the methodological shortcomings of that study. For example, the number of teleworking and non-teleworking control subjects are more than tripled in the present study. It utilizes the stricter definition of teleworkers for organizational employees and does not separate the teleworking subjects into full-time or part-time teleworkers. This study does not have subjects being recruited from a number of different work organizations, which increases concern about impact of sample heterogeneity. It does,

however, use two samples, one private and the other public, which has been suggested by organizational researchers as being important (Armstrong-Stassen, 1998). The control group was recruited from within the same work organization and work group as the teleworking employees. They were also doing the same jobs as their teleworking counterparts.

This study used well established empirical measures with good psychometric properties that have been extensively and frequently used throughout industrial/organizational research to measure organizational variables. (See Method Section). Other study strengths include improving the work-family conflict measurement. Much of the earlier research on work-family conflict has been based on short measures that do not capture the bi-directional quality of the concept. This study, however, used a measure designed to detect the bi-directional quality of work-family conflict that researchers have recently suggested be targeted. Other studies have also used this measure in studies of teleworking and alternative work arrangements (Gottlieb et al., 1998).

Unlike much of the earlier research conducted on work-family conflict the present study used people who are working in organizations and corporations and did not depend solely upon community based samples (Crouter & MacDermaid, 1990). This serves to strengthened the ecological validity of the study (Bronfenbrenner, 1979). Besides capturing only the quantitative component this study also adds a qualitative component based on in-depth interviews with a subsample of the teleworkers. This affords the

opportunity for a more thorough examination of the impact of teleworking on work-family linkages.

Finally, regarding the measurement of job performance, this study provided a means for multi-method data collection by including a measure that assesses both the employee's and the supervisor's perception of employee job performance. This is something researchers have been encouraged to pursue as frequently as possible (Cooper & Cartwright, 1992).

1.8 Summary

Telework provides a unique opportunity to study work and family roles within the same environmental setting. Telework also provides the opportunity to conduct an in-depth examination of the work-family interface. The overarching purpose of this study is to advance current understanding of models of work-family linkages by applying components of the spillover and conflict models to determine if telework blurs the boundaries between work and family. Two other questions directly emanate from this focus on blurred boundaries. Specifically, what effect, if any, does blurred boundaries have on established relationships between work, family, and organizational variables? Finally, what is the impact of the blurring of boundaries for teleworkers? Are there positive or negative effects experienced from adopting this alternative work arrangement?

1.9 Control Analyses

Control Analysis 1: *There will be a significant difference across the number of days per week teleworked on Role Stress, Job Satisfaction, and Job Performance.*

Control Analysis 2: *Teleworking tenure will be related to Role Stress, Job Satisfaction, and Job Performance.*

1.10 Summary of Study Hypotheses

H1: The positive relationship between the Work Interference with Family and Family Interference with Work measures of Work-Family Conflict will be stronger for teleworkers than non-teleworkers.

H2: The positive relationship between the Family Interference with Work measure of Work-Family Conflict and Role Stress will be stronger for teleworkers than non-teleworkers.

H3: The negative relationship between Work-Family Conflict and Job Satisfaction will be weaker for teleworkers than non-teleworkers.

H4: The negative relationship between Job Satisfaction and Role Stress will be weaker for teleworkers than non-teleworkers.

H5: The relationship between Work-Family Conflict and Job Performance will be weaker for teleworkers than non-teleworkers.

Chapter 2

Method

2.1 Participants

The participants were employed at two Halifax organizations that had on-going teleworking programs. Both teleworking and non-teleworking employees received a written invitation to participate along with a package of information. Organization A contained employees who were working as auditors for the Tax Division of the Provincial Government. The teleworkers from this site had been involved in teleworking arrangements for approximately 12 months. Organization B comprised management employees who were working for a large Eastern Canadian Public Utility. Teleworking employees from site B had been engaged in teleworking for approximately 18 months. Non-teleworking employees at both organizations came from the same work units as the teleworkers.

Organization A provided access to a pool of 60 individuals of whom 20 were involved in teleworking. From this larger pool 16 teleworkers and 15 non-teleworkers chose to participate in the study. Organization B provided 91 individuals of whom 29 were teleworking. From this pool 23 teleworkers and 35 non-teleworkers chose to participate. Overall, 31 employees from Organization A and 58 employees from Organization B volunteered for the study. This represents a 52% response rate at Organization A and a 64% response rate at Organization B. This corresponded to an overall 59% response rate for both organizations (see Table 1). A chi-square analysis of

the response rate for teleworking versus the non-teleworking respondents across the two organizations showed no significant differences ($\chi 2(1, n = 89) = .1.17$, n.s.).

Table 1. Breakdown of response rate across organizations and work arrangements for the study sample.

Organization	Response Rate Teleworkers	Response Rate Non-teleworkers	Overall
A	.80(16/20)	.38(15/40)	.52(31/60)
B	.79(23/29)	.56(35/62)	.64(58/91)
Overall	.80(39/49)	.49(50/102)	.59(89/151)

Note. Within the parentheses the numerator of the fraction represents the numbers of responders and the denominator represents the potential responders from the larger sample.

For the purposes of this study, a sample of teleworkers and non-teleworkers, balanced on the basis of marital and parental status, was chosen from the overall sample. The two samples were balanced in that both contained equal numbers from the marital and parental status categories. This process yielded 15 teleworkers and 11 non-teleworkers from Organization A, and 22 teleworkers and 26 non-teleworkers from Organization B. The total n of the study was 74 with a sample of 37 teleworkers and 37 non-teleworkers (see Table 2). In the balanced sample the organizations did not differ significantly in terms of the teleworking non-teleworking dichotomy ($\chi^2(1, n = 74) = .949$, n.s.).

Table 2. Breakdown of the balanced sample across organizations and work arrangements.

Organization	Teleworkers	Non-teleworkers	Overall
A	15	11	26
B	22	26	48
Overall	37	37	74

Note: ($\chi^2(1, n = 74) = .949$, n.s.)

A demographic description of the two groups will be given at the beginning of the results section.

2.2 Measures

Measures for each of the study's variables were selected by considering their psychometric properties and frequency of prior use in organizational research. Where appropriate responses to individual questionnaire items were reverse coded to measure the presence of a particular construct.

2.2.1 Work-Family Conflict

Work-family conflict was measured by a 22 item scale, which used a 4 point Likert type response scale (1 = Never, 4 = Almost Always) (Kelloway et al., 1999). It divides work-family conflict into the two broader categories of work interference with family and family interference with work. Both work interference with family and family

interference with work contain 11 items. This measure contains statements such as the following, "My family demands interrupt my work day." It is important to use this type of measure because a number of recent studies have found different antecedents and consequences for either type of conflict (Frone et al., 1992). The Cronbach's Alpha of the present study was good, .87 for work interference with family (Nunnally, 1978) and acceptable, .77, for family interference with work (Nunnally, 1978). (See Appendix A).

2.2.2 Role Stress

Three different measures were used to assess role related stress.

Role Ambiguity: The Role Ambiguity Scale referred to the uncertainty employees can experience when they do not know what behavior is expected from them in an employment capacity (Rizzo, House, & Lirtzman, 1970). The purpose of the measure was to assess the employees' level of ambiguity regarding their work roles. This scale included six items, which are rated on a 5 point Likert type scale (1 = Strongly Disagree and 5 = Strongly Agree). It includes items such as: "I feel secure about how much authority I have" and "I know what my responsibilities are." Previous studies have indicated this measure has high internal consistency (Kelloway & Barling, 1990). Cronbach's Alpha for this study was good, .87 (Nunnally, 1978). (See Appendix B).

Role Conflict: The Role Conflict Scale refers to the conflicts between time, resources, or capabilities of the person versus the conflicting expectations they experience

from others with whom they are involved (Rizzo et al., 1970). It includes eight items rated on a 5 point Likert type scale (1 = Strongly Disagree and 5 = Strongly Agree) such as: "I receive incompatible requests from two or more people" and "I have to do things that should be done differently." Previous studies have indicated this measure has high internal consistency (Kelloway & Barling, 1990). Cronbach's Alpha for this study was good at .80 (Nunnally, 1978). (See Appendix B).

Role Overload: The Role Overload Scale measures the extent to which employees perceive they are overworked in any given period of time (Beehr, Walsh & Taber, 1976). It comprises three items rated on a 5 point Likert scale (1 = Strongly Disagree and 5 = Strongly Agree) such as: "It often seems like I have too much work for one person to do." Beehr et al. (1976) reported a marginal alpha of .56 for this brief measure, the Cronbach's Alpha for this study was also marginal, .60 (Nunnally, 1978). Previous studies have found comparable psychometric outcomes with this measure (Kelloway & Barling, 1990). (See Appendix B).

2.2.3 Job Satisfaction

The Job Satisfaction Scale is a 16 item, 5 point Likert type scale (1 = Strongly Disagree and 5 = Strongly Agree) that measures the degree to which an employee is satisfied with various aspects of work (Warr, Cook, & Wall, 1979). Examples of items include: chance of promotion, hours of work, amount of variety in your job, and the way

your firm is managed. Warr et al. (1979) reported a Cronbach's Alpha of .87 and, for this study; it was a good to excellent .88 (Nunnally, 1978). (See Appendix C).

2.2.4 Performance

Performance data were gathered from two sources using different versions of the same instrument: employee self-reports of their job performance and supervisor ratings of the employees' job performance. This measure was based on a previous teleworking pilot study for Statistics Canada (Duxbury & Higgins, 1995). In the present study these reported effects were re-structured into a seven-item measure that had a five point Likert-type response format. The seven items targeted the job performance of the employees over the past month. The items addressed: (1) the ability to meet work deadlines, (2) the interference from meeting family responsibilities, (3) the number of telephone interruptions, (4) the interference due to equipment failure, (5) the impact of coping with work-family problems, (6) the stress associated with work commute and (7) an overall global rating of performance. (See Appendix D for the employee version and Appendix E for the supervisor version).

Since the performance measure was created for the study, the factor structures for both the employee and supervisor versions were explored using a Principal Components Analysis with a default eigenvalue > 1.00 (See Table 3). Item 4 that dealt with equipment difficulties produced a destabilizing effect and was dropped from the analysis. Two factors were extracted from the remaining items. Factor 1 contained items 1, 2, and

6 that deal with a time component of performance. This factor was labeled time-based performance. Factor 2 contained items 3 and 5 that relate to work interruption as well as item 7, the global performance measure. Based on Items 3 and 5, this factor was labeled interruption-based performance.

