AN ABSTRACT OF THE THESIS OF

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in Industrial/Organizational Psychology presented on August 1, 2002

Title: An Examination of Three Theories of Leadership in the Telecommuting Context

Abstract approved: Brian Schrader

This study examined how three theories of leadership, namely the Substitutes for Leadership theory, the Leadership Behaviors Theory (specifically, Consideration and Initiating Structure), and the Transactional versus Transformational Leadership Theory, apply in a telecommuting versus a non-telecommuting environment. First, this research aimed to find out whether particular Leadership Substitutes and Neutralizers prevent hierarchical leadership from influencing the behaviors of telecommuters and/or non-telecommuters. Second, this study measured whether telecommuting and non-telecommuting subordinates give different or similar ratings to their supervisors in terms of the Consideration, Initiating Structure, Transactional and Transformational leadership behaviors exhibited by those supervisors. Third, this research asked whether the supervisors of both telecommuters and non-telecommuters would give themselves similar or different ratings in terms of their own Consideration, Initiating Structure, Transactional and Transformational leadership behaviors with their telecommuting and their non-telecommuting subordinates respectively. The study could not definitively answer the research questions due, most probably, to the small sample size. That is, according to the results, leadership substitutes and neutralizers do not seem to influence telecommuters and non-telecommuters differently. Further, managers of both telecommuters and non-telecommuters do not perceive their leadership behaviors to be

different with their two types of subordinates. Lastly, employees themselves did not perceive the Consideration, Transactional and Transformational leadership behaviors of their supervisors to be different. The only leadership behavior that made a difference between the two employee subsamples was Initiating Structure—telecommuters thought that supervisors were higher on this leadership behavior than their office co-workers.

AN EXAMINATION OF THREE THEORIES OF LEADERSHIP IN THE TELECOMMUTING CONTEXT

A Thesis

Presented to

The Department of Psychology and Special Education

EMPORIA STATE UNIVERSITY

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

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by

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December 2002

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ACKNOWLEDGEMENTS

My deepest thanks go to my thesis committee members Dr. Schrader, Dr. Yancey and Dr. Shapiro for their help and encouragement which made the completion of this project possible. Dr. Schrader and Dr. Yancey deserve another round of "thanks" for their constant support and advise as my I/O Psychology program advisers—thank you for giving me such a good education. Thank you to Dr. Weaver for his support for me both as a student and as a teacher. And last but not least, thank you to Dr. Stephen Davis who encouraged my professional development. To him I owe my enthusiasm for conducting research, for pursuing a Ph.D. degree and for aspiring to be a part of academia one day.

On a more personal note, I want to thank all my fellow GTAs for their true friendship, but especially Alyson, Amie, Val, Ginger, Jennifer, and Oksana. But of course my best friend in life, Stoyan, and my new love, Vassil, remain most special in my heart.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Telecommuting is working away from the principal (or traditional) office. It is a management option, not an employee entitlement, and does not necessarily imply some form of electronic or telephone connectivity with the principal office. The existing rules on hours of duty apply to telecommuters. Many telecommuters usually spend part of their work week in the regular office for reasons such as: (a) improving communication and scheduling meetings, (b) minimizing isolation, (c) using facilities not readily available off-site, (d) reminding supervisors that they are available for prime work assignments, promotions, and awards, as well as (e) showing staff that they are contributing to the office (United States Office of Personnel Management [USOPM], 1997). This new way of working is becoming increasingly popular. As summarized by Langhoff (1999), companies employing telecommuters attract more qualified employees than those who do not, and those employees stay with the companies longer. Telecommuters accomplish more work out of the office than in the office, sick days are reduced, and companies save money on office space.

Given all these positive findings from the sphere of telecommuting, it is not surprising that researchers are paying more and more attention to studying different factors within the telecommuting context. More specifically, a rigorous examination of various journals and databases reveals that researchers have been mostly interested in examining factors such as: (a) the supervisor-subordinate relationship (e.g., Lowry, 1996; Reinsch, 1997; Reinsch, 1999), (b) communication and coordination in telecommuting environments (e.g., Fritz & Narasimhan, 1998), (c) training of supervisors and

telecommuters (e.g., Grensing-Pophal, 1999; Nilles, 1998), (d) electronic performance monitoring (e.g., Fairweather, 1999; Stanton & Barens-Farrell, 1996; Thomas, 1999) (e) the effects of technology on communication and relationships (e.g., Dana, 1999), (f) work-life balance (e.g., Hill, Miller, Weiner & Colihan, 1998; Shamir & Solomon, 1985; Trent, Smith, & Wood, 1994), and (g) various employee variables, such as satisfaction, productivity, absenteeism, turnover, stress, personality characteristics, and others (e.g., Conner, 1986; Goldsborough, 1999; Igbaria, 1999; Ross, 1990). Still, this new phenomenon seems to develop more quickly than the effort of scholars to study it, and thus some factors seem to have escaped researchers' attention, including that of leadership in telecommuting.

The current study begins a discussion on a topic largely ignored by previous research. Specifically, three theories of leadership were examined in the telecommuting context, namely the Substitutes for Leadership Theory, the Leadership Behaviors Theory (specifically, Consideration and Initiation Structure), and the Transactional versus Transformational Theory. One reason these theories were selected was their potential for application in the telecommuting context; a second reason was the theories' ability to explain group behavior in electronic environments (e.g., Sosik, Avolio, & Kahai, 1997).

This research is intended to measure whether the three leadership theories explain any of the supervisory behaviors of managers of telecommuters, and whether one or more (or none) of them would best describe supervisory leadership styles. Specifically, this thesis examined six major research issues: (1) which leadership styles telecommuting subordinates attribute to their supervisors, (2) which leadership styles non-telecommuting subordinates of the same supervisors attribute to those supervisors, (3) which leadership

styles the supervisors in question attribute to themselves when interacting with their telecommuting subordinates, and (4) which leadership styles the supervisors attribute to themselves when interacting with their non-telecommuting subordinates. Additionally, (5) whether a particular leadership style seems to be the most prevalent one across different telecommuting programs, or conversely, (6) whether the leadership style(s) employed is/are a function of the particular telecommuting program were also studied.

CHAPTER 2

LITERATURE REVIEW

Telecommuting

The term "telecommuting" probably has as many definitions as the number of authors that had written about it. For instance, Van Horn and Storen (2000) defined telecommuting as "working at home, away from an employer's place of business, and using information technology appliances, such as the Internet, computers or telephones" (p. 2). Van Horn and Storen clarified that teleworkers are people who work from home or at a remote location other than the employer's office; however, they are not people who own home-based businesses or are a part of the traveling sale force, or consultants. Telework has also been defined as "regular work at alternative worksites to save commuting time, including work from home" (Helling, 2000, p. 1). Lastly, the International Telework Association and Council (ITAC) defined telework as "a work arrangement in which employees work at alternative worksites on average at least eight hours every two weeks, provided that this reduces the time and/or distance associated with the employee's commute" (p. 1).

Clearly, authors use the terms "telework" and "telecommuting" differently. To some, the two terms are interchangeable and refer to the same concept. To others, there are differences, with telework being perceived as a more inclusive term and telecommuting as a more restrictive term. For the purposes of this thesis, the two terms are assumed to be synonymous.

Two more things become evident from the cited definitions. First, telecommuting is a flexible work arrangement. Workers may choose to telecommute anywhere from only

one day per work week (i.e., part-time telecommuting) to five days per work week (i.e., full-time telecommuting). Second, telecommuting necessarily involves a different location from the employer's offices and some use of technology. Therefore, telecommuting is defined here as a flexible work option (full-tine or part-time) allowing employees to save commuting time by working away from their employer's office with the help of technology.

Demographics

Number of telecommuters. Statistical sources disagree how many employees in the United States actually telecommute. For instance, Carey (1999) stated that "more than 15.7 million Americans now work from homes for an outside employer for at least one day per month" (p. 64), whereas Computerworld (1999) claimed there were about 11 million telecommuters in the U.S. today which represents 6% of the workforce. A Work Trends survey from 1999 estimated that 9.9 million workers telecommuted at least one day per week, and a follow-up study in 2000 found that this number had increased to 13.3 million workers (Van Horn & Storen, 2000). Probably the highest estimates came from the Telework America survey from 1999 (19.6 million workers) and the U.S. Department of Labor survey from 1997 (17 million workers) (Van Horn & Storen, 2000). Because of those discrepancies, Van Horn and Storen (2000) concluded that "due to different sampling methodologies and different definitions of telework, current estimates of the number of teleworkers in the United States vary from 13 million to 19 million" (p. 8).

Other demographic characteristics. Besides determining the number of telecommuters, surveys have tried to estimate a variety of demographic characteristics of teleworkers. For instance, Morgan (1999) established that 81% of those who choose to

telecommute spend at least half of their time in the office, and only 11% can be considered full-time telecommuters. Similarly, the 1999 and 2000 Work Trends surveys (cited in Van Horn & Storen, 2000) found that 34% of teleworkers work one day from home or another location, 35% work between two and five days from a remote location, and close to one third (30%) telecommute full-time. Thus, although the numbers are slightly different, it seems that part-time telecommuting is currently the norm.

Surveyors have also looked at the occupations that seem to be the most popular among telecommuters (or most suitable for telecommuting). For example, Morgan (1999) found that information technology departments had the highest percentage of telecommuters, 41%, followed by financial, customer services, and sales and marketing departments. The Work Trends 1999 and 2000 surveys found that 37% of teleworkers are professionals, 14% are clerical and sales workers, 12% are technical workers, 12% are service workers, and 12% are managers (Van Horn & Storen, 2000). Although these figure differ somewhat, two facts still emerge: (1) teleworkers are white-collar workers, and (2) teleworkers are concentrated in professions that rely heavily on phones, computers, and other information technology devices.