Table 3. Results from Factor Analysis of performance data.

	Self Rating		**Supervisor**	
Question	Time	Interruption	Time	Interruption
1	.56972		.83167	
2	.75244		.79634	
6	.52476		.83130	
3		.72013		.68657
5		.78848		.73881
7		.68648		.66596
Eigenvalues	1.83391	1.30148	2.24729	1.49608
Cum Pct of Variance	30.6	52.3	37.5	62.4

Because of the well-known difficulties in developing good measures of performance, global measures are often used as a proxy variable (Alliusi, 1982). Thus, in addition to the time based performance and interruption based performance measures, Item 7, global based performance was also used as a performance measure (i.e. item # 7).

Tables 4 and 5 present the intercorrelations among the three performance measures, along with their reliability estimates, for employees' and supervisors' ratings,

respectively. The reliabilities of the time based performance and interruption based performance measures were, on the whole, poor. For the employee rated performance measure, time based performance ($\alpha = .32$) and interruption based performance ($\alpha = .56$) were well below acceptable levels of reliability (Nunnally, 1978). For the supervisor rated performance measure, time based performance ($\alpha = .74$) was reliable, but interruption based performance P ($\alpha = .54$) was below acceptable standards (Nunnally, 1978).

The global measure correlated with the time based performance measure for employee rated performance ($r = .15$) and supervisor rated performance ($r = .37$). Likewise, interruption based performance correlated with global based performance at a similar level for employee and supervisor ratings, although at a higher level than for the time based performance – interruption based performance correlation (employee rated performance: $r = .46$; supervisor rated performance: $r = .63$). The higher correlation with the interruption based performance measure was not unexpected since this represents a part-whole correlation with the global based performance item contained within the interruption based performance measure. In consideration of the inconsistent reliabilities of the time based performance and interruption based performance factors across the employee versus supervisor ratings, only the global, single-item measure was used in subsequent analyses (c.f., Alliusi, 1982; Abdel-Khalek, 1998)[1].

[1] Post hoc analyses were carried out using these two factors and no meaningful differences from those reported for the global measure were found.

Table 4. Intercorrelations among the performance measures for the employees.

Variable	E-TBP	E-IBP	E-GBP
E-TBP	(.32)		
E-IBP	.08	(.56)	
E-GBP	.15	**.46**	--

Note: Values in the parentheses on the diagonal are Cronbach's Alpha, except for E-GBP, which is a single item measure. Coefficients shown in boldface are significant at the $p < .05$. E-TBP represents employee time-based performance, E-IBP represents employee interruption-based performance, and E-GBP represents employee global-based performance.

Table 5. Intercorrelations among the performance measures for the supervisors.

Variable	S-TBP	S-IBP	S-GBP
S-TBP	(.72)		
S-IBP	.17	(.54)	
S-GBP	**.37**	**.63**	--

Note: Values in the parentheses on the diagonal are Cronbach's Alpha, except for S-GBP, which is a single item measure. Coefficients shown in boldface are significant at the $p < .05$. S-TBP represents supervisor time-based performance, S-IBP represents supervisor interruption-based performance, and S-GBP represents supervisor global-based performance.

2.2.5 Demographics

Participants provided information on their age, gender, marital status, partner's occupation, number of children living at home (under the age of 18), household/family responsibilities, job tenure, and other related areas. Based on feedback from the participating organizations gender, age, educational level, and marital status were collected using categorical variables. Contacts at the organizations believed that this approach would increase compliance rates for these types of questions (See Appendix F). Non-teleworkers were also asked if they would like to become teleworkers. In contrast, teleworkers were not asked if they wanted to stop teleworking as those who had wanted to stop teleworking had already opted out of the voluntary program. Thus, the teleworking sample contained only those employees who wished to continue working under these alternative conditions. Participants and their supervisors were provided with opportunities to elaborate more fully if they so desired (See Appendix F).

2.3 Procedure

Through the assistance of the two organizations, the surveys were delivered to participants at their work site. Surveys were accompanied by a cover letter indicating that their organization supported and had given permission to use work time for completion of the survey. Additional information included the background of the primary researcher with specific details such as name, affiliation/address of the researcher, nature of the study/reasons why their participation was solicited, the fact that their participation was

voluntary and could be withdrawn at any time, and specific details regarding protection of their confidentiality was given to the participants. No one from either organization had any direct access to individual questionnaires or data. Participants indicated their consent to participate by returning the completed questionnaires to the experimenter.

A letter containing the same information about the study sent to the employees was mailed to their supervisors. Supervisors were asked to provide feedback on their employee's performance over the previous month. The supervisors received the performance measure directly from the employee. The employee's name was not recorded on the performance measure. Both the subjects and supervisors mailed their responses separately back to the primary investigator. To facilitate matching the supervisor's response with that of the employee, participants wrote a self- generated code outside of their package as well as on the copy of the performance measure that they gave to their supervisor.

Approximately one month after the administration of the survey at Organization B, 15 of the 22 teleworkers at Organization B were interviewed. The 45 minute session was audio-taped. Organization A did not give permission to interview any of its employees. Due to time constraints within the company, Organization B did not give permission to interview its non-teleworkers. The purpose of the interviews was to obtain a fuller and richer picture of the impact of teleworking. The teleworkers were assured that no one in Organization B would have access to any of their individual comments either through hearing the tape or through aggregate feedback provided to Organization B.

2.4 Data Analyses

2.4.1 Quantitative Analyses

The following abbreviations are used in the correlation tables found in the results section: Work Interference with Family (WIF), Family Interference with Work (FIW), Role Ambiguity Scale (RAS), Role Conflict Scale (RCS), Role Overload Scale (ROS), Job Satisfaction (JSS), Employee Rated Global Performance (EGP), and Supervisor Rated Global Performance (SGP).

The first step in the analysis was a comparison of the two organizations on demographic variables. The second step was a comparison of teleworkers and non-teleworkers on the pertinent demographic variables. The third step was the computation of the correlation matrices among all the study variables for the total sample and for teloworkers and non-teleworkers, separately. Each of these correlation tables included the means and standard deviations for the study's variables. This was followed by Steiger's test for multiple statistical tests on a large number of correlations (Steiger, 1980). Before performing analyses on the study's main hypotheses two control hypotheses were tested to examine the homogeneity of the teleworking sample with respect to the study's variables. Finally, tests for significant differences across the two major work groups were performed using Fisher's z tests.

2.4.2 Qualitative Analysis

As noted in the introduction, organizational research presents unique challenges as scientific and business goals often differ. The interview schedule of questions was based on attempts at meeting both the organization's interests regarding the impact of teleworking, as well as the more specific interests of this study. The interviews were structured around a list of questions that more fully addressed the impact of teleworking upon aspects of work-family conflict, individual and family adjustment, and organizational culture and climate. These particular questions were chosen after a review of the existing literature, conference materials, and through discussions with contacts at the organization. (See Appendix G).

The interviews were transcribed from the audiotapes verbatim. For the purposes of this study each interview was reviewed with respect to understanding the general impact of teleworking on the individual employee as well as the impact upon more specific issues related to work and family linkages.

Chapter 3

Results

3.1 Descriptive Statistics

3.11 Organizational Comparisons

Comparisons were made across the two organizations on the salient demographic variables. Participants were dichotomized into two groups, those 40 years old or under versus those older than 40. For Organization A, 11 of the participants were 40 or under while 15 were greater than 40. For Organization B, 18 of the participants were in the 40 or under category while 30 were in the older category. The organizations were not significantly different in terms of the age distributions ($\chi^2(1, n = 74) = .164$ n.s.). Education was dichotomized on the basis of university versus no university education. Organization A contained 15 non university educated participants and 11 university educated participants. Organization B had 27 non university and 21 university educated participants. Again, the organizations did not differ significantly on university education (χ^2 (1, n = 74) = .014, n.s.). Concerning parental status, Organization A had 14 participants without children and 12 with children living at home, while Organization B had 14 participants without children and 34 with children living at home. Organizations differed on the basis of parental status (χ^2 (1, n = 74) = 4.37 $p < .05$). Regarding marital status, Organization A had five single or divorced participants and 21 who were married or living common-law, while Organization B had five who were single or divorced and 43 married participants. Organizations did not differ on marital status (χ^2 (1, n = 74) = 2.95, n.s.). Organization A had four females and 22 male participants. In contrast, Organization B had a near equal number of both sexes, 25 females and 23 males. The organizations were significantly different in terms of sex distribution (χ^2 (1, n = 74) = 9.53, $p < .05$). The organizations also differed in length of service measured to the time

of testing (Organization A = 130.62 months versus Organization B = 228.79 months, $t(72) = 4.99$, $p < .05$).

A chi square analysis was also conducted to determine if there was any overall association between the two companies, Organization A and Organization B, and the two work arrangement groups, teleworkers and non-teleworkers. No significant association was found between these two variables (χ^2 (1, n = 74) = .949, n.s.), thus permitting further analysis across the teleworker and non-teleworker groups as a whole.

3.2 Teleworker and Non-Teleworker Comparisons

The total sample contained 14 female teleworkers, 23 male teleworkers, 15 female non-teleworkers, and 22 male non-teleworkers. Teleworkers and non-teleworkers did not differ on sex (χ^2 (1, n = 74) = .057, n.s.). Using the same age categories as above 12 of the teleworkers were 40 or under while 25 were over 40. For non-teleworkers 17 participants were under 40 and 20 were in the older group. Teleworkers and non-teleworkers did not differ in terms of age (χ^2 (1, n = 74) = 1.142, n.s.). Twenty-three teleworkers had less than a university education whereas 14 were university educated. Similarly, 19 of the non-teleworkers had less than a university education whereas 18 were university educated. Work arrangement groups did not differ in education (χ^2 (1, n = 74) = .881, n.s. The mean length of service for teleworkers at the time of testing was 200.78 months versus 187.81 months for the non-teleworkers. This difference was not significant (t (72) = .597, n.s.). Both teleworking and non-teleworking groups consisted primarily of married individuals (86%) and individuals who had children living at home (63%).

A zero-order correlation matrix of the main study variables, computed over all participants, is presented in Table 6. Cronbach's Alphas, where appropriate, are presented on the diagonal. Since a large number of tests of significance were to be performed on the zero-order correlation matrix, Steiger's (1980) test for experimentwise error rate was conducted. The results of this test indicated that individual tests of significance were appropriate (χ^2 (45, n= 74) = 196.66, $p < .05$).

Table 6. Intercorrelations of the main study variables for the total sample (n = 74).

	Mean	SD	WIF	FIW	RAS	RCS	ROS	JSS	EGP	SGP
WIF	20.70	4.84	*(.87)*							
FIW	16.36	3.32	**.39**	*(.77)*						
RAS	14.17	4.02	**.41**	.17	*(.87)*					
RCS	23.29	5.53	**.43**	.22	**.58**	*(.80)*				
ROS	8.32	2.38	**.52**	.13	**.31**	**.49**	*(.60)*			
JSS	51.20	9.55	**-.28**	-.12	**-.46**	**-.38**	-.18	*(.88)*		
EGP	4.09	.53	-.03	-.06	-.12	.11	-.03	**.24**	--	
SGP	3.80	.83	.07	.12	.10	.22	.05	-.04	.06	--

Note: Co-efficients shown in the bold face type are significant at the $p < .05$ level, two-tailed.

3.3 Overview of Intercorrelations of the Main Study Variables for the Total Sample

There were a number of intercorrelations among the measures of work interference with family, family interference with work, role stress, and job satisfaction. Work interference with family and family interference with work were moderately

correlated (r = .39). In addition, work interference with family was related to the three measures of role stress, role ambiguity (r = .41), role conflict (r = .43), and role overload (r = .52). Work interference with family and job satisfaction were negatively correlated (r = -.28).

Among role stress measures role ambiguity was correlated with role conflict (r = .58) and role overload (r = .31), but was not redundant (34% shared variance and 9.5 % shared variance, respectively). As well, role conflict was correlated with role overload (r = .49), but not redundant (25% shared variance).

Job satisfaction was related to employee rated job performance (r = .24). It was also negatively related with two of the three role stress measures, role ambiguity (r = -.46) and role conflict (r = -.38).

To test the study hypotheses that compared relationships across work arrangement groups, teleworkers versus non-teleworkers, intercorrelation matrices were computed for these groups separately. Results for the teleworkers are presented in Table 7 while the results for the non-teleworkers are presented in Table 8.

Table 7. Intercorrelations of the main study variables for the teleworkers (n = 37).

	Mean	SD	WIF	FIW	RAS	RCS	ROS	JSS	EGP	SGP
WIF	20.89	4.85	--							
FIW	16.22	3.77	**.67**	--						
RAS	14.14	3.91	**.38**	**.35**	--					
RCS	24.14	5.25	**.44**	**.49**	**.50**	--				
ROS	8.60	2.29	**.38**	.18	.23	**.48**	--			
JSS	50.05	8.42	-.18	-.11	-.19	-.15	-.10	--		
EGP	4.08	.60	-.03	.14	-.14	.13	-.01	.26	--	
SGP	3.88	.92	-.13	.-.03	-.17	-.01	-.08	.27	.27	--

Note: Co-efficients shown in the bold face type are significant at the $p < .05$ level, two-tailed.

Work interference with family and family interference with work were positively correlated with each other for the teleworkers (r = .67). In the teleworkers both work interference with family and family interference with work were positively related to two of the three role stress measures. In terms of role stress work interference with family predicted role ambiguity (r = .38), role conflict (r = .44) and role overload (r = .38). Family interference with work predicted role ambiguity (r = .35) and role conflict (r = .49).

Among role stress measures role ambiguity was correlated with role conflict (r = .50) and role conflict was correlated with role overload (r = .48).

Table 8. Intercorrelations of the main study variables for the non-teleworkers (n = 37).

	Mean	SD	WIF	FIW	RAS	RCS	ROS	JSS	EGP	SGP
WIF	20.51	4.89	--							
FIW	16.50	2.85	.02	--						
RAS	14.22	4.18	**.43**	-.03	--					
RCS	22.46	5.74	**.42**	-.06	**.66**	--				
ROS	8.05	2.47	**.66**	.08	**.39**	**.49**	--			
JSS	52.38	10.56	**-.35**	-.15	**-.67**	**-.53**	-.22	--		
EGP	4.11	.46	-.03	**-.37**	-.10	.11	-.05	.22	--	
SGP	3.73	.74	**.37**	**.37**	**.44**	**.42**	.18	-.31	-.27	--

Note: Co-efficients shown in the bold face type are significant at the $p < .05$ level, two-tailed.

A different pattern of intercorrelations emerged for the non-teleworkers. For instance, there was no correlation between work interference with family and family interference with work in non-teleworkers. Work interference with family was positively correlated with the three role stress measures of role ambiguity (r = .43), role conflict (r = .42), and role overload (r = .66), as well as with the supervisor rated performance measure (r = .37). Work interference with family was negatively correlated with job satisfaction (r = -.35). Family interference with work was negatively related with employee rated job performance (r = -.37) and positively related with the supervisor rated job performance (r = .37).

Among the three role stress measures role ambiguity was correlated with role conflict (r = .66), role overload (r = .39) and with the supervisor rated job performance

(r = .44) and it was negatively related to job satisfaction (r = -.67). Role conflict was related to role overload (r = .49) and with the supervisor rated job performance (r = .42). As well, role conflict was negatively correlated with job satisfaction (r = -.53).

3.4 Control Analyses

Prior to analyzing the data with respect to the study's main hypotheses the teleworking sample was examined with respect to the number of days teleworked per week and the total length of time or tenure of the telework arrangement. Specifically, two control hypotheses were investigated.

Control Analysis 1: There will be a significant difference across the number of days per week teleworked on Role Stress, Job Satisfaction, and Job Performance.

A test of the impact of number of days per week teleworked was conducted using a series of ANOVAs. None of the three role stress measures, role ambiguity ($F(3,33) = .59$, n.s.), role conflict ($F(3, 33) = 1.12$, n.s.), or role overload ($F(3,33) = .58$, n.s.) differed significantly across the groups. Similarly, job satisfaction also did not differ significantly ($F(3, 33) = .85$, n.s.). For the job performance measurements no significant differences were found for either the employees ($F(3,32) = .07$, n.s.) or the supervisors ($F(3,27) = .93$, n.s.). Table 9 presents the means and standard deviations for the variables across the groups.

Table 9. Means and standard deviations across the number of days teleworked.

Variable	Number of Days Teleworked			
	1 (n = 13)	2 (n = 9)	3 (n = 8)	4 (n = 7)
RAS	M = 15.0 (4.20)	M = 12.78 (3.49)	M = 14.56 (4.66)	M = 13.86 (3.18)
RCS	M = 25.62 (5.39)	M = 21.67 (5.36)	M = 25.00 (5.50)	M = 23.57 (4.28)
ROS	M = 8.23 (2.49)	M = 8.11 (2.09)	M = 9.12 (2.09)	M = 9.29 (2.56)
JSS	M = 48.69 (7.02)	M = 48.33 (10.62)	M= 54.12 (7.49)	M = 50.14 (8.97)
EGP	M = 4.08 (0.64)	M = 4.12 (0.35)	M = 4.12 (0.83)	M = 4.00 (0.58)
SGP	M = 3.92 (0.86)	M = 4.00 (0.63)	M = 4.17 (0.98)	M = 3.33 (1.21)

Note: Standard deviations are reported in brackets.

Control Analysis 2: Teleworking tenure will be related to Role Stress, Job Satisfaction, and Job Performance.

Teleworking tenure was measured in number of months. Significant relationships were found between teleworking tenure and job satisfaction ($r = .38$, $n = 37$, $p < .05$) and teleworking tenure and employee rated job performance ($r = .38$, $n = 37$, $p < .05$). Relationships did not exist between teleworking tenure and the three measures of role

stress, role ambiguity ($r = .04$, $n = 37$, n.s.), role conflict ($r = .26$, $n = 37$, n.s.), and role overload ($r = .26$, $n = 37$, n.s.) or with the supervisor's performance rating ($r = .22$, $n = 31$, n.s.).

Since the analysis revealed that the longer an individual teleworked the more satisfied and the higher they self-rated their job performance any hypothesis involving either satisfaction or self-rated job performance was reassessed partialling out the effects of tenure (See Appendix H).

3.5 Study Hypotheses

H1: The positive relationship between the Work Interference with Family and Family Interference with Work measures of Work-Family Conflict will be stronger for the teleworkers than for non-teleworkers.

There was a significant positive relationship between work interference with family and family interference with work for the teleworkers ($r = .67$, $n = 37$ $p < .05$) but not for the non-teleworkers ($r = .02$, $n = 37$, n.s.). This difference in association was significantly stronger for the teleworkers (Fisher's $z = 3.26$ $p < .05$).

H2: The positive relationship between the Family Interference with Work measure of Work-Family Conflict and Role Stress will be stronger for the teleworkers than for non-teleworkers.

There was a significant positive relationship between family interference with work and the role ambiguity scale for the teleworkers ($r = .35$, $n = 37$, $p < .05$) but not for the non-teleworkers ($r = -.03$, $n = 37$, n.s.). This difference in association was significant (Fisher's $z = 1.64$, $p < .05$.).

There was a significant positive relationship between family interference with work and the role conflict scale for the teleworkers ($r = .49$, $n = 37$, $p < .05$) but not for the non-teleworkers ($r = -.06$, $n = 37$, n.s.). This difference in association was significant (Fisher's $z = 2.46$, $p < .05$).

There was no relationship between family interference with work and the role overload scale for the teleworkers ($r = .18$, $n = 37$, n.s.) or for the non-teleworkers ($r = .08$, $n = 37$, n.s.). Although this relation tended to be stronger for teleworkers than non-teleworkers, the difference in association was not statistically significant (Fisher's $z = .42$, n.s.).

Due to the low reliability of the Role Overload measure, this analysis was recalculated using disattenuated correlations, following Block's (1963) procedure. Again, there was no relationship between family interference with work and the role overload

scale for the teleworkers (r = .26, n = 37, n.s.) or for the non-teleworkers (r = .11, n = 37, n.s.). The difference in association was not statistically significant (Fisher's z = .64, n.s.).

H3: The negative relationship between Work-Family Conflict and Job Satisfaction will be weaker for the teleworkers than for non-teleworkers.