Many surveys have concentrated on establishing how many men and women telecommute; however, both empirical research and articles in non-research journals tend to disagree. Some find that more women prefer telecommuting than men (e.g., Bolling, 1992; Hill et al., 1998). However, others claim that men telecommute in greater numbers (e.g., Ellison, 1999; Nilles, 1998). The two more representative recent surveys (i.e., the 1999 and 2000 Work Trends survey and the 1997 U.S. Department of Transportation

survey) found that men represent about 57% of the telecommuter workforce (Helling, 2000; Van Horn & Storen, 2000).

Statistical sources agree that the vast majority of telecommuters are White. Both Van Horn and Storen (2000) and Helling (2000) reported White teleworkers to be roughly about 80%, African-American teleworkers to be only around 6%, Hispanic teleworkers only 7%, and Asian teleworkers around 2% of the telecommuting workforce.

Agewise, only 15% of teleworkers are reported to be over 55. Also, compared to the general worker population, telecommuters are reported to earn higher incomes and to have more formal education than non-telecommuters. Lastly, in terms of education, 58% of teleworkers are reported to be college educated, and 25% are reported to have received some post-graduate education (Helling, 2000; Van Horn & Storen, 2000).

In summary, the demographic surveys cited above seem to paint the following portrait of the typical telecommuter—a college-educated, White 34-to-55 year-old professional man who earns around $40,000 per year. Some of those characteristics (i.e., professionalism, education, race, and age) are better established than others (i.e., sex and income), making additional demographic analyses necessary.

Who Can Telecommute

Not all jobs are suitable for being turned into telecommuting jobs. Those that are require thinking and writing, and are telephone-intensive or computer-oriented. Work may not be suitable for telecommuting if the employee needs to have extensive face-to-face contact or frequent access to materials which cannot be removed from the principal office (Nilles, 1998; USOPM, 1997). Employees who telecommute must be organized, self-starters, conscientious, highly disciplined, and need little supervision (Goldsborough,

1999). Thus, telecommuting would work best for employees who are proven high performers because they are most likely to maintain their high productivity while working in less supervised home environments. Furthermore, employees who can deal with challenges, such as malfunctioning home office technology and lack of face-to-face communication (e.g., Carey, 1999; Goldsborough, 1999; Salamone, 1999) are also representative of the telecommuting workforce.

Empirical research also reveals that the single most important difference between employees who are allowed to telecommute and those who are not allowed is indeed professionalism. For instance, Ross (1990) compared a group of telecommuters and a group of non-telecommuters in similar positions reporting to the same managers, on three personality traits: (1) need for social interaction, (2) need for guidance and feedback, and (3) self-perceived organizational skills. She also obtained a performance rating for all employees. Ross found that the only significant predictor of telecommuting status was performance, with telecommuters obtaining significantly higher performance scores than non-telecommuters. The three personality variables did not significantly differentiate telecommuters from non-telecommuters; they also did not predict high from low performing telecommuters.

All of the above-cited empirical findings are supported by telecommuters' self-reports. Specifically, Riley, Mandavilli, and Heino (2000) conducted field interviews with 100 telecommuters, asking them questions about work styles and technology issues. These telecommuters stated that an employee who is not self-motivated would not be effective in a job involving telecommuting. Further, they said that telecommuters must be disciplined, self-directed, self-organized, and must have the ability to work unsupervised.

The interviewed telecommuters indicated that one must feel comfortable with technology in order to deal with all the technology-related challenges telecommuters typically face.

Advantages to the Telecommuters

As stated previously, telecommuters have been examined on various variables, such as their levels of satisfaction, productivity, absenteeism, turnover, stress, etc. Numerous studies have revealed quite positive results for telecommuters. For instance, Igbaria (1999) found that telecommuters in her study experienced significantly less role ambiguity (the degree to which an employee lacks clear information regarding expectations associated with the job and methods of fulfilling those expectations) than a comparable sample of non-telecommuters. Further, telecommuters also experienced less role conflict (incompatibility and incongruity in the expectations associated with a particular job role) than the comparison non-telecommuters. Also, telecommuters in this study reported more satisfaction with work and supervision, higher overall satisfaction, and less likelihood of leaving the company than did the non-telecommuters in the sample.

In a summary of previous research on telecommuters' self-reports, Langhoff (1999) stated that telecommuters report they (a) experience less stress because they avoid stressful commutes, interruptions and noise in a regular office, (b) enjoy increased flexibility because they have more control over their time and thus can work at their peak energy hours, (c) save time because they avoid long commutes, and (d) have more cash because they spend less on office clothes, dry cleaning, downtown lunch expenses, and commuting.

Lastly, Hill's et al. (1998) research also contributed to the multitude of positive literature findings. Specifically, telecommuters in their sample were found to be more

productive than a comparison group of non-telecommuters, and enjoyed more flexibility for a variety of things such as working at peak energy times, taking care of children, taking care of personal needs, etc.

Problems That Telecommuters Must Deal With

Although it may appear that telecommuting is strictly positive to those who choose to take advantage of it, this could not be further from the truth. On the contrary, telecommuting had been shown by many researchers to have inherent disadvantages. The most obvious obstacle created by telecommuting is problems with malfunctioning technology (Goldsborough, 1999). Not only is appropriate information technology (IT) support a significant predictor of satisfaction with office communication for telecommuters, but it also predicts satisfaction with office communication for office workers (Fritz & Narasimhan, 1998). That finding is important because it points attention to the fact that telecommuters communicate with conventional office workers through IT, and if IT support is not of high quality, the communication between the office workers and the telecommuters is compromised.

There are, of course, other reasons why telecommuting could be a challenging experience. For example, telecommuters in Igbaria's (1999) study reported less satisfaction with co-workers and less satisfaction with promotion opportunities than did non-telecommuters. Further, telecommuters have also reported that they miss the camaraderie that they had in the office with colleagues (Goldsborough, 1999). Konradt and Renate (1999) concluded that fewer communication opportunities are available for telecommuters, who also stated that they had less diversity in their work than did office workers. The telecommuters in Hill's et al. (1998) study stated that the virtual office

blurred the boundaries between work and family life, especially if telecommuters had a separate office with a door that they could close. In this case, they reported finding themselves in a situation in which they did not know when to stop working. However, a separate office in the home is a necessity because otherwise telecommuters find themselves easily distracted by children, pets, elderly parents, etc. Lastly, telecommuters have also reported inadequate work place designs at home (Casey, 1999). As a matter of fact, in many cases companies refuse to pay for home office equipment, and thus some telecommuters must furnish their own offices with less than adequate office furniture.

The Role of Managers

Probably the most obvious managerial role in telecommuting is granting approval of an employee application to telecommute. Some researchers have studied what employee characteristics and/or other factors would result in an approval decision. For instance, Reinsch (1999) found that managers are more likely to approve a telecommuting application if (a) they had a relationship with the applicant of a longer duration, (b) the manager was willing to step up for the applicant in case of criticisms, and (c) the manager had a good enough relationship with the applicant that they can promptly inform the applicant of mistakes and provide constructive criticism to the applicant without jeopardizing the quality of the relationship.

Managers are also responsible to a great extent for the success of the telecommuting program. Reinsch's (1999) study revealed that those same three variables that influenced a manager's decision of whether or not to approve a telecommuting application also influenced the success of the telecommuting program. Further, Conner (1986) found that the managers' style (i.e., task-oriented vs. person-oriented) did not

independently determine the success or failure of telecommuting programs, but managers' satisfaction with the program was responsible for the program's continuation.

Besides approving telecommuting applications and carrying the most responsibility for the success of the telecommuting program, managers engage in numerous other activities to help telecommuters. Briefly, managers determine work schedules consistent with the needs of the office and any applicable collective bargaining agreement. Managers also establish and clearly communicate the work schedule to the telecommuter, because assignments must be effectively coordinated, staff coverage must be ensured, liability resulting from personal injury or loss of property must be delineated, telecommuters must not be disrupted by clients, co-workers and other telecommuters during non-office hours, and staff in the principal office must feel assured that the telecommuter is working as opposed to just sitting at home (Ellison, 1999; Nilles, 1998; USOPM, 1997). Thus, there are additional strains for the managers of telecommuters because of the increase in planning, organizing, and other general management duties.

The Supervisor-Subordinate Relationship

Research has also examined the impact of telecommuting on the manager-subordinate relationship. For instance, Reinsch (1997) found that the level of trust in, and affect for, the surveyed telecommuters' managers as reported by the telecommuters, was significantly higher in telecommuters who have been in the company's telecommuting program for less than six months than in telecommuters who have been in the program for seven to 12 months. Interestingly, employees who telecommute for over 13 months reported an increase in the level of trust in and affect for their managers. Therefore, it may be that telecommuting weakens the relationship between managers and

telecommuters, and levels of trust and affect do not improve until the telecommuter is well settled into the new working arrangement (i.e., after at least 13 months have passed).

Relationships between telecommuters and non-telecommuters and their managers have also been examined by Lowry (1996). She set to establish the effects of working at a distance on the quality and quantity of communication, as well as on the Leader-Member Exchange (LMX) quality between supervisors and subordinates. Her results suggested that statistically, the quality and quantity of communication between a supervisor and remote/co-located employees, as well the LMX quality of the pair, were not related to physical distance. In other words, communication was the same for both remote and co-located employees, as reported by the employees themselves. However, the remote employees felt that they are more isolated and that they received less communication from their supervisors than the co-located employees. Therefore, Lowry (1996) uncovered that there are perceptual differences in terms of quantity and quality of communication, which actually accounted for the lower satisfaction scores of the remote workers.

However, Dana (1999) reported findings quite dissimilar to those cited above. In her study, remote staff members reported trust levels similar to local staff member, although remote staff members engaged in significantly less frequent communication with their managers than local staff members. Further, Dana stated that face-to-face communication is preferred early in the relationship. However, according to her findings, once the relationship is established, the method of communication is considerably less important.

Despite the disagreements between those two studies, all authors emphasized that communication is a key ingredient in strengthening the trust levels and the relationship between supervisors and telecommuting subordinates. Dana (1999) even speculated that one way to assess the level of trust between the manager and their subordinates would be to examine the amount of staff-initiated contact.

The Role of Technology

Telecommuting would be impossible without the recent technological advances. Technologies such as e-mail and voice mail, video-conferencing and tele-conferencing, and group decision-making software, to name just a few, have made communication between distance employees a normal occurrence. Therefore, when researchers are studying telecommuting, they are also investigating the role of the new technology, and specifically, how the technology influences performance, human relationships and communication between telecommuters and telecommuters, between telecommuters and office colleagues, and between telecommuters and managers. A side note should be made here—all of the research on the impact of technology has involved studying work groups, not individuals. Moreover, the work groups studied have been of two types—co-located (i.e., all the group members are in the same office/lab) and distributed or remote (i.e., the group members are situated in separate offices/labs).

Many studies that examine the role of the technology used by work groups concentrate on measuring its impact on performance and quality of work. For instance, in their comparative study of groups working face-to-face and remotely, Olson, Olson, and Meader (1997) found that quality of work with remote high-quality video is as good as the quality of face-to-face work, whereas remote work without video (audio only) is not

as good as face-to-face work. Further, Graetz, Boyle, Kimble, Thompson, and Garloch (1998) compared group performance of distributed groups using either electronic chat tools or oral communication (face-to-face or teleconferencing), and found that, indeed, the face-to-facer and teleconferencing groups performed better than the electronic chat room group. Lastly, Burke, Aytes, and Laku (1999) found that distributed groups which worked with Computer Mediated Communication Systems (CMCS) and had video-conferencing support in addition, performed better than distributed groups which had CMCS but audio-conferencing support only. Therefore, if distributed work groups are equipped with quality communication technology, as opposed to if they are supposed to function using simple tools like e-mail or audio-only tools, quality of work will improve.

Distributed groups working with sophisticated versus simple technology have also been studied for the effects of that technology on social interaction variables, such as communication effectiveness and social presence as reported by the individual group members. For instance, Burke et al. (1999) found that their video-conferencing group members reported higher social presence and more effective communication than the group members of audio-only groups. Furthermore, both social presence and communication effectiveness improved over time for the video-conferencing groups, although slower improvement was also noted in the audio-conferencing groups over time. Most importantly, the social presence and communication scores did not differ among the co-located and the remotely located group members.

Lastly, distributed groups working with sophisticated versus simple technology have been examined for the effects of technology on social potency variables, such as levels of participation and influence of the individual group members. McLeod, Baron,

Marti, and Yoon (1997) found that minority group members expressed more ideas when using computer-mediated group decision support systems (GDSS), especially when using the anonymity feature of the software. Further, Dennis and Valacich (1998) compared groups using electronic brainstorming software versus groups utilizing the nominal group brainstorming technique. They showed that the former generated more ideas and enjoyed greater group member participation rates than the latter. Similarly, larger groups in Gallupe's et al. (1992) study generated more ideas, and more high-quality ideas, than groups of similar size if they used electronic brainstorming as opposed to verbal brainstorming. Group members reported more satisfaction with the work in the electronic brainstorming condition than in the verbal brainstorming condition as well. Both Dennis and Valacich (1998) and Gallupe et al. (1992) attributed these findings to the fact that the electronic brainstorming systems allowed for anonymity, and prevented others from blocking members' ideas and negatively evaluating individual ideas, which often occur in face-to-face verbal brainstorming.

Conversely, if distributed groups are expected to communicate through simple technologies only, such as e-mail and electronic chat tools, those groups are faced with a multitude of problems. For instance, Graetz et al. (1998) found that their comparison group which used electronic chat tools to communicate experienced a significantly higher cognitive workload, obtained fewer correct decisions, and had limited ability to coordinate and verify information than the face-to-face and teleconferencing groups. Parks and Roberts (1998) found that distributed groups using simple technologies had less developed relationships between the group members than groups who used real-time text-based virtual environments. Lastly, Lowry (1996) reported that a high percentage of

electronic mail use was associated with low quality of communication, low quantity of communication, and low LMX quality.

Still, although research has established that more sophisticated technologies, such as video-conferencing capabilities, virtual realities, teleconferencing, computer-mediated communication systems, etc. are important in a distributed work group environment, those technologies cannot beat the advantages of face-to-face communication. All of the above cited studies revealed that face-to-face communication, in comparison with electronic communication, leads to: (a) greater engagement on the part of the participants and more critical discussions of issues (Olson et al., 1997), (b) more developed relationships between the group members (Parks & Roberts, 1998), (c) the least amount of cognitive workload (Graetz et al., 1998), (d) the strongest sense of cohesion and satisfaction with the group's interactive processes (Warkentin, Sayeed, & Hightower, 1999), and (e) high communication quantity and LMX quality (Lowry, 1996).

Moreover, although some studies found that minority group members contributed more ideas if the distributed groups used GDSS, they also revealed that the influence of minority arguments on private opinions and on the group decisions was highest under face-to-face communication (e.g., McLeod et al., 1997). For instance, Weisband, Schneider, and Connolly (1995) who used message headers labeling participants as graduate or undergraduate students and found that the graduate students participated more and influenced the group's decisions more than did the undergraduate students. Also, the graduate students perceived the undergraduates as not participating and not contributing enough, although in some conditions this was not true. However, when the groups interacted face-to-face, the graduate students were more likely to change their

opinions about particular undergraduates, or in other words, to refrain from stereotyping all undergraduates as less capable. Thus, Weisband et al. (1995) concluded that face-to-face communication was probably the better option, especially when the power levels of participants are mixed.

The Sense of Teamliness

Another issue of great concern has been how do people succeed in accomplishing tasks without actually seeing each other. Several hints have emerged from the literature. One suggestion has been that to accomplish meaningful collaboration electronically, people learn the social use of technology (McLeod, 1999). That is, they develop sufficient skills to interact effectively, build enough structure and bond enough to reduce the uncertainty and to accomplish unstructured tasks, engage in a lot of ongoing electronic socialization and participation to achieve team cohesion, and build a sense of teamliness through the continued exchange of personal and contextual information, as well as of humor (e.g., Parks & Roberts, 1998).

Employees have also been found to build stronger relationships between telecommuters and local office colleagues if the telecommuters visited the office on a regular basis. For example, Sturgill (1998) found that spending work time in the office seemed to improve the organizational communication between telecommuters and their co-workers. Indeed, authorities on telecommuting (e.g., Nilles, 1998) have recommended that managers should be responsible for bringing telecommuters to the office on a regular basis. These meetings serve the purpose of deciding on new responsibilities, explaining new projects, etc., but they also help telecommuters feel part of the office life, and even gossip, share information, reacquaint with others, relax, be entertained, and feel

important. Actual surveys of telecommuters reveal that, indeed, 81% of those who choose to telecommute spend at least half of their time in the office (Morgan, 1999). Therefore, the sense of teamliness may well be preserved if telecommuters do not cut their ties to the home office completely.

The above-summarized body of literature dealt with a wide variety of topics—from defining telecommuting, and presenting demographics of the telecommuting workforce and characteristics of telecommuters, through delineating the advantages to telecommuters, the problems faced by telecommuters, and the roles of the managers of telecommuters, to the quality of the supervisor-subordinate relationship, the role of technology on distributed and co-located groups, and the sense of teamliness in telecommuters and their office colleagues and managers. This review, although brief, claims to be quite inclusive of the major topics studied by telecommuting experts. However, if a closer look is taken at those topics, it becomes easy to see how another major body of literature is noticeably absent in the telecommuting context—that of leadership. Therefore, this thesis will now attempt to summarize literature findings from the sphere of leadership research in an effort to connect these two topics.

Leadership

The aim of this research is to examine three theories of leadership in the telecommuting context: the Substitutes for Leadership theory, the Leadership Behaviors theory (specifically, the Initiating Structure and Consideration leader behaviors), and the Transactional and Transformational Leadership theory. The following section provides a brief overview of the three targeted leadership theories.

Substitutes for Leadership

Some leadership researchers (i.e., Howell, Bowen, Dorman, Kerr, & Podsakoff, 1997; Howell & Dorfman, 1986; Kerr & Jermier, 1978) have asserted that leadership is not a true construct, or in other words, that there is no such thing as "leadership." Instead, these researchers claim that there are different behaviors and characteristics on the part of the subordinates, or different events and general circumstances, that "substitute" behaviors and roles labeled as "leadership" by traditional research. These behaviors and/or circumstances have been termed Substitutes for Leadership. More specifically, Howell and Dorfman (1986) defined leadership substitutes as:

> characteristics of the individual subordinate, the work task, or the organization that prevent hierarchical leadership from affecting employee attitudes and/or behaviors, and make such leadership unnecessary. Substitutes perform essentially two functions: They prevent a specific leadership behavior from having an impact on employee attitudes or behaviors, and they "replace" the leader behavior by having a direct impact of their own on these dependent variables. (p. 30)

In a more comprehensive study, Podsakoff, MacKenzie, and Bommer (1996) identified 7 leader behaviors and 13 substitutes for leadership, and then estimated what percentage of variance each of those accounted for in variables such as employee satisfaction, commitment and so forth. More specifically, the seven leader behaviors were found to be: leader clarification, specification of procedures, supportive leader, contingent reward, contingent punishment, noncontingent reward, and noncontingent punishment. The 13 substitutes were: ability/experience, professional orientation, indifference to rewards, need for independence, task feedback, routine tasks, intrinsically satisfying tasks,

organizational formalization, organizational inflexibility, advisory/staff support, cohesive group, rewards outside leader's control, and spatial distance. What is more important is that the leadership substitutes consistently accounted for more of the variance in the examined variables than did leader behaviors. For example, leadership substitutes explained 40% of the variance in satisfaction against only 17% explained by leader behaviors. Similarly, 50% of commitment was explained by the substitutes against only 2% explained by leader behaviors. Other variables explained better by the substitutes included role ambiguity, altruism, conscientiousness, sportsmanship, courtesy, and civil virtue.