There was no significant relationship between work interference with family and job satisfaction for the teleworkers (r = -.18, n = 37, n.s.) but a significant negative relationship occurred for the non-teleworkers (r = -.35, n = 37, $p < .05$). This difference in association, however, was not significant (Fisher's z = .76, n.s.).

There was no relationship between family interference with work and job satisfaction for the teleworkers (r = -.11, n = 37, n.s.) or for the non-teleworkers (r = -.15, n = 37, n.s.). This difference in association was also not significant (Fisher's z = .17, n.s.).

H4: The negative relationship between Job Satisfaction and Role Stress will be weaker for the teleworkers than non-teleworkers.

There was no significant relationship between job satisfaction and the role ambiguity scale for the teleworkers (r = -.19, n = 37, n.s.) but a significant negative relationship did occur for the non-teleworkers (r = -.67, n = 37, $p < .05$). This difference in association was significant (Fisher's z = 2.55, $p < .05$).

There was no significant relationship between job satisfaction and the role conflict scale for the teleworkers ($r = -.15$, $n = 37$, n.s.) but there was a significant negative relationship for the non-teleworkers ($r = -.53$, $n = 37$, $p < .05$). This difference in association was significant (Fisher's $z = 1.81$, $p < .05$).

There was no relationship between job satisfaction and the role overload scale either for the teleworkers ($r = -.10$, $n = 37$, n.s.) or for the non-teleworkers ($r = -.22$, $n = 37$, n.s.). This difference in association was not significant (Fisher's $z = .51$, n.s.).

Due to the low reliability of the Role Overload measure, this analysis was recalculated using disattenuated correlations, following Block's (1963) procedure. Again, there was no relationship between job satisfaction and the role overload scale for the teleworkers ($r = -.13$, $n = 37$, n.s.) or for the non-teleworkers ($r = -.30$, $n = 37$, n.s.). The difference in association was not statistically significant (Fisher's $z = .86$, n.s.).

H5: The relationship between Work-Family Conflict and Job Performance will be weaker for the teleworkers than non-teleworkers.

There was no relationship between work interference with family and employee rated job performance either for the teleworkers ($r = -.03$, $n = 37$, n.s.) or for the non-

teleworkers ($r = -.03$, $n = 37$, n.s.). This difference in association was not significant (Fisher's $z = .00$, n.s.).

There was no significant relationship between family interference with work and employee rated job performance for the teleworkers ($r = .14$, $n = 37$, n.s.) but there was a significant negative relationship for the non-teleworkers ($r = -.37$, $n = 37$, $p < .05$). This difference in association was significant (Fisher's $z = 2.18$, $p < .05$).

There was no significant relationship between work interference with family and the supervisor rated job performance for the teleworkers ($r = -.13$, $n = 37$, n.s.) but there was a significant positive relationship for the non-teleworkers ($r = .37$, $n = 31$, $p < .05$). This difference in association was significant (Fisher's $z = -2.14$, $p < .05$).

There was no significant relationship between family interference with work and the supervisor rated performance for the teleworkers ($r = -.03$, $n = 37$, n.s.) but there was a significant positive relationship for the non-teleworkers ($r = .37$, $n = 31$, $p < .05$). This difference in association was significant (Fisher's $z = -1.98$, $p < .05$).

3.5.1 Telework as a Moderating Variable

The results for H3, H4, and H5 strongly suggest that telework is a moderator of the relationships. A test of the moderating effect was performed using a hierarchical regression procedure with work interference with family and family interference with

work as separate criteria (Stone, 1986). Work interference with family as the criterion was tested first. In the first step the three role stress measures, job satisfaction, and the performance measures for employees and supervisors were entered. Role conflict ($t = 2.155$, $p < .05$) and role overload ($t = 3.054$, $p < .05$) were both significant predictors of work interference with family. In the second step work arrangement, whether the employee was a teleworker or not, was entered. Here, role conflict ($t = 2.041$, $p < .05$) and role overload ($t = 2.908$, $p < .05$) remained significant predictors. In the final step cross products of work arrangement and the three role stress measures, job satisfaction, and the performance measures were entered. At this stage, role conflict ceased to be a significant predictor of work interference with family and only role overload remained ($t = 2.982$, $p < .05$). Each model in the hierarchical regression was significant when work interference with family was the criterion (See Table 10). Entering the cross products on the last step accounted for 5% of the variance. Although this was not significant it was in the predicted direction. When family interference with work was the criterion none of the models were significant and none of the predictors were significant under any of the models (See Table 10).

Table 10. Hierarchical Regression: testing the moderating effect of work arrangement on work interference with family and family interference with work

Predictor	Beta	R	R^2	ΔR^2	F	p
Work Interference with Family						
Step 1		.54	.29	.29	5.50	.001
Role Ambiguity	-.15					ns
Role Conflict	.23					ns
Role Overload	.45					.004
Job Satisfaction	-.03					ns
Self - Performance	.17					ns
Supervisor- Performance	.18					ns
Step 2		.54	.29	.01	.74	ns
Work Arrangement	.51					ns
Step 3		.59	.34	.05	.92	ns
Group x Role Ambiguity	.60					ns
Group x Role Conflict	.10					ns
Group x Role Overload	-.33					ns
Group x Job Satisfaction	.28					ns
Group x Self - Perf.	-.45					ns
Group x Supervisor - Perf.	-.72					ns
Full Model: R =.585, F (13, 75) = 3.00, p < .05						
Family Interference with Work						
Step 1		.28	.08	.08	1.12	ns
Role Ambiguity	.01					ns
Role Conflict	-.23					ns
Role Overload	.29					ns
Job Satisfaction	-.14					ns
Self - Performance	.02					ns
Supervisor- Performance	.14					ns
Step 2		.28	.08	.00	.00	ns
Work Arrangement	-1.16					ns
Step 3		.35	.12	.04	.60	ns
Group x Role Ambiguity	.33					ns
Group x Role Conflict	.80					ns
Group x Role Overload	-.23					ns
Group x Job Satisfaction	.10					ns
Group x Self - Perf.	.50					ns
Group x Supervisor - Perf.	-.30					ns
Full Model: R =.35, F (13, 75) = .77, ns						

3.6 Qualitative Analyses

The following section presents the information obtained through the interviews with 15 teleworkers at Organization B. For the purposes of this study each interview was reviewed with respect to understanding the general impact of teleworking on the individual employee as well as the impact upon more specific issues related to a more thorough understanding of the impact upon work and family linkages.

3.6.1 Background Information

The teleworkers in Organization B were managers who had an average tenure of 18 years with the organization. There was an almost even division between females and males in that 8 women and 7 men agreed to be interviewed. Only one of the 15 teleworkers was single with two grown children, otherwise the rest were married and most had at least two children. The majority of the employees had been teleworking since the start of the teleworking trial. The number of days they teleworked varied between one to four days per week. All teleworkers were expected to visit the office at least once per week, if only for meetings or mail retrieval. Teleworkers heard about the option to telework through a number of different mechanisms. These included through FYI bulletins distributed throughout the organization, through membership on their organization's committee Quality Action Team (QAT) that had researched teleworking and developed the initial pilot test, and through informal networks of friends, feedback from their own managers, word of mouth, and rumors.

Employees chose to telework for a number of reasons. Many of the employees thought teleworking would make it easier to manage/balance the demands of work with family life. Most of the employees noted they already had the necessary computer equipment at home (which reduced the initial costs for the company), and were working on projects that were amenable to relocating to their home work site. Frequently they cited the opportunity to reduce commuting time and to have quieter work surroundings, which would make it easier to plan products.

3.6.2 General Impact on Work Factors and Home Life

Generally, most of the teleworkers felt they had more leisure time as they were able to get household tasks done in the time they would usually spend getting ready for work and in commuting. Two teleworkers indicated that they did not have more leisure time as they felt the need to read and work more outside normal working hours to stay competitive due to job cutbacks. However, all of the teleworkers reported they experienced an enhanced sense of well-being by engaging in teleworking. Teleworking may have had a general positive benefit on health as many of the teleworkers reported being able to use their time differently, to by eat healthier meals and to exercise more frequently. They also believed that their overall stress was reduced. Most stated they would recommend teleworking to others.

When asked how satisfied they were with teleworking, all but two of the teleworkers gave it a 10 out 10 rating. The other two gave it an 8 out of 10 due to feelings of isolation, expressing an increased sense of loneliness about a year after teleworking. All of the teleworkers believed that there was a significant reduction in role stress as a result of being able to telework.

Every teleworker believed their job effectiveness was enhanced through teleworking. For instance, most felt they could do in one day what it would normally take them two to three days to accomplish at the office. Some of the reasons they offered for this increase in job performance were: decreased noise and distractions/ interruptions from others, increased ability to plan own time to meet daily work expectations, increased ability to control/maintain control over their own work environment, less energy expenditure on non-work related socialization, and through the health benefits obtained from working at home. Some teleworkers mentioned they took shorter breaks (no one to socialize with) and also tended to work extra hours to complete projects at home to finish projects more quickly. Almost half said they tended to work overtime.

They also reported that they lost less work time due to sickness. The increased flexibility of teleworking allowed them to complete work tasks while sick at home. Prior to teleworking, most teleworkers indicated they would have usually missed two to three days of work per year. The teleworkers were also able to work when children became sick unexpectedly and had to stay home from school. One teleworker with chronic health problems would probably not have been able to work back in a regular work

environment. The teleworkers believed all of these factors helped to enhance their job performance.

3.6.3 Work and Home Life Balance

3.6.3.1 Impact on Family Relationships

The majority of teleworkers noted their family members had very favorable reactions to the news that they would begin teleworking. Many teleworkers felt better just being at home in case of family emergencies. They mentioned that the younger children seemed calmer and appeared to feel safer having a parent in the house, even if they were unavailable for in depth contact because they were working. This was reflected in the comment "through teleworking I not only have the opportunity to be at home with my children at lunch time, but have been able to reduce the stress associated with getting my family members off to work or school." A couple of teleworkers reported that their family members initially expressed some concern over the negative impact household noise could have on their job performance. They reported that these types of problems were quickly and easily resolved.