Besides the original 13 substitutes (identified by Kerr and Jermier in 1978, and used in the Podsakoff et al., 1996 study), Howell et al. (1997) research added newer substitutes to the original list. Specifically, cohesive teams of highly trained individuals, intrinsic satisfaction, computer technology, and extensive professional education were added. Lastly, De Vries, Roe, and Taillieu (1998) examined the Need for Supervision (NS) construct as another leadership substitute. They defined NS as the contextual perception by the employee of the relevance of the leader's legitimate acts of influence toward an individual or a group. Therefore, NS depends on individual factors, as well as on task and organizational factors. Thus, the question is whether within a given context, and having in mind the specific attributes and abilities of the individual, as well as the characteristics of the task and the organization, the employee will perceive (or feel) a need for supervision. In other words, would the employee perceive a need for a leader to provide guidance and directions, or to initiate structure, for the employee in a particular context? De Vries et al. (1998) hypothesized that subordinates who have a lot of work

experience, who perform tasks offering a lot of feedback, and who enjoy strong team cohesion, will not experience high levels of NS. Indeed, De Vries et al. (1998) found that years of service, expertise, and autonomy were negatively correlated to NS. On the other hand, hours of contact with the leader and skill variety were positively correlated to NS.

Leadership neutralizers. Besides Leadership Substitutes, Howell et al. (1997) also identified Leadership Neutralizers, or "factors that do not replace the leader's impact over subordinates, but rather create an 'influence vacuum' that can have serious negative consequences" (p. 389). One of these neutralizers was actually Physical Distance. The authors argued that when subordinates work at a physical distance from their leader, leadership practices have limited usefulness or are nearly impossible to perform. Another identified neutralizer was Rewards Systems. Howell et al. (1997) proposed that if subordinates are rewarded on the basis of seniority, output, objective performance measures, etc. (in other words, the rewards are not dispensed by the leader in a subjective manner), then leadership behaviors would not have an impact on subordinates' outcomes.

In a different study, Howell and Dorfman (1986) found that some leadership substitutes can actually act as neutralizers. Specifically, workers with high levels of ability, expertise or knowledge, and need for independence, reported lower satisfaction when their leaders provided them with specifications of procedures (i.e., exhibited typical Initiating Structure leadership behavior). Conversely, personnel with lower expertise and lower need for independence reported higher job satisfaction under IS leadership.

Leadership Behaviors Theory (Initiating Structure vs. Consideration)

Initiating structure (IS) and Consideration (C) represent two of the first dimensions of leadership identified by researchers. As cited in Kerr, Schriesheim, Murphy and Stogdill (1974),

> Consideration reflects the extent to which an individual is likely to have job relationships characterized by mutual trusts, respect for subordinates' ideas, and consideration of their feelings; Initiating Structure reflects the extent to which an individual is likely to define and structure his role and those of his subordinates toward goal attainment. (p. 65)

However, as many authors have argued, it is largely unclear whether IS and C are influenced by moderating factors, whether they are two separate dimensions, and even whether they are dimensions of leadership. Obviously, the answers to these questions have implications for the IS and C scales, so popular and widely used in leadership research. It should be emphasized, however, that although numerous researchers have established the independence of these two scales, just as many researchers have established the opposite—their interdependence. Therefore, it seems necessary to discuss this problem first, before going into details about research findings obtained through the use of the IS and C scales.

The IS and C scales. The instrument that contains the IS and C scales is the widely popular Leadership Behavior Description Questionnaire (LBDQ). Many researchers have conducted studies using the LBDQ to investigate the qualities of the instrument itself rather than studying leadership behaviors. For instance, Rush, Thomas, and Lord (1977) set out to find whether IS and C are susceptible to the influence of

> on what behaviors they have observed. Fourth, they have a common sense look around them which is appealing to the practicing manager .... Finally, numerous studies have used the Ohio State Leadership Scales (particularly the Initiation and Consideration dimensions of the LBDQ and LOQ). Much of this research has been of good quality, and normative data have been accumulated. (p. 64)

Despite the debate, Kerr et al. (1974) do have a point—the instrument has been widely used in a legion of studies and thus the data cannot be easily dismissed. Therefore, research findings in the IS and C leadership sphere will be presented next.

Research findings. IS and C have been studied for quite some time, and interest in them continues to be considerable. Most researchers seem to have been interested in the effects of IS and C on variables such as productivity, participation levels, quality of the supervisor-subordinate relationship, role clarity, etc. For instance, Howell and Frost (1989) sought to determine the effects of charismatic, IS and C leadership styles on performance, role clarity and ambiguity (for purposes of this discussion, only findings pertinent to IS and C will be discussed). Howell and Frost (1989) used students to work on in-basket assignments under the supervision of confederates trained to behave as charismatic, initiating structure or considerate. They found that there were no differences between IS and C leaders on quality of performance and number of courses of action sought by the students, and there were no differences between IS and C leaders for specific and general task satisfaction as reported by the students. However, Howell and Frost did find some important differences between those two leadership styles. Specifically, individuals with structuring leaders experienced significantly less role conflict and ambiguity than did individuals with considerate leaders. This finding is

significant because it supports the basic definition of IS; IS leaders are supposed to structure their roles and the roles of their subordinates. In effect, this funding supports the construct of Initiating Structure. Secondly, Howell and Frost found that individuals with C leaders had significantly higher adjustment to their leader than individuals with IS leaders. This is another important finding because it, too, supports the very definition of C; C leaders are supposed to have good relationship and high levels of trust with their followers.

Further, Howell and Frost (1989) study revealed some intriguing interaction effects. For instance, individuals working under IS leaders and in high productivity norm groups reported lower role conflict, and higher general and specific task satisfaction than did individuals working under a IS leader who were in low productivity norm group. Therefore, it seems that IS leadership would yield positive results in certain conditions only, that is, if the group itself is a highly productive one. A second interesting interaction effect was found between C leadership and high/low productivity norm. Namely, students working under C leaders and in high productivity norm groups reported higher specific task satisfaction than did students working under C leaders but in low productivity norm groups. Therefore, again, the effect of leadership style might depend on the productivity norms of the group. This, however, was not found to be true in terms of the role conflict and general satisfaction variables. Specifically, no differences were found in terms of levels of role conflict and general satisfaction for both high and low productivity norm groups working under C leaders. This result is important because it clearly shows that regardless of the group characteristics (in this case—productivity norms), C leadership will bring about more role conflict and ambiguity.

Transactional vs. Transformational Leadership

The third theory of leadership that will be examined in the telecommuting context is that Transactional vs. Transformational leadership. This newer type of leadership builds on and expands the Initiating Structure and Consideration ideas. According to Avolio and Bass (1988), Transactional leadership consists of Contingent Reward and Management-by-Exception. Contingent Reward refers to the leader as frequently telling subordinates what to do to achieve a desired reward for their efforts. In Management-by-Exception, the leader avoids giving directions if the old ways are working, the leader intervenes only if standards are not met (p. 35). On the other hand, Avolio and Bass (1988) originally defined Transformational leadership as consisting of Charisma, Individualized Consideration (IC) and Intellectual Stimulation. A Charismatic leader instills pride, faith and respect, has a gift for seeing what is really important, and has a sense of mission, or vision, which is effectively articulated. An IC leader delegates projects to stimulate and create learning experiences, pays personal attention to followers' needs, especially those who seem neglected, and treats each follower with respect as an individual. An Intellectual Stimulation leader provides ideas that result in a rethinking of old ways and enables followers to look at problems from many angles and resolve problems that were at a standstill (p. 34).

As could be seen, these two types of leadership are very close to the original IS and C constructs. More importantly, they appear to be constructs that leadership researchers agree more with as compared to the original IS and C leader behaviors. And even more importantly than that, Avolio and Bass (1988) clearly state "these two styles of leadership could be displayed by the same individual to varying degrees" (p. 35). They

state that Initiation can be both transactional and transformational, and so can Consideration. As Avolio and Bass put it,

> The transformational leader may provide a new strategy or vision to structure the way to tackle a problem. The transactional leader may clarify the "right" way of doing things. Likewise, Consideration for a subordinate's current needs and self-interests is likely to be transactional, whereas consideration for their long-term professional development in alignment with organizational needs is transformational leadership. (p. 36)

Given that IS and C are so closely related to Transactional and Transformational leadership, it is important to determine first whether the two are different before examining them separately in the telecommuting context. Seltzer and Bass (1990) aimed at doing exactly that with their research. They wanted to find out whether the transformational variables of charismatic leadership, individualized consideration and intellectual stimulation can explain a greater proportion of the variance of perceived (by the subordinates) leaders' effectiveness, subordinates' extra effort, and subordinates' satisfaction with the leader beyond that explained by initiation and consideration. Using hierarchical regression, Seltzer and Bass (1990) found that transformational leadership augmented initiation and consideration. These results indicated that important outcomes (such as extra effort, satisfaction, etc.) are due not solely to the two popular construct of IS and C, but to transformational leadership behaviors as well. In other words, what Seltzer and Bass (1990) have shown is that there are other important leadership behaviors that contribute to the achievement of valuable organizational outcomes besides IS and C.

Thus, the need to study transformational leadership in addition to studying IS and C has been established.

Research findings. In a summary of previous literature findings, Avolio and Bass (1988) stated that transformational leaders are viewed as (a) more effective at communicating the needs of subordinates to higher-ups, (b) leading more effective work groups, and (c) contributing more to the overall organizational effectiveness. Of course, as stated above, subordinates also view themselves as putting in more extra effort and as more satisfied with the leader (Seltzer & Bass, 1990). Further, Waldman, Bass, and Einstein (1985, cited in Avolio & Bass, 1988) found that transformational leadership resulted in higher performance than transactional leadership. Also, managers rated as "high potential" by their superiors were rated higher on transformational rather than transactional leadership. Lastly, Avolio and Bass (1988) also cite Avolio, Waldman, Einstein and Bass (1985) in which teams with transformational leaders significantly outperformed teams whose leaders were lower on transformational leadership. Also, the transformational leaders were viewed as being more effective, and their team members reported greater satisfaction with leadership. Thus, the values of transformational leadership seem to have been sufficiently documented.

The review of the three leadership theories of interest provided above introduced the theories' major premises as well as the more important research findings within each of those theories' realms. The previous major section of this thesis, of course, introduced major findings from the sphere of telecommuting. As pointed out earlier, a merger between telecommuting and leadership has not been attempted so far. Thus, the next

section attempts to link the two different bodies of literature in order to discover how leadership fares in the telecommuting context.

Leadership Examined in the Telecommuting Context

Substitutes for Leadership

Talking about Substitutes for Leadership in the telecommuting context is of tremendous importance. If factors identified as leadership substitutes by researchers are more closely examined, it is easy to see that almost all of them are major factors in the telecommuting context as well. For example, telecommuters have been described by many researchers (e.g., Lowry, 1996; Ross, 1990) as highly professional. It is not hard to see that this "professionalism" quality that telecommuters are said to possess closely corresponds to the "professional orientation" substitute proposed by Kerr and Jermier (1978), Podsakoff et al. (1996), and other Substitutes researchers. Telecommuters have also been described as self-starters, conscientious, and highly disciplined (e.g., Goldsborough, 1999). Those qualities seem to closely correspond to the "ability/experience" and the "need for independence" substitutes. Further, Howell et al. (1997) talked about highly trained individuals and computer technology as two other leadership substitutes, and De Vries et al. (1998) identified need for supervision as yet another substitute.

All of the above might make it seem as if leadership should be of no concern; as if it has no influence in telecommuting. However, it is arguable whether telecommuters are indifferent to rewards, or whether their tasks provide them with a lot of feedback and are truly intrinsically satisfying. Almost no one is indifferent to rewards; on the contrary, it is important to most people that they be noticed, and this is sometimes even a problem for

telecommuters (i.e., they fear that because they are away from the office they may be forgotten). As a matter of fact, as pointed out earlier, many telecommuters go back to the office regularly to be seen as still available for challenging projects (e.g., USOPM, 1997). Also, people like feedback, and in many instances it is harder for telecommuters to get feedback because of the physical distance and their isolation than it is for non-telecommuters. Therefore, although it may seem that leadership should be out of the equation in the telecommuting context, this should be far from true.

Leadership Neutralizers

Leadership Neutralizers (i.e., factors creating a leadership influence vacuum), such as Physical Distance, are the very reason why the majority of the companies are fearful to implement telecommuting programs. Specifically, companies are afraid that it would be impossible to manage their telecommuters, impossible to supervise telecommuters, and impossible to know when and how much telecommuters had worked (e.g., Nilles, 1998; Stanton & Barnes-Farrell, 1996; Thomas, 1999). Indeed, it might very well be that physical distance prevents leaders from exerting their influence. The second neutralizer, Reward Systems, may also be important in the telecommuting context. As many researchers and practitioners have advised (e.g., Ellison, 1999; Nilles, 1998, Thomas, 1999), telecommuters' performance should be measured on the basis of their output, because really, there is no other apparent and convenient way to measure their productivity and appraise their performance. This, however, clearly fits the description of Reward Systems as a substitute, and thus might also be an important factor in telecommuting environments.

However, if telecommuters are in need of leadership despite the fact that substitutes and neutralizers are probably more influential with them than actual leader behaviors, fears that neutralizers would eliminate the influence of leaders over telecommuters would be simply groundless. In support of that is Howell and Dorfman's (1986) finding that even the professional workers in their sample preferred no substitutes for role clarification. In other words, the IS behavior of clarifying others roles is so important that the ability and expertise substitute/neutralizer cannot replace or eliminate it. Consideration behaviors, on the other hand, seemed to be more susceptible to the influence of substitutes and neutralizers in that study. Therefore, leadership may not play such a major role, but at least specific leader behaviors do, and thus leadership is still important in telecommuting.

Leadership Behaviors—Initiating Structure vs. Consideration

Initiating structure. Going back to what is known about telecommuting, one could logically conclude that telecommuters will need more structure from their leaders than non-telecommuters. As mentioned previously, managers must spend a lot more time coordinating the work assignments of telecommuters and the communication between telecommuters and office workers simply because communication flows more easily in face-to-face situations. As described in an article about telecommuting in the Harvard Business Review, many times there is conflict between telecommuters and office colleagues because of misunderstandings, such as lost e-mails, technology break-downs, and the like (Egan, Miles, Birstler, & Klayton-Mi, 1998). The leader's role is make sure that miscommunication and miscoordination happen as rarely as possible, therefore leaders would need to be high on IS.

Moreover, telecommuters who are out-of-touch physically with their offices will probably find it helpful to receive specific and concrete instructions about the projects they are working on from their supervisors. Even more so, as discussed in the telecommuting part of this proposal, cognitive workload in such a context is higher, less correct decisions are obtained, and there is limited ability to verify information (e.g., Graetz et al., 1998, Konradt & Renate, 1999). Therefore, one might expect that telecommuters would need their supervisors to be high on IS. This proposition is supported by Howell and Frost's (1989) finding that individuals with structuring leaders experienced significantly less role conflict and ambiguity than individuals with considerate leaders.

Conversely, Keller's (1989) research suggests that telecommuters might not appreciate leaders high on IS. He tested to see whether need for clarity of tasks (another leadership substitute, Podsakoff et al., 1996) would moderate employees preferences for IS. Indeed, it did. Employees who did not require a lot of clarification of their tasks (i.e., professional employees) had lower satisfaction scores if their leaders exhibited more IS behaviors, and vice versa. Because telecommuters are mostly professional employees (as reviewed above), they would not need clarification (because of their professionalism) for the most part, and would prefer less IS from their leaders.

However, according to De Vries et al. (1998), if employees possess a variety of skills, those employees would need more supervision. Telecommuters must possess a variety of skills to be able to do their job from outside of the office, maybe on their own. Therefore, there is an inconsistency here that probably indicates that despite being professionals and being experts, telecommuters still need leaders at some point of time.

This is where the initiating structure leader behavior could come in handy. Telecommuters will need a leader to provide them with direction when they reach "unfamiliar territory" and must utilize various skills to solve a problem. This proposition also seems to be suggested by Howell and Dorfman (1986) who found that even professional employees preferred IS behaviors because they lead to more role clarification (which apparently was important to the professional workers in the study). Therefore, because of all these conflicting research findings, Initiating Structure in the telecommuting context should be studied.

Consideration. On the other hand, as mentioned formerly, relationships between telecommuters and their non-telecommuting co-workers are less developed than real-time relationships, and it is difficult to develop a sense of cohesion and satisfaction with the group interaction process (e.g., Parks & Roberts, 1998; Warkentin et al., 1999). Therefore, one might expect telecommuters to need their supervisors to exhibit Consideration behaviors in order to help them feel a part of a group. In support of this statement, Kerr et al. (1974) found that high C leaders are more likely to have job relationships with their subordinates that are characterized by mutual trusts, respect for subordinates' ideas, and consideration of their feelings. Naturally, good supervisor-subordinate relationships are a highly desirable organizational outcome. Thus, the telecommuting context circumstances should necessitate that telecommuting leaders be high on C, but whether leaders are indeed higher or lower on that construct in telecommuting remains to be seen.

Transformational and Transactional Leadership

Sosik et al. (1997) examined the effects of transactional and transformational leadership on group potency in groups communicating through Group Decision Support Systems (GDSS), a type of computer groupware. They found that transformational leadership did better than transactional leadership, even in the anonymous groups. Thus, it appears that leaders should be better off using that style in telecommuting settings, where GDSS (or similar electronic systems) are often used as the communication means between telecommuters and office workers.

To further examine the effects of transformational leadership, Sosik (1997) focused on transformational leadership in a GDSS context and its effects on idea generation and exploratory thinking. Transformational leadership was expected to enhance idea generation because of the individualized consideration promoted by transformational leaders, and because group members are consistently encouraged to work collectively. Indeed, groups working under high levels of transformational leadership were found to generate more supportive remarks, more questions about solutions, more embellished ideas, and more original ideas than groups working under low levels of transformational leadership (Sosik, 1997). Taking that to the telecommuting context, leaders of telecommuters might do well to engage in transformational leadership behaviors in order to increase idea generation and originality.

The above statement is supported by the very definition of transformational leadership. Specifically, Avolio and Bass (1988) stated that transformational leadership involves: (a) charisma, meaning that the leader has a sense of vision and mission, which a supervisor in a telecommuting context must have in order to be successful, (b)

individualized consideration, meaning that the leader pays personal attention to followers' needs, which a good telecommuting program supervisor will really need to do in order to understand the needs of remote subordinates, and (c) intellectual stimulation, meaning that the leader enables followers to look at problems from many angles, which telecommuting program supervisors must be able to do having in mind that their subordinates are highly professional people. Therefore, once again, telecommuting leaders would probably need to be higher on transformational leadership but that may not be true in reality.

The Present Study

Main Hypotheses

Before specific leadership behaviors are investigated in the context of telecommuting, the influence of leadership substitutes and neutralizers should first be established. The above review of the possible leadership substitutes and neutralizers suggests that some of them might play a role in a telecommuting environment (and conversely, not play a role in a non-telecommuting environment). Therefore, the first set of hypotheses will examine the existence of Leadership Substitutes and Neutralizers.

Hypothesis 1(a): Telecommuters will rate "Ability, Experience, Training and Knowledge," "Professional Orientation," "Organizational Rewards Not Within The Leader's Control," "Physical Distance," "Need for Independence," and "Computer Technology" as significantly more important, and "Need for Supervision" as significantly less important, to their everyday work experiences than will non-telecommuters.