3.6.3.2 Management of Household Responsibilities and Child Care

There were gender differences with respect to whether teleworking made it easier to manage work-family conflicts. Most male managers had partners who were full time

homemakers; therefore, they did not appear to be as involved in daily tasks associated with running their household. Decreasing the stress associated with managing work-family conflicts did not seem to make as much difference to the male employees as it did to the female employees.

Female teleworkers appeared to benefit most as they were more involved in managing work-family conflicts. Furthermore, all of the women, regardless of their parenthood status, or differing ages of their children, found many benefits in being able to work at home. They noted decreases in work family conflict through teleworking and denied any difficulty in feeling pulled to address home related issues while engaging in paid work. Through having both family and work tasks located at one site, they believed teleworking made it easier to juggle all the demands associated with successful management of both arenas of life. These effects were particularly pronounced for the single parent who reported experiencing a great deal of difficulty trying to manage work and family responsibilities alone. Less than a quarter of the teleworkers would have liked the opportunity to change the number of days they worked at home. In particular, female teleworkers expressed a preference for spending more days per week teleworking.

Managing interruptions while working at home was initially problematic. For example, teleworkers had to teach young children about when it was appropriate to disturb them. The children had to develop an understanding that their parents were undertaking paid work while at home. However, most teleworkers with young children did not change their child care arrangements, e.g., they continued to employ a baby-sitter

for child care while they worked or continued day care arrangements. Male teleworkers mostly had partners who were at home and cared for the children full time. Many male teleworkers became more fully involved in their children's lives. They reported increased frequency in driving their children to and from extracurricular activities.

Teleworking was definitely not seen as a substitute for child care. Teleworkers did not believe that it was possible to combine care of children of any age with effective working. However, some parents with older school age children no longer saw the need for after school baby-sitters; their children were taught to do homework or other tasks until their parents finished work. Teleworkers said they now spent more time with their children. They were there to see them off to school and to be there when they returned for lunch. Also, the time they usually spent commuting was instead spent with the children. Teleworking parents also felt less guilty about not being able to spend as much time as they would like with their children. Only one teleworker felt that telework caused problems for child care arrangements because it was more difficult to get someone to care for her children only on an occasional basis.

There was no consensus on whether teleworking led to increased opportunity to take care of household tasks during the work day. For some teleworkers nothing changed; for others, more household tasks were accomplished at home because of less time spent in commuting. Teleworkers also felt that because they were around the household that they should take time to do things for their families. For example, some teleworkers were more likely to do laundry during their lunch break, or to start cooking

supper because they were home earlier than their partner. Only one teleworker reported that her partner had initially expected her to do more around the house when she was at home.

Teleworkers reported believing there were differences in what they expected from themselves and family members with respect to household work. Initially, while adjusting to telework, some family members roles changed due to the teleworkers' presence in the home throughout the week. However, over the longer term these changes reverted to pre-telework activities as family members adjusted to teleworking. Some female teleworkers believed that their children had less to do around the house since they began teleworking. They also believed that telework provided them with the opportunity to do more things they had always wanted to do for their children. Children were able to come home from school knowing a parent was in the house in case of emergencies and "settled better."

Chapter 4

Discussion

4.1 Purpose of the Study

Successful management of the competing demands associated with work and family continues to be of importance for North American families. Telework arrangements provide organizational employees with unique opportunities to enact both family and work roles within the same environmental setting. Telework also gives organizational researchers the opportunity to more thoroughly investigate the work-family interface.

The overarching purpose of this study was to advance current understanding of the work-family interface by testing specific theoretical models of work-family linkage in a balanced sample of teleworkers and non-teleworkers. Through applying components of the spillover and conflict models this study first sought to determine if telework blurred the boundaries between work and family. Two other questions directly emanated from this focus on blurred boundaries. Specifically, what effect, if any, does blurred boundaries have on known relationships between work and family variables? Finally, what is the impact of the blurring of boundaries for teleworkers? Are there positive or negative effects experienced from adopting this alternative work arrangement?

4.2 Overview of Control Analysis Findings

Generally, little is known about the impact that the number of days teleworked per week and the length of time spent teleworking have on teleworking outcomes. The first control hypothesis explored whether teleworking alone, regardless of the number of days teleworked, altered organizational outcomes. Prior research into this question has produced equivocal results. Hartman et al. (1991) examined a number of different variables such as teleworking satisfaction and productivity to determine if the ratio of time spent teleworking affected these variables. They expected productivity to increase inverse with the amount of time spent teleworking. Teleworking productivity was significantly to the proportion of time teleworked; however, in the opposite direction from that predicted. Productivity declined as the ratio of telework per week increased. Likewise, there was no relationship between the ratio of amount of time teleworked with telework satisfaction (Hartman et al., 1991).

Ramsower (1985) dichotomized her small teleworking sample into a part-time or a full-time classification. Unfortunately, this type of categorization precludes the ability to make clear statements about effects associated with specific days per week teleworked. Full-time teleworkers, for instance, could have worked for either four to five days per week, whereas part-time teleworkers could have worked between two to three days per week. Subjects that worked less than two days per week did so only on an occasional basis and were not considered in her analysis. Teleworkers and control subjects did not vary on job performance. However, a different pattern of results emerged when job

satisfaction was measured in relation to full-time or part-time status. Specifically, the full-time teleworkers reported experiencing decreased job satisfaction with their ability to work alone, amount of variety, job security, office working conditions, and opportunities for job advancement; part-time teleworkers reported experiencing increased job satisfaction with their ability to work alone and with their job security. There were, however, a number of methodological problems in this very small study (Ramsower, 1985) make these findings doubtful.

Unlike the Hartman et al. (1991) and Ramsower (1985) studies, the current study examines the impact that the specific number of days teleworked had on organizational variables. The number of days teleworked had no effect. There may be a variety of reasons for this outcome as the current teleworkers in this study, unlike those in the earlier investigations, did not come from different work organizations, did not contain mixed occupational groups from occupational groups, and did not come from the same geographical locations. Determining the impact of the number of days teleworked may be a more complicated process than initially expected (Hartman et al., 1991; Standen et al., 1999). Consequently, since there were no significant differences across the number of days teleworked with role stress, job satisfaction or job performance, the teleworkers were treated as a single group for the remaining analyses.

The second control analysis examined the impact of teleworking tenure. The few studies that have examined it report equivocal outcomes. Approximately, two-thirds of the subjects in the Hartman et al. (1991) study had teleworked for less than two years,

while the remaining one-third had teleworked for less than one year. Teleworking tenure was not related to either productivity or teleworking satisfaction (Hartman et al., 1991). The current study examined the impact of teleworking tenure on role stress, job satisfaction, and job performance. Teleworking tenure did affect job satisfaction and employee rated job performance. The longer the employees were involved in teleworking the higher they rated both their job performance and job satisfaction.

The interview data corroborated this effect. Teleworkers reported initial difficulties with equipment, obtaining adequate technical support, and a lack of support from their non-teleworking colleagues and supervisors, as factors that adversely affected both their job performance and satisfaction. Therefore, in subsequent analyses involving employee rated job performance and job satisfaction, the effects of teleworking tenure were removed through partialling out their effects. In every case there were no changes in any of the relationships that resulted after controlling for teleworking tenure.

4.3 Overview of Hypotheses Findings

Earlier telework research focused primarily on child care management issues (Christensen, 1988; Olson & Primps, 1984). More recent efforts have considered its broader impact on work and family well-being (Hartman et al., 1991; Hill et al., 1996). For non-teleworking employees, work interferes with family to a greater extent than family interferes with work. The simultaneous demands of both work and family on teleworkers had not been previously investigated. There was speculation that teleworking

would "blur the boundaries" between work and family, but this was never verified. One reason people often give for not teleworking is the fear of losing the clear boundary between work and family life (Zedeck & Mosier, 1990).

The first hypothesis investigated whether telework blurred the boundaries between work and family. Specifically, the positive relationship between work interference with family and family interference with work was expected to be stronger for teleworkers than for non-teleworkers. Intuitively, with the distinct removal of the separation between work and family through telework, the boundaries between these two, usually separate domains for traditional workers, should blur. Examining work-family conflict from a bi-directional perspective provides an opportunity to determine how work interferes with family as well as how family interferes with work. This stronger relationship would be predicted from spillover theory in that interference flowing from work to family would also flow back from family to work and vice versa since "spillover occurs when the effects of work or family spill over from one to the other" (Lambert, 1990). Without the boundary that separates work from family and family from work, teleworkers who also experience increased interference from one domain would more likely be predisposed to experience increased interference from the opposite domain at the same time.

Work interference with family and family interference with work were positively correlated with each other, but only for the teleworkers, confirming the expected relationship. As teleworkers experience more work interference with family they also

experience more family interference with work and vice versa. However, non-teleworkers who have distinct physical boundaries between work and family did not experience this work interference with family and family interference with work relationship. Teleworking arrangements likely produce a blurring between work and family domains. This blurring of boundaries may further affect existing relationships between work, family, and organizational variables.

As employees experience more work family conflict they experience more job stress (Cooke & Rousseau, 1984; Duxbury & Higgins, 1991; Judge et al., 1994). This relationship for teleworkers may change when they are surrounded by simultaneous demands from both work and family domains. It was predicted that family interference with work would correlate with role stress and that this relationship would be stronger for the teleworkers. Under teleworking conditions, the location of work changes, not the nature of the work tasks. As the work domain is superimposed into the previously established family environment, it may increase the potential for the family domain to exert a differential effect through blurred boundaries. The home environment could potentially act as a discriminative stimulus (Ferster & Culbertson, 1982), thereby, initiating responses to family related matters in lieu of work concerns.

Family interference with work was positively related to two of the three measures of role stress, role ambiguity and role conflict, for the teleworkers but not for the non-teleworkers. A blurred boundaries perspective would argue that a physical separation between their work and family lives afforded the non-teleworkers with some protection

against family intrusion upon working life. Not unexpectedly, teleworkers experience demands from family life while working at home. Anyone who has attempted to perform some of their daily work at home has experienced this. In the case of teleworkers, the opportunity for family life intrusion is greater.

For teleworkers, their external home environment becomes their work environment, the "others with whom they are involved," unlike their non-teleworking colleagues, also include family members. Although technology does provide the means for teleworkers to remain connected to their co-workers, their home work location gives them much greater exposure and on-going contact with family members. As family interferes more with work teleworkers may experience more role stress through feeling both increased ambiguity and conflict over what and whom to respond to first. For teleworkers the family domain is in close proximity to their work setting. This situation does not give teleworkers the same chance to choose when or how to respond to competing demands from the family environment. The work and home boundaries become blurred through teleworking arrangements. One outcome is an increase in the opportunity for family matters to contribute either directly, or indirectly, to the stress experienced by the teleworkers. This negative outcome of teleworking should be considered along with the potential benefits when employees consider this work arrangement.

Conversely, other results for this study suggest that blurred boundaries may operate in a positive manner. A negative relationship between role stress and job

satisfaction generally occurs among non-teleworking employees (Spector, 1996). It is possible that blurred boundaries function to alter this relationship for teleworkers when the home environment becomes the extrinsic working environment. This negative relationship between job satisfaction and role stress was expected to be weaker for teleworkers than non-teleworkers.

Consistent with past research, a significant negative relationship between job satisfaction and the role stress measures of role ambiguity and role conflict occurred for the non-teleworkers, but not the teleworkers. Job satisfaction was not related to any of the three job stress measures in the teleworker group. Consistent with blurred boundaries, other processes unique to the home or teleworking environment may have influenced job satisfaction, beyond those normally associated with role stress. Teleworking job satisfaction may be more closely tied to factors associated with family well-being and less connected to role stress. Similarly, role stress may be more closely tied to facets of the family environment and less dependent upon organizational influences such as job satisfaction.

A negative relationship generally occurs between work-family conflict and productivity among non-teleworking employees (Googins, 1991). The extent of this relationship under teleworking conditions is not known. A blurred boundaries perspective suggests that the relationship between work family conflict and job performance would be weaker for the teleworkers. There were no significant relationships between the work interference with family and the employee rated job

performance measure for either the teleworkers or the non-teleworkers; however, there was a positive relationship between the supervisor measure of job performance and the work interference with family measure, but only for the non-teleworkers. Employees who were perceived by their supervisors as being hard working were more likely to be rated as having better job performance, but only when the supervisors were able to directly observe their employees. Supervisors are generally reluctant to permit employees to telework (McGee, 1988). It becomes more difficult for supervisors to evaluate teleworker job performance because they are unable to make direct observations of the employee's work behavior. This may help to explain the lack of relationship between work interference with family and supervisor rated job performance; supervisors may feel less able to evaluate the work of off-site employees who are no longer visible.

Similar results occurred when the supervisor's rating of performance was used with the family interference with work measure for the teleworkers and non-teleworkers. As for work interference with family, when supervisors were directly able to observe their employees, they were more likely to rate those employees with higher family interference with work as having increased job effectiveness. In an office environment, colleagues and supervisors have opportunity to directly observe and interact with one another. If an employee is experiencing an increase in family interference with work, it is clearly obvious to others, particularly co-workers and supervisors. Concern about perception of family interference with work may prompt employees to make supervisors aware of burdens experienced as a result of extra family demands. Through discussions with supervisors employees may attempt to reassure their supervisors by noting the extra

efforts they are taking to ensure that job performance is hampered as little as possible. One consequence of this strategy may be that supervisors do not penalize or judge those employees negatively when making job performance appraisals.

The employee self ratings of job performance produced different results for the supervisors rating with respect to the teleworkers. For the teleworkers, their perceptions of family interference with work and self ratings of job performance were uncorrelated. For the non-teleworkers, however, there was a negative relationship between these two variables. Non-teleworkers working at the office site, higher levels of family interference with work were associated with lower job performance ratings. This relationship did not occur among the teleworkers. Teleworkers did not perceive a connection between family interference with work and their ability to perform their jobs. Perhaps, in teleworking situations it is not the actual level or amount of work family conflict that is experienced that matters as much as the way that working from a home work site allows teleworkers to handle their work family conflict differently and without direct impacts on their effectiveness.

Work-family conflict is negatively associated with job satisfaction for most employees (Adams et al., 1996). When employees balance work and family, with less impact of work on family, both work satisfaction and organizational commitment increase (Scandura & Lankau, 1997). However, the greater the tension and conflict between the roles of work and family, the greater the likelihood of job dissatisfaction (Gignac et al., 1996). Similar relationships occur in teleworking; there is a negative

relationship between family disruptions and job satisfaction (Hartman et al., 1991). Again, based on a blurred boundaries perspective, the negative relationship between work family conflict and job satisfaction should be weaker for teleworkers than for non-teleworkers. As expected, a negative relationship between job satisfaction and work family conflict occurred in the non-teleworker group. Although the relationships for teleworkers were weaker than for non-teleworkers, the differences were not significant.

The results for the last three hypotheses were strongly suggestive that telework moderates the relationships between the variables. To test this possibility moderated regression analyses were conducted using either the work interference with family measure or the family interference with work measure as the criterion. Analysis revealed different outcomes for the two measures. When family interference with work was used as the criterion, none of the models, or any of the predictors was significant. However, when work interference with family was used as the criterion, different results were obtained in that models 2, 3, and 4 were significant. This suggests that telework does moderate the relationships between work interference with family and certain family and organizational variables. Furthermore, the results are suggestive that work interference with family and family interference with work are two different processes that are predicted by different factors. Those factors that predict work interference with family are more likely to interact with telework as neither the relationships nor the interactions occurred for family interference with work.

4.3.1 Conclusions from Quantitative Findings

Number of days teleworked did not affect the different organizational variables. However, the longer teleworkers had been engaged in this alternative work arrangement the more satisfied they were and the higher they rated their job performance. These effects of tenure on teleworking did not affect any of the relationships examined in the study.

The first goal of this study was to determine if teleworking blurred the boundaries between the work and family domains and then to determine if blurred boundaries in teleworking affected specific relationships between work and family variables. The results supported three of the four study hypotheses that predicted specific differences in the relationship pattern for teleworkers and non-teleworkers. The unsupported hypothesis was, however, in the predicted direction. Relationships between work, family, and organizational variables that are generally found among traditional employee did not occur in the teleworking conditions. Similarly, relationships that do not generally occur in among traditional employees occurred in the teleworking situation. Blurring the boundaries between work and family may lead to the home environment being perceived as the environment in which the paid work is undertaken, thus, it becomes the one that exerts the greatest differential effect on the employee. Blurred boundaries between work and family may also facilitate work family conflict being handled in such a way that organizational variables like job performance and job satisfaction are affected differentially.

Role overload was not related to any of the study variables. One reason for this may be attributable to the low reliability of the measure (Beehr, et al., 1976) that may have attenuated true correlations with other study variables. However, a recalculation of the correlations correcting for attenuation (Block, 1963) did not change any of the outcomes. Thus, future research may want to further investigate the measurement of role overload.

In summary, blurred boundaries appear to occur in teleworking arrangements and to play a role in altering some important relationships between work, family, and organizational relationships.

4.4 Overview of Qualitative Findings

The overarching purpose of the study was to determine if blurred boundaries occur through teleworking, and if so, what were some of the impacts as a result of the altered work environment. Interview questions had to be structured in such a way that met both the competing needs of the work organization, as well as of the primary purpose of the study. These facts, coupled with the general time constraints for the teleworkers limited the extent of the interview process.

Generally, the interview data suggested that the teleworkers derived a great deal of benefit from working at home. They believed that telework helped them to more

successfully manage their work-family conflicts and demands. Teleworkers with children reported maintaining prior child care arrangements, as thy recognized that it would not be possible to undertake paid work while looking after young children. It appeared that they did this as a strategy to prevent interference from occurring between the family to work spheres, as a way to possibly reduce or prevent family interference with work. Blurred boundaries between work and home appeared to operate in a positive fashion for the teleworkers. For instance, teleworkers with children reported that one of the greatest benefits was being able to have more time to spend interacting, teaching, and caring for their children. These benefits included the ability to be at home for lunch with their children and to be there when the older children returned home from school.

Teleworkers did not have to be parents to experience the benefits of being able to handle work and family demands in the same environmental setting. Teleworkers without children also reported substantial benefits. This negates one of the long held myths that teleworking is only useful for people with children (Christensen, 1992). Telework facilitated better use of break times, as the teleworkers were able to undertake household or family tasks during the time they would have usually spent with co-workers when working at the office. This ability to undertake household tasks during the week created additional opportunities for more leisure on weekends. Typically, teleworkers did not appear to attribute working from home with increasing their role conflict or pulling them in two competing directions. In fact, the interviews suggested that telework made it much easier to manage the normal types of work-family conflict experienced by all

workers. The overall benefits from teleworking appear to outweigh most of the negative consequences.

While interviews allow an opportunity to probe phenomenon in a way that is not possible through quantitative sources, there are, a number of caveats to consider. Some of the interview questions were retrospective in nature, and may have introduced some inaccuracy into the answers. Regardless, the interview data clearly indicate that the teleworkers found working at home to be very beneficial and wanted this work option to continue. The interviews were conducted to provide a richer understanding of what happens in teleworking. Clearly, the teleworkers who chose to participate in the interview process wanted the teleworking arrangement to continue because they believed it helped them to manage their work and family lives successfully.

4.5 Comparison of Quantitative and Qualitative Findings

Generally, there is a great deal of consistency between the results for the quantitative and qualitative aspects of the study. The strong positive correlation between work interference with family and family interference with work indicates the blurring of the boundaries between work and family and family and work. It was apparent from the interviews that these two domains do not remain separate or distinct from one another in teleworking conditions. As observed throughout the interview process, the teleworkers developed a number of strategies to cope with preventing the negative effects of blurred boundaries and found ways to maximize the benefits of working at home. For instance,

teleworkers with young children maintained prior child care arrangements. This strategy was beneficial in reducing the opportunity for escalating family interference with work to increase job pressures and role stress. Teleworkers reported being able to do more things with and for their children. Men, particularly, noted the benefits they experienced in terms of being available to handle family emergencies. Other studies have noted similar benefits (Hill et al., 1996; Olson & Primps, 1984). Teleworkers without children appreciated the additional flexibility gained through teleworking.

Many of the teleworkers had teleworked for lengthy periods of time; their accounts are retrospective and may be influenced by their unique experiences. Comparative data for non-teleworkers would have helped to put these retrospective accounts into perspective. Interviews with teleworkers as they are adjusting to the new work arrangement would shed light on the accuracy of the retrospective accounts reported here.