As pointed out previously, telecommuters are professional, highly trained individuals (e.g., Van Horn & Storen, 2000), with more ability and experience on the job,

more likely to be familiar and comfortable with computer technology (e.g., Riley, Mandavilli, & Heino, 2000), less likely to need supervision (e.g., De Vries et al., 1998), less likely to depend on their leaders for rewards (e.g., Howell et al., 1997), and, of course, telecommuters are employees working at a physical distance from their supervisors at least one day per week. Thus, it is highly likely that those factors will be perceived as more important by telecommuters than by non-telecommuters.

Hypothesis 1(b): Telecommuters will *not* rate "Indifference to Rewards," "Task-Provided Feedback," and "Intrinsically Satisfying Tasks" as significantly more important to their everyday work experiences than will non-telecommuters.

As argued previously, it is hard to imagine that anyone is indifferent to rewards. Telecommuters might be in even greater need for rewards than fellow non-telecommuters precisely because of the physical distance and feelings of isolation frequently reported by telecommuters (e.g., USOPM, 1997). Furthermore, although telecommuters are professionals, and possibly performing tasks of greater responsibility, which in itself should result in greater satisfaction, it is again hard to imagine that those tasks would be their sole source of satisfaction. The same is true for feedback: although the tasks that telecommuters do might be a good source of feedback in themselves, telecommuters are still likely to need feedback from an outside source (such as a supervisor) to help evaluate their work more objectively. Therefore, it should be safe to hypothesize that these three substitutes in particular would not play a role in the telecommuting context.

However, despite the fact that leadership substitutes and neutralizers may seem to prevent leadership from exerting its influence on unseen subordinates, it is clear from the thus-far reviewed theoretical and applied studies that leadership does have a place in the

telecommuting context. Therefore, it could be expected that three distinct types of leadership (i.e., Initiating Structure, Consideration and Transformational leadership) will be especially influential in telecommuting, given the peculiarities of that environment. The second set of hypotheses will compare how telecommuters and non-telecommuters perceive their managers on IS, C, and Transactional and Transformational Leadership:

Hypothesis 2(a): Telecommuters will describe their leaders as significantly higher on Initiating Structure than will non-telecommuters reporting to the same leaders.

The above-summarized literature findings clearly point to the fact that because telecommuters are not in the office, they need more communication and coordination of their activities than their office colleagues. Because of the physical distance, managers and telecommuters do not see each other very often, and thus managers will need to provide extra guidance and directions to those remote workers, so that they are able to meet the expectations and do their jobs (Chan, 2001). Also, telecommuters experience more problems, especially problems with malfunctioning technology, and thus may need more help from their managers to deal with those problems than non-telecommuters (Goldsborough, 1999). Lastly, recall De Vries et al.'s (1998) finding that employees possessing a wide variety of skills report needing more structure from their managers. Telecommuters are highly skilled employees, and thus they may also be in need of more structure to help them make good use of those skills.

Hypothesis 2(b): Telecommuters will describe their leaders as significantly lower on Consideration than will non-telecommuters reporting to the same leaders.

It has been mentioned numerous times already that researchers find the relationships between telecommuters and their non-telecommuting co-workers to be less

developed than real-time relationships (Warkentin et al., 1999). Further, telecommuters have reported less satisfaction with co-workers and less satisfaction with promotion opportunities than non-telecommuters (Igbaria, 1999). Lastly, Reinsch (1997) had found that the levels of trust in and affect for managers tend to be lower in telecommuters than in non-telecommuters, and especially in female telecommuters. Therefore, the very fact that telecommuters appear unhappy about relationships, trust, affect and supervision means that Consideration is not among the leadership behaviors exhibited by telecommuting managers, although it clearly should be.

Hypothesis 2(c): Telecommuters will describe their leaders as significantly higher on Transactional leadership and significantly lower on Transformational leadership than will non-telecommuters reporting to the same leaders.

Some of the same arguments stated above suggest that the hypothesis should be worded in this form. Specifically, just as with the IS and C leadership behaviors, research suggests that transformational leadership is more advantageous than transactional leadership in terms of developing good relationships between supervisors and subordinates. Specifically, recall that Sosik (1997) found that groups working in a GDSS context and under high levels of transformational leadership generated more supportive remarks, more questions about solutions, more embellished ideas, and more original ideas than groups working under low levels of transformational leadership. Therefore, leaders should be more transformational. However, also recall that relationships in the telecommuting context are less well developed (Warkentin et al., 1999), that there is less satisfaction with co-workers and with promotion opportunities (Igbaria, 1999), and that there is less trust in the managers of telecommuters (Reinsch, 1997). All of these point to

the possibility that telecommuting managers tend to be higher on transactional, and not so high on transformational, leadership in relation to their telecommuting subordinates.

The aforementioned hypotheses examine the differences in perceptions of leadership behaviors between telecommuters and non-telecommuters reporting to the same managers. However, it is important to examine the self-perceptions of those managers as well. It will be very interesting to see whether managers supervising both telecommuters and non-telecommuters would give themselves similar or different ratings. Therefore, the third set of hypotheses will focus on the managers of both telecommuters and non-telecommuters:

Hypothesis 3(a): Managers of telecommuters and non-telecommuters will describe themselves as significantly higher on Initiating Structure and significantly lower on Consideration with their telecommuting subordinates than with their non-telecommuting subordinates.

Looking back at the roles of managers as described by empirical and practitioners articles, managers have been found to engage in the following tasks in relation to their telecommuting subordinates: (a) determining work schedules, (b) communicating the work schedules to the telecommuters, (c) ensuring staff coverage, (d) establishing a safe work environment, (e) making sure telecommuters are not interrupted at non-work hours, (f) monitoring telecommuters' work progress, and (g) communicating tasks and assignments to telecommuters (Chan, 2001; Nilles, 1998; USOPM, 1997). All of these activities are clearly more easily classified as IS behavior than as C behaviors.

Further, the argument needs to be made again that telecommuters report less well developed relationships (Warkentin et al., 1999), less satisfaction with co-workers and

with promotion opportunities (Igbaria, 1999), and less trust in their managers (Reinsch, 1997). These findings would not have been true if managers of telecommuters were high on Consideration.

Lastly, physical distance between telecommuters and their managers may put the emphasis on communicating the assignments and tasks to the telecommuters rather than on developing a good supervisor-subordinate relationship. In other words, managers may perceive a greater necessity to make sure that the remote workers understand what is expected of them as opposed to making sure that telecommuters are happy with the interpersonal aspect of the telecommuting arrangement. Or, it might even be that it is simply difficult for human beings to build good relationships remotely. In any case, research findings seem to indicate that managers of telecommuters will be higher on IS and lower on C with the telecommuters than with the office workers.

Hypothesis 3(b): Managers of telecommuters and non-telecommuters will describe themselves as significantly higher on Transactional leadership and significantly lower on Transformational leadership with their telecommuting subordinates than with their non-telecommuting subordinates.

The logic behind this hypothesis is similar to the logic behind hypothesis 3(a). Specifically, less well-developed relationships reported by telecommuters and less trust in managers point to the fact that Transactional, rather than Transformational leadership, is at work in the telecommuting environment.

Uncovering how leadership applies in telecommuting contexts would have important practical implications for businesses that already have telecommuting programs (or are about to launch such). First, it will be shown whether different

leadership styles are called for in a telecommuting vs. non-telecommuting situation. If so, companies should be selecting their telecommuting managers based on how versatile they are with their leadership styles, and how quickly they can switch from one style to another. Second, it will be seen whether telecommuters and non-telecommuters perceive the leadership styles of their supervisors the same as the supervisors perceive their own styles. If not, companies would need to re-examine the communication and interpersonal relationships between subordinates and supervisors in an effort to address those discrepancies, because they could lead to serious cultural problems. Third, it will be established whether a specific leadership style is most prevalent across different telecommuting programs. If so, companies need to be selecting managers for telecommuting programs based on whether they have that particular leadership style or not, or they at least need to be training these managers in that particular style. Thus, investigating this topic should yield some valuable information.

Exploratory Hypotheses

Because the telecommuting and the leadership literature has not examined thus far how telecommuting and leadership interact, it is necessary that a number of exploratory research questions be asked here. First, would the Initiating Structure, Consideration, Transactional and/or Transformational Leadership behaviors of the supervisors, or the Leadership Substitutes and Neutralizers, explain any of the variance in general employee job satisfaction? Second, would employees' (a) sex, (b) age, (c) length of employment at current organization, (d) length of time spent under the current supervisor, and (e) type of industry they work in interact with employee telecommuting status, and would such an interaction influence how employees perceive the leadership qualities of their

supervisors, as well as how important employees think different leadership substitutes are? Third, would the telecommuting status of the supervisor and the telecommuting status of the employee interact to influence the ratings given? Lastly, with respect to telecommuters only, would the length of telecommuting experience and the number of days per week spent telecommuting reflect on the ratings provided by the telecommuters in the study?

METHOD

Participants

Participants in this study were telecommuters, office workers in similar or one and the same job as the telecommuters, and their mutual supervisors. For the purposes of this study, a "telecommuter" was defined as someone who spends at least one day working from their home and/or a location different from the company's office (USOPM, 1997). A total of 14 triads (a triad consisted of at least one telecommuter, at least one non-telecommuter, and their supervisor) were surveyed with the Leadership Survey instrument described below. Broken down by groups, there were 24 telecommuters, 17 non-telecommuters, and 13 supervisors (there were more than one telecommuter and/or more than one non-telecommuter in some of the triads, and one supervisor did not return their survey).