4.6 Methodological Strengths of the Study

Past teleworking research has generally lacked methodological rigor. For the most part, this research consisted primarily of case studies, often based solely on interview data, had very small sample sizes, lacked control or comparison groups, or were conducted by individuals who may have been biased with respect to the desired outcome of the research. Many studies were unclear about their basic definitions of teleworkers

and used "teleworkers" who would not meet the stricter definition of teleworking used in this study. These limitations make it difficult to compare results across studies.

There are a number of ways in which this study improved on existing research. This study used a quasi-experimental field research design with a balanced sample that used a stricter definition of organizational teleworking. It had a larger number of subjects than earlier quasi-experimental investigations into telework. The control group was recruited from within both the same work organization and work group as the teleworking employees and was doing the same types of jobs as their teleworking counterparts. Unlike many prior studies that recruited across a large number of different work organizations and over wide spread geographical areas this study's sample was comprised of two organizations located within the same city and had better comparability between the teleworker and non-teleworker groups.

This study also used well established empirical measures that have been extensively and frequently used throughout industrial/organizational research. Other strengths include improving the work-family conflict measurement by capturing its bi-directional quality. Ecological validity of the research was improved by using corporate, not community samples. In addition, this measure of work-family conflict has been used in other research that investigated the impact of alternative work arrangements (Gottlieb et al., 1998). Besides focusing solely on the quantitative component, this study also added a qualitative component based on in-depth interviews with teleworkers. This afforded the opportunity for a more thorough examination of the information regarding

the impact on work-family linkages to determine if similar findings are reflected in qualitative accounts and quantitative measures.

Despite general difficulties with measurement of effectiveness, this study did undertake a multi-method data collection procedure by obtaining supervisor assessments of employee job performance in addition to self-reports for employees. Finally, unlike other telework studies, the primary investigator of this study was not associated with either of the work organizations, thereby, reducing the potential for bias that might arise from having a vested interest in the outcome.

4.7 Limitations of the Study

There are methodological limitations in this study that need to be addressed. Although this sample improved considerably on the earlier study by Ramsower (1985), it was too small to permit an analysis of the impact of gender or parental status on the perception and experience of blurred boundaries. It was not possible to randomly assign employees to teleworking conditions and the best research design feasible was quasi-experimental, making it difficult to make clear causal statements.

One drawback of survey research is a low response rate (Isaac & Michael, 1985). This study enjoyed higher response rates than are typical with this type of research methodology. However, the response rate was not the same for the teleworkers and non-teleworkers. Despite taking every opportunity to ensure employees that their responses

would remain anonymous, some may have chosen not to participate because of fear that their employers may have had access to information about their private lives. The study was labeled a "work options study" and non-teleworkers may have felt that the study was not relevant to them and may have not chosen to participate.

The interview process with the teleworkers provided valuable information about their experience. Unfortunately, it was not possible to interview the non-teleworkers and directly compare qualitative experiences regarding work family balance issues. It would have been even better if interviews could have been carried out over the course of undertaking and adjusting to the new work arrangements.

The measures used in this study were, for the most part, psychometrically sound with histories of successful use in organizational research. The exceptions were with the role overload and job performance measures. Although job performance estimates were obtained for both supervisors and employees, the difficulty with the measure affected the conclusions that could be drawn about performance effects and teleworking. Future research must find and utilize better measures of both role overload and job performance.

4.8 Future Research

This study investigated whether blurred boundaries occur through teleworking arrangements and if so what are the consequences for teleworkers. Boundaries between work and family appeared to become blurred through teleworking arrangements. Future

research, with a larger sample size, should explore the impact of gender or parental status on the outcomes.

Ideally, both teleworkers and a balanced sample of non-teleworkers should be evaluated before teleworking trials are initiated. The evaluation should take place over the length of the teleworking arrangement. It is important to include both a quantitative and qualitative component as the data from these two sources may reflect different aspects of the teleworking arrangement. This would also facilitate better understanding how people adjust to teleworking arrangements in terms of managing the work-home boundary.

Perhaps successful long term teleworkers have individual characteristics or ways of coping to more easily contain themselves or remain focused within either the work or home domain. Family characteristics may also influence how teleworkers adjust and manage while working at a home work site. Conducting interviews at the teleworker's home provides valuable information and more thoroughly illuminates underlying processes or mechanisms that teleworkers use to successfully manage the competing demands of both domains. Furthermore, home interviews enhance ecological validity.

Despite attempts at more effectively measuring job performance it is clear that this area will continue to require refinement. Telework researchers frequently report the need for more effective measures of job performance and suggest that they should be in place before employees begin to telework. Many of the earlier studies reported gains in

productivity through teleworking (DuBrin, 1991; Frolick et al., 1993; Hamilton, 1987), but are unclear in reporting how these gains were measured. This study attempted to address some of the limitations in measuring job performance. Future research could build on this effort by adopting a job performance measurement tool suggested by more recent research (Gottlieb et al., 1998). In this measure both employees and their supervisors are asked questions such as 'how often does your work meet or exceed job performance expectations in terms of areas such as: quality of work, accuracy of work, concentration on work, completion of work on time, keeping abreast of changes and new information, quality of service to customers (if applicable), and other (specify)' (Gottlieb et al., 1998, p.73).

4.9 Conclusions

To date few studies have attempted to determine if blurred boundaries occur, and if so, what are some of the effects for employees who telework. On the whole, there have been even fewer methodologically sound investigations into telework. The primary focus of previous research was limited to the more solitary focus on how teleworking affects single work or family related variables. It did not address how telework affected work, family, and organizational relationships.

Despite its limitations and as recommended by recent research (Standen et al., 1999) this study suggests that it is important to be concerned with developing a more broad focus regarding investigations into the effects of teleworking arrangements.

Specifically, it appears that the boundaries between work and family are blurred through teleworking conditions. More importantly, it appears that some previously established relationships between work and family are fundamentally altered under teleworking conditions. The next step is to conduct additional research with larger samples to determine if these outcomes are replicable, and if they do generalize to other teleworking situations. Undertaking time series analysis might provide a particularly effective means for determining what happens over the course of adopting and adjusting to a telework arrangement.

Appendices

Appendix A: Work-Family Conflict Questionnaire

Using the scale shown below, please circle the number that indicates how often the following things happen to you.

1 Never **2 Sometimes** **3 Often** **4 Almost Always**

	N	S	O	AA
1. I have to change plans with family members because of the demands of my job.	1	2	3	4
2. After work, I have little energy left for the things I need to do at home.	1	2	3	4
3. I would put in a longer work day if I had fewer family demands.	1	2	3	4
4. When I am at work, I am distracted by my family demands.	1	2	3	4
5. Job demands keep me from spending the amount of time I would like with my family.	1	2	3	4
6. I think about work when I am at home.	1	2	3	4
7. My family demands interrupt my work day.	1	2	3	4
8. Things going on in my family life make it hard for me to concentrate at work.	1	2	3	4
9. Job responsibilities make it difficult for me to get family chores/errands done.	1	2	3	4
10. I do not listen to what people at home are saying because I am thinking about work.	1	2	3	4
11. Family demands make it difficult for me to take on additional job responsibilities.	1	2	3	4
12. Events at home make me tense and irritable on the job.	1	2	3	4
13. To meet the demands of my job, I have to limit the number of things I do with family.	1	2	3	4
14. After work, I just need to be left alone for awhile.	1	2	3	4

	N	S	O	AA
15. I spend time at work making arrangements for family members.	1	2	3	4
16. Because of the demands I face at home, I am tired at work.	1	2	3	4
17. My job prevents me from attending appointments and special events for family members.	1	2	3	4
18. My job puts me in a bad mood at home.	1	2	3	4
19. Family demands make it difficult for me to have the work schedule I want.	1	2	3	4
20. I spend time while working thinking about the things that I have to get done at home.	1	2	3	4
21. The demands of my job make it hard for me to enjoy the time I spend with my family.	1	2	3	4
22. My family life puts me into a bad mood at work.	1	2	3	4

Appendix B: Role Stress Questionnaire

The following statements concern how you feel about your responsibilities at work and the expectations that others have of you on the job. Using the scale below please circle the number that best represents how you feel about each of the following statements.

1	2	3	4	5
Strongly Disagree		Neutral		Strongly Agree

	SD		N		SA
1. I feel secure about how much authority I have.	1	2	3	4	5
2. Clear, planned goals and objectives exist for my job.	1	2	3	4	5
3. I know that I have divided my time properly.	1	2	3	4	5
4. I know what my responsibilities are.	1	2	3	4	5
5. I know exactly what is expected of me.	1	2	3	4	5
6. Explanation is clear of what has to be done.	1	2	3	4	5
7. I have to do things that should be done differently.	1	2	3	4	5
8. I receive an assignment without the manpower to complete it.	1	2	3	4	5
9. I work with two or more groups who operate quite differently.	1	2	3	4	5
10. I have to buck a rule or policy to carry out an assignment.	1	2	3	4	5
11. I receive incompatible requests from two or more people.	1	2	3	4	5
12. I do things that are apt to be accepted by one person and not accepted by others.	1	2	3	4	5
13. I receive an assignment without adequate resources and materials to execute it.	1	2	3	4	5
14. I work on unnecessary things.	1	2	3	4	5
15. I am given enough time to do what is expected of me on my job.	1	2	3	4	5
16. It often seems like I have too much work for one person to do.	1	2	3	4	5
17. The performance standards on my job are too high.	1	2	3	4	5

Appendix C: Job Satisfaction Questionnaire

Please indicate the degree to which you are very dissatisfied (VD), dissatisfied (D), neither satisfied nor dissatisfied (N), satisfied (S) or very satisfied (VS) to the following statements which address your place of work.