The triads represented five different industries: 7 were from the healthcare industry (12 telecommuters and 8 non-telecommuters), 2 were from the software industry (5 telecommuters and 2 non-telecommuters), 2 were from the communications industry (2 telecommuters and 2 non-telecommuters), 1 was from the mail order industry (1 telecommuter and 1 non-telecommuter), and 2 were from education (4 telecommuters and 4 non-telecommuters). Five of the 13 supervisors were men, 4 of the 24 telecommuters were men, and 2 of the 17 non-telecommuters were men. Seven of the supervisors were telecommuters themselves. Further, 13 of the 24 telecommuters were full-time telecommuters (i.e., 5 days per week); the remaining 11 telecommuters were part-time telecommuters (i.e., 4 days per week or less). All telecommuters and non-telecommuters

reported being satisfied with their job. For a complete listing of the demographics of this sample, please refer to Table 1 and Table 2.

Survey Instruments

The Leadership Survey (LS). The Leadership Survey was sent out to the participants in this study. The LS represents a compilation of items from four other leadership questionnaires (described below), and incorporates two items developed specifically or the purposes of this research. Two separate versions of the LS were developed: an Employee Version (shown in Appendix C), and a Supervisor Version (shown in Appendix D).

The Employee Version consists of three major sections. Part I collects demographic information such as sex, age, race, time spent telecommuting, etc.; the items in this part were designed independently. Part II is a mix of Initiating Structure and Consideration questions borrowed from the Leadership Behavior Description Questionnaire—XII, and of Transactional and Transformational Leadership questions borrowed from the Multifactor Leadership Questionnaire—5. Part III collects Substitutes for Leadership information, and the items come from the Substitutes for Leadership Questionnaire, as well as from De Vries et al. (1998) short Need for Supervision scale. That part also contains two independently created "Comfortableness with Computer Technology" items. Table 3 provides specific information about the subscales of the LS. Table 4 shows the Cronbach Alpha reliability coefficients for the Initiating Structure, Consideration, Transactional and Transformational Leadership subscales, as well as the intercorrelations between these subscales and the substitutes subscales.

Table 1

Demographic Characteristics of Supervisors

Group	Number of participants
Gender	
Male	5
Female	8
Age	
30 or less	1
31 to 40 yr. old	2
41 to 50 yr. old	2
51 or older	4
Experience with company (how long with co.)	
Less than 1 yr.	1
Between 1 yr. 1 mo. and 5 yrs.	2
Between 5 yrs. 1 mo. and 10 yrs.	2
Between 10 yrs. 1 mo. and 15 yrs.	2
Between 15 yrs. 1 mo. and over	6
Experience as a supervisor	
1 yr. or less	1
1 yr. 1 mo. to 5 yrs.	3
5 yrs. 1 mo. and over	8

Table 1 *(continued).*

Group	Number of participants
Experience supervising telecommuters	
1 yr. or less	2
1 yr. 1 mo. to 5 yrs.	7
5 yrs. 1 mo. and over	3
Supervisor telecommuting status	
Telecommuter	7
Non-telecommuter	6
Business industry of company	
Healthcare	6
Software	2
Communications	2
Mail Order	1
Education	2
Satisfaction with telecommuting program	
Satisfied	11
Not satisfied	2
Productivity comparison of subordinates	
Telecommuters more productive	4
Non-telecommuters more productive	1

Table 1 *(continued)*.

Group	Number of participants
Both groups equally productive	8
Satisfaction comparison of subordinates	
Telecommuters more satisfied	6
Non-telecommuters more satisfied	1
Both groups equally satisfied	6

Table 2

Demographic Characteristics of Subordinates

Group	Telecommuters $n = 24$	Non-telecommuters $n = 17$
Gender		
Male	4	2
Female	20	15
Age		
30 or less	4	3
31 to 40 years old	9	3
41 to 50 years old	10	4
51 or older	1	7
Length of experience with company		
Less than 1 yr.	5	5
Between 1 yr. 1 mo. and 5 yrs.	12	4
Between 5 yrs. 1 mo. and 10 yrs.	2	1
Between 10 yrs. 1 mo. and 15 yrs.	2	3
15 yrs. 1 mo. and over	3	4
Length of telecommuting experience		
1 yr. or less	9	n/a
1 yr. 1 mo. to 5 yrs.	11	n/a

Table 2 *(continued).*

Group	Telecommuters $n = 24$	Non-telecommuters $n = 17$
5 yrs. 1 mo. and over	4	n/a
Days a week working from home		
1 day a week	3	n/a
2 days a week	1	n/a
3 days a week	3	n/a
4 days a week	4	n/a
5+ days a week	13	n/a
Experience under current supervisor		
1 yr. or less	8	8
1 yr. 1 mo. to 5 yrs.	13	6
5 yrs. 1 mo. and over	3	3
Telecommuting status of supervisor		
Supervisor telecommutes	6	3
Supervisor does not telecommute	17	14
Business industry of company		
Healthcare	12	8
Software	5	2
Communications	2	2
Mail Order	1	1

Table 2 *(continued)*.

Group	Telecommuters $n = 24$	Non-telecommuters $n = 17$
Education	4	4
Job satisfaction		
Satisfied with job	24	17
Not satisfied with job	0	0

Table 3

Composition of the Leadership Survey (LS)

Name of Scale	Item Number
Part I – Demographic Information	1 – 10
Part II – Leadership qualities of supervisor	
Initiating Structure	1 – 4
Consideration	5 – 8
Transactional Leadership	
Contingent Reward	9 – 10
Management-by-Exception—Passive	11 – 12
Management-by-Exception—Active	13 – 14
Transformational Leadership	
Inspirational Motivation	15 – 16
Idealized Influence	17 – 18
Individualized Consideration	19 – 20
Individualized Stimulation	21 – 22
Part III – Substitutes for Leadership	
Ability, experience, training and knowledge	1 – 2
Professional orientation	3 – 4
Indifference to organizational rewards	5 – 6
Task-provided feedback	7 – 8

Table 3 *(continued)*.

Name of Scale	Item Number
Intrinsically satisfying tasks	9 – 10
Organizational rewards not within the leader's control	11 – 12
Spatial distance between superior and subordinates	13 – 14
Subordinate need for independence	15 – 16
Comfortableness with computers	17 – 18
Need for supervision	19 – 20

Table 4

Variable Intercorrelations and Cronbach Alpha Reliabilities of the LS Initiating Structure, Consideration, Transactional Leadership, Transformational Leadership and Leadership Substitutes Subscales for the Subordinates Sample

	1	2	3	4	5	6	7
IS (1)	(.68)	.29	.31	.11	.13	.35*	-.19
C (2)		(.67)	.60**	-.35*	.15	.31	-.03
TRANSACT (3)			(.49)	-.18	-.05	-.11	.09
TRANSFORM (4)				(.94)	-.20	.32*	-.46**
AETK (5)					(--)[a]	.28	.15
PO (6)						(--)[a]	-.09
ITOR (7)							(--)[a]
TPFCA (8)							
IST (9)							
ORNWLC (10)							
SDBSS (11)							
SNI (12)							
CC (13)							
NI (14)							

Table 4 *(continued).*

	8	9	10	11	12	13	14
IS (1)	.12	-.21	-.14	-.16	-.01	-.13	.15
C (2)	.26	-.03	.04	-.15	.23	-.17	.10
TRANSACT (3)	-.21	-.07	-.37*	-.15	.01	-.14	.05
TRANSFORM (4)	.21	-.05	-.27	-.25	.18	-.05	.37*
AETK (5)	.27	.19	.09	.07	.11	-.09	-.43**
PO (6)	.05	-.04	-.10	-.36*	.30	-.07	.11
ITOR (7)	-.14	.003	.50**	-.35*	.03	-.04	-.22
TPFCA (8)	(--)[a]	.13	-.11	.08	.04	.07	-.002
IST (9)		(--)[a]	-.003	.05	.005	.13	-.09
ORNWLC (10)			(--)[a]	-.08	.04	.11	-.21
SDBSS (11)				(--)[a]	-.19	.19	-.25
SNI (12)					(--)[a]	-.12	-.05
CC (13)						(--)[a]	.21
NI (14)							(--)[a]

Notes. Coefficient alpha reliabilities for the Initiating Structure (IS), Consideration (C), Transactional Leadership (TRANSACT) and Transformational Leadership (TRANSFORM) are shown in parenthesis on the main diagonal. Since internal consistency measures are a function of both the number of items and the intercorrelations among the items in a scale, it made little sense to calculate the Cronbach Alpha

reliabilities for the Transactional and Transformational Leadership subscales. Nevertheless, for the Contingfent Reward (CR), Management-by-Exception—Passive (MBEP), Inspirational Motivation (IM), Idealized Influence (II), Individualized Consideration (IC), and Individualized Stimulation (INDST) two-item subscales used in this study, the items intercorrelated at $p < .01$. However, such significant correlations were not reached for the two items in the Management-by-Exception—Active (MBEA) subscale.

[a] Cronbach Alpha reliabilities were not calculated for the Leadership Substitutes subscales because all of them consisted of two items only. Nevertheless, for the Abilities, experience, training and knowledge (AETK), Professional orientation (PO), Indifference to organizational rewards (ITOR), Organizational rewards not within the leader's control (ORNWLC), Spacial distance between supervisors and subordinates (SDBSS), and Comfortableness with computer technology (CC) two-item subscales used in this study, the items intercorrelated at $p < .01$. However, such significant correlations were not reached for the two items in the Tyask-provided feedback concerning accomplishmenets (TPFCA), Intrinsically satyisfying tasks (IST), Subordinates needs for independence (SNI) and Need for supervision (NS) subscales.

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

The Supervisor Version of the LS consists of two major parts. Part I collects demographic information, and the items in it were independently designed. Part II is a mix of Initiating Structure and Consideration questions (borrowed from the LBDQ—XII), and of Transactional and Transformational Leadership questions (borrowed from the MLQ—5). The questions in Part II of the Supervisor Version are the same as the questions used in Part II of the Employee Version, the only difference being that they are worded as self-report items. Table 5 shows the Cronbach Alpha reliability coefficients for the leadership scales, as well as the intercorrelations between the scales.