1 **Very Dissatisfied**	**2** **Dissatisfied**	**3** **Neutral**	**4** **Satisfied**	**5** **Very Satisfied**

	VD	D	N	S	VS
1. The physical working conditions.	1	2	3	4	5
2. The freedom to choose your own method of working.	1	2	3	4	5
3. Your fellow workers.	1	2	3	4	5
4. The reception you get for good work.	1	2	3	4	5
5. Your immediate boss.	1	2	3	4	5
6. The amount of responsibility you are given.	1	2	3	4	5
7. Your rate of pay.	1	2	3	4	5
8. Your opportunity to use your abilities.	1	2	3	4	5
9. Industrial relations between management and workers.	1	2	3	4	5
10. Your chance of promotion.	1	2	3	4	5
11. The way your place of work is managed.	1	2	3	4	5
12. The attention paid to suggestions you make.	1	2	3	4	5
13. Your hours of work.	1	2	3	4	5
14. Your ability to adjust your hours of work (flex-time).	1	2	3	4	5
15. The amount of variety in your job.	1	2	3	4	5
16. Your job security.	1	2	3	4	5
17. Now, taking everything into consideration, how do you feel about your job as a whole?	1	2	3	4	5

Appendix D: Employee Self-Rated Performance Questionnaire

The following questions focus on some different ways of examining your work effectiveness. Please consider your effectiveness at work over the last month. Using the scale shown below, please circle the number that indicates the rating you would give yourself on each of the following questions. This information is for research purposes only and will **not** have any effect on your performance appraisals.

There is also a second version of this exact measure at the back of this survey package (green copy) that I would request that you tear off and give to your supervisor, along with the accompanying envelope addressed directly to me that is also attached to their version of the questionnaire. Before giving this copy to your supervisor please remember to put the same self-generated ID code, only you know and can remember, on top of the right hand corner of their questionnaire. This is the same code that should also be attached to the front cover of your own questionnaire packet. In addition, there is also a yellow post-it on this copy for your name that you will need to ensure your supervisor knows that the questionnaire concerns you and not another employee. Your supervisor will be instructed to remove this post-it before returning the completed questionnaire directly to me so that I will get a copy containing only your self-generated ID code. It is very important that you do this as it will enable me to match up the corresponding employee and supervisor ratings. Thank you for your time and assistance in this matter.

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

Over the last month:	**SD**		**N**		**SA**
1. My ability to meet work deadlines has increased.	1	2	3	4	5
2. I have lost significantly less work time due to meeting my family responsibilities.	1	2	3	4	5
3. The number of telephone interruptions I experienced while working has significantly increased.	1	2	3	4	5
4. I have been more likely to have work interrupted due to equipment failure.	1	2	3	4	5
5. I have been more likely to feel that coping with work-family problems has reduced my effectiveness.	1	2	3	4	5
6. I think that the stress associated with commuting to work has been less likely to decrease my work effectiveness.	1	2	3	4	5
7. Overall, I would give myself a high rating on my work effectiveness.	1	2	3	4	5

Appendix E: Supervisors' Performance Questionnaire

COPY FOR SUPERVISOR

As you are aware the purpose of this study is to survey both teleworking and non-teleworking employees to evaluate effectiveness, as well as the impact of other important organizational and family variables. The following questions focus on some different ways of examining your employee's work job performance. In reviewing your employee's effectiveness over the last month please use the scale below to circle the number that best describes the rating you would give your employee on each of the following questions. This information is for research purposes only and should **not** have any effect on the performance appraisals for any of the employees.

When you receive this questionnaire from your employee it should have a yellow post-it in the upper left hand corner with their name on it and a self-generated ID code should also be in the upper right hand corner box. It is necessary to have the name on the post-it to ensure that you are able to answer the questions concerning that particular employee. It is also important that you remove this identifying post-it after you have completed the questionnaire so that the only identifying information I will have for matching your copy with their copy will be from their ID code in the upper right hand corner. When you have completed this questionnaire please enclose it in the accompanying stamped envelope and return it directly to me at the address on the envelope. These steps are necessary for appropriate matching of employees and supervisors. Thank you for your time and assistance in this matter.

1	**2**	**3**	**4**	**5**
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

(Supervisor Rating) *Over the last month:*	**SD**		**N**		**SA**
1. This employee's ability to meet work deadlines has increased.	1	2	3	4	5
2. This employee has lost significantly less work time due to meeting their family responsibilities.	1	2	3	4	5
3. The number of telephone interruptions this employee has experienced while working has significantly increased.	1	2	3	4	5
4. This employee was more likely to report having work interrupted due to equipment failure.	1	2	3	4	5
5. This employee was more likely to report that coping with work-family problems has reduced their effectiveness.	1	2	3	4	5
6. This employee has reported that the stress associated with commuting to work has been less likely to decrease their work effectiveness.	1	2	3	4	5
7. Overall, I would give this employee a high rating on their work effectiveness.	1	2	3	4	5

Appendix F: Demographic Questionnaire

1. Gender: Male _____ Female _____

2. Which range reflects your current age?
   _____ 24 to 30 years
   _____ 31 to 35 years
   _____ 36 to 40 years
   _____ 41 to 45 years
   _____ 46 to 50 years
   _____ 51 to 60 years
   _____ 61 and above

3. What is the highest level of education you have completed?
   _____ Less than Grade 12
   _____ Grade 12
   _____ Grade 12
   _____ Community College (did not graduate)
   _____ Community College (Graduated)
   _____ Other
   _____ University (not graduate)
   _____ University Degree
   _____ Honors Degree
   _____ Post-Graduate Study
   _____ Post-Graduate Degree

4. Marital Status:
   _____ Single
   _____ Married/Living with partner
   _____ Divorced/Separated
   _____ Widowed

5. If you have a partner, what is his/her occupation? _____

6. Do you have children under 18 living with you at the present time? Please include their ages too.
   _____ Have no children (Please go to question # 7).
   _____ Have children (On a full time basis time)
   _____ Have children (On a part time basis)-->Number of children _____
   Ages of children _____ , _____ , _____

7. In an average week what percentage of your time is spent in child care activities? These include the following types of activities:
   - Preparing food/feeding children _____ %
   - Supervising homework/Teaching _____ %
   - Transporting to/Participating in activities _____ %
   - Supervising and monitoring activities _____ %
   - Playing _____ %
   - Getting up at night when needed _____ %
   - Physical care _____ %
   - Staying home when children are sick _____ %
   - Make alternate arrangements due to needs of child _____ %
   - Other _____ %

   - Total hours/week you devote to children's care _____
   - Total hours/week spent in day care and or school per child _____ , _____

8. In an average week what percentage of household duties do you complete? These include the following types of activities:
   - Planning/cooking meals _____%
   - Grocery shopping _____%
   - Repairs and maintenance _____%
   - Laundry _____%
   - Household finances _____%
   - Household cleaning _____%
   - Outside/exterior maintenance _____%

   •Total hours/week you spend on household duties _____

9. What is your employment classification or job title? _____

10. How long have you been working for the organization/company? _____

11. How long does it take you to commute from your home to your regular office site (i.e. Halifax office)? Number of _____ minutes

12. How long is the distance from your home to your regular office site?
    Number of _____ km

13. How much overtime, if any, do you work in an average week?
    Number of hours of overtime per week _____

14. Are you presently in a telework or home work option? (If yes, please go to question 15, otherwise please answer only # 14).
    Yes _____ No _____

15. If you could participate in a home work or telework option would you choose to do so?
    Yes _____ No _____

    Please briefly explain what factors have influenced this decision.

    _____

16. How long has it been since you started the home work (telework) option? _____

17. How much time on average are you working in your home per week as part of the home work or telework option?
    Number of days per week _____

Please remember to check that you put your self generated ID code on the top right hand corner of the front page of this packet and also on your supervisor's copy of the effectiveness questionnaire. This same questionnaire should also contain your name on the yellow post-it already provided for you on this measure. Once again many thanks for your co-operation!

Appendix G: Interview Questions

1) How did you first hear about teleworking?

2) Why did teleworking sound like an option for you? What did you expect to get from teleworking and what made it initially sound appealing?

3) How did your family members react when hearing about you wanting to telework?

4) How did teleworking affect managing work-family conflicts?

5) Do you ever experience feelings of guilt when you are focusing on your job and feel like you should be attending to your family responsibilities or vice versa?

6) Was it difficult to get your family members or neighbours to realize you were working while at home in terms of not interrupting you while you were working?

7) How, if at all, has teleworking changed your child care arrangements?

8) How, if at all, has teleworking changed the expectations your spouse/partner has about what you should be able to accomplish around the house while working at home?

9) Has adopting telework changed how much household work you expect from yourself, your partner, or other family members?

10) How does working at home affect your ability to take time off from paid work or household/family work?

11) On a scale from 1 to 10 how much do you like teleworking?

12) Would you recommend it to others? What characteristics do you think people would be beneficial for those who telework to have?

13) How has teleworking affected your performance? If it is positive, how do you know that you are more effective than you would be if you were working out of your office site?

14) How, if at all, has teleworking affected the control you feel you have over your life?

15) Has working at home made it more difficult to control your food or caffeine intake?

16) Has teleworking made it easier for you to work when you are sick and would be otherwise absent?

17) What do you remember about the adjustment process to teleworking?

18) Have you developed any specific rituals for starting or ways you like to end your work day at home? Has there been any there any difficulty in ending your work day?

19) Do you find yourself missing the regular contact you used to have with your co-workers?

20) What do you do when you have a 'bad' day at work or when some difficult issue at work arises?

21) How does it feel when you go into the office? Specifically, do you feel like you are missing out on information? Do you feel like your opportunity for advancement is negatively affected as in 'out of sight out of mind?'

22) Regarding communication with others at the office: How did your non-teleworking colleagues accept your teleworking? How has teleworking affected the way or means through which you communicate with others in the office, examples as in are other people willing to accommodate your schedule or change meeting times until when you are in the office?

23) How has your relationship with your supervisor been affected by teleworking and do you feel you have the support of your supervisor? How does their support affect your ability to work effectively?

24) Are there ways that adjusting to teleworking could have been made easier for you and are there ways that the company could have been more supportive of the transition to feel you teleworking?

25) Have you experienced technical problems as a result of teleworking?

26) Are there other viable work options that you, or that you have heard other co-workers say they would like to see implemented?

Appendix H: Intercorrelations of the main study variables for the teleworkers controlling for Tenure

	WIF	FIW	RAS	RCS	ROS	JSS	EGP	SGP
WIF	--							
FIW	**.66**	--						
RAS	**.41**	**.33**	--					
RCS	**.42**	**.39**	**.46**	--				
ROS	**.32**	.11	.28	**.52**	--			
JSS	-.28	**-.36**	-.26	-.27	-.20	--		
EGP	-.13	.05	-.09	.04	-.12	.14	--	
SGP	-.20	-.12	-.15	-.05	-.14	.20	.20	--

Note: Co-efficients shown in the bold face type are significant at the $p < .05$ level, two-tailed.

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