The Leadership Behavior Description Questionnaire (LBDQ)—XII. The LBDQ has been widely used by researchers to measure subordinates' perceptions of the leader behaviors of Initiating Structure (IS) and Consideration (C), two of the leadership behaviors of interest to this study. The form currently in use is the LBDQ—XII. This instrument has been revised and improved considerably since it was created. Therefore, items from the LBDQ Form XII were used to measure the perceptions of telecommuters and non-telecommuters of their supervisors' leadership ability. It needs to be clarified that the LBDQ-XII consists of other scales besides the Initiating Structure and Consideration ones, but only those two scales are discussed here since items from them only were used in this research. The other LBDQ scales were simply not of interest to this study. Also, to obtain the self-reports of the supervisors about their own leadership styles, the IS and C items were re-worded into self-report items. The original items from the IS and the C scales can be found in Appendix E. The Appendix also indicates which of the 10 IS and 10 C items were incorporated into the LS and used in this research.

Table 5

Variable Intercorrelations and Cronbach Alpha Reliabilities of the LS Subscales for the Supervisors Sample

	1	2	3	4
IS (1)	(.71)	.72**	-.16	.35
C (2)	.73**	(.87)	-.53	.56*
TRANSACT (3)	.26	-.39	(.82)	-.28
TRANSFORM (4)	.36	.52	-.15	(.93)

Notes. Intercorrelations for supervisors' ratings of office subordinates are shown above the main diagonal. Intercorrelations for supervisors' ratings of the telecommuting subordinates are shown below the main diagonal. Coefficient alpha reliabilities for aggregate data are shown in parenthesis on the main diagonal. However, the reliabilities calculated for the supervisors' ratings of the office subordinates and the supervisors' ratings of the telecommuting subordinates were somewhat lower than the reliabilities for the aggregate data. Since internal consistency measures are a function, in part, of the number of items, Cronbach Alpha reliabilities for the Transactional and Transformational Leadership subscales, all of which consisted of two items only, were not calculated. Nevertheless, for the CR, MBEP, IM, and IC two-item subscales used in this study, the items intercorrelated at $p < .01$. However, such significant correlations were not reached for the two items in the MBEA, II, and INDST subscales.

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

The Multifactor Leadership Questionnaire (MLQ)—5. The MLQ—5 has also been widely used by leadership researchers. This instrument measures transactional and transformational leadership, as the subordinates perceive it in their supervisors. The MLQ also has a self-report version. For the purposes of this study, the short form of the LMQ was used, namely the MLQ—5x-Short. A wealth of information on the statistical properties of this shorter version can be found in the test manual (Bass & Avolio, 1995), but briefly, all 12 scales enjoy high reliabilities ranging from 0.74 (Management-by-Exception—Active) to 0.91 (Inspirational Motivation). The MLQ—5x-Short also contains a self-report version. Items from both questionnaires were used with confidence to measure the perceptions of the telecommuting and the non-telecommuting participants of their supervisors' levels of transactional and transformational leadership, as well as the self-reported levels in those two types of leadership of the supervisor participants. The full version of the MLQ—5x-Short is presented in Appendix F. However, again, only select scales and items were used in this research, as indicated in Appendix F.

Substitutes for Leadership Questionnaire (SLQ). Kerr and Jermier (1978) developed the Substitutes for Leaderships Questionnaire (see Appendix G for original instrument). The two authors have conducted and published a number of validation studies for their instrument. The questionnaire contains 13 scales, all listed in Appendix G. Each scale contains at least three items, each item having five possible Likert-type responses. The Kuder—Richardson Formula 8 reliabilities reported by the authors for all 13 scales range from .74 (lowest, Professional orientation), to .85 (highest, Ability, experience, training, and knowledge; Indifference toward organizational rewards; and Intrinsically satisfying tasks) (see Kerr & Jermier, 1978). Not all 13 scales were used in

this research, and not all items within the scales chosen for inclusion in the study were used as well. This was necessitated by two factors—first, not all of the substitutes and neutralizers studied by the questionnaire are of interest to this study, and second, not all items could be included due to brevity considerations. Appendix G contains the full version of the SLQ, as well as for information on which substitutes were used.

Substitutes not measured by the SLQ. Besides the substitutes and neutralizers that were measured with the SLQ, two other leadership substitutes were of interest to this study – need for supervision and comfortableness with computer technology. De Vries et al. (1998) have developed a short questionnaire to measure Need for Supervision (NS). Their own studies have shown that their scale for measuring NS is reliable and valid. Although the scale consists of only five items, De Vries et al. (1998) have found Cronbach's alpha to range from .77 to .81 in their different studies. Factor analyses have also shown NS to be factorially distinct from human-oriented leadership and task-oriented leadership in their studies. See Appendix H for the full five-item NS scale, as well as for information on which two items were utilized in the LS.

Lastly, two self-developed items were used to measure Comfortableness with computer technology: "I feel comfortable using computers," and "When my computer breaks down, I usually need help fixing it" (reverse-scored item).

Procedure

Organizations that have telecommuting programs were identified in two ways. First, every Human Resource (HR) Director of every hospital in the state of Kansas was contacted via e-mail and asked whether their hospital employed telecommuters (medical transcriptionists in this case). Those HR Directors who replied positively were then asked

whether they would like to help with the data collection process. The majority of the Directors (7 out of 10) who replied did volunteer to help. Second, 16 personal acquaintances employed at other organizations from across the country were contacted and asked for cooperation. Some of these contacts were telecommuters themselves, some were telecommuting program directors, and some just knew that their organization had a telecommuting program. These individuals who wanted to help with the research asked their companies for permission, and seven of them did get permission to help with the data collection process.

All hospital HR Directors and other contacts were asked how many telecommuters and non-telecommuters were supervised by the same manager in their organizations. Then, the hospital HR Directors and other contacts received a package containing individual packets for the exact number of telecommuters and non-telecommuters, and one packet for their supervisor. The individual packets themselves contained the following materials: (a) an Instruction page telling participants how they needed to fill out and mail back the survey and the Informed Consent form, (b) an Informed Consent Form, Employee Version (Appendix A) or Supervisor Version (Appendix B), (c) the Leadership Survey instrument, Employee Version (Appendix C) or Supervisor Version (Appendix D), and (d) two pre-stamped, self-addressed envelops, one for the Informed Consent form, the other for the Survey. The contacts distributed the packets to the participants and explained the study to them. Fourteen Supervisor packets were mailed (13 were received back for a return rate of 93%), 30 Telecommuters packets were mailed (24 were received back for a return rate of 80%), and 25 Non-telecommuters packets were mailed (17 were received back for a return rate of 68%).

RESULTS

Employee Data

Leadership Substitutes and Neutralizers. Hypotheses 1(a) and 1(b) aimed to examine whether specific Leadership Substitutes and Neutralizers would play a role in a telecommuting environment. Specifically, Hypothesis 1(a) stated that telecommuters will rate "Ability, Experience, Training and Knowledge" [AETK], "Professional Orientation" [PO], "Organizational Rewards Not Within The Leader's Control" [ORNWLC], "Physical Distance" [SDBSS], "Need for Independence" [NI], and "Comfortableness with Computer Technology" [CC] as significantly more important, and "Need for Supervision" [NS] as significantly less important, to their everyday work experiences than will non-telecommuters. The hypothesis was tested with seven independent samples *t*-tests, which compared the means of the self-ratings given by the telecommuters and the non-telecommuters on the seven substitutes. Hypothesis 1(b) stated that telecommuters will not rate "Indifference to Organizational Rewards" [ITOR], "Task-Provided Feedback" [TPF] and "Intrinsically Satisfying Tasks" [IST] as significantly more important to their everyday work experiences than will non-telecommuters. The hypothesis was tested with three independent samples *t* tests, which compared the means of the ratings given by the telecommuters and the non-telecommuters on those three substitutes. Table 6 presents the means and standard deviations obtained for the study's subsamples of telecommuters and non-telecommuters and indicates the significant differences (from the *t* tests between the two subsamples), where applicable.

As evidenced in the table, telecommuters and non-telecommuters differed significantly ($p = .001$) only on one of the 10 proposed substitutes and neutralizers—

Table 6

Variable Means and Standard Deviations for Hypotheses 1(a) and 1(b)

	Telecommuters (n = 24)		Non-telecommuters (n = 17)	
Variables from H1(a)	*M*	*SD*	*M*	*SD*
Ability, experience, training and Knowledge	4.48	.74	4.50	.71
Professional orientation	2.71	1.16	2.72	1.11
Organizational rewards not within the leader's control	2.39	1.06	2.30	1.08
Physical distance	4.15**	.83	2.88**	1.35
Need for independence	3.61	.62	3.69	.75
Computer technology	4.13	.53	3.94	.66
Need for supervision	2.85	.91	2.72	.98
Variables from H1(b)				
Indifference to organizational rewards	2.52*	1.02	3.13*	.92
Task-provided feedback	3.85	.79	4.06	.54
Intrinsically satisfying tasks	3.98	.71	4.21	.52

Notes: **Significant difference (using a t test) between the two subsamples on this variable for $p < .001$. *Marginally significant difference (using a t test) between the two subsamples on this variable for $p = .064$.

Physical distance (Spatial Distance Between Supervisor and Subordinates [SDBSS]). This, of course, was quite expected, mostly because the SDBSS variable could be conceived of as a statistical way to define the two subsamples. In other words, the fact that the two subsamples did differ significantly on this particular variable indicates that the telecommuters and non-telecommuters did represent two distinct groups of study participants.

None of the other substitutes and neutralizers produced significant results. "Indifference to organizational rewards" was the only substitute that approached significance ($p = .064$), with telecommuters scoring lower on the two items comprising the ITOR scale than non-telecommuters. Interestingly, this was one of the three substitutes that was *not* expected to produce a difference between the subsamples. This result, therefore, will receive its due attention in the discussion section.

Overall, Hypothesis 1(a) received only minimal support (only 1 of the seven variables was significantly different). Hypothesis 1(b) was supported, because it predicted no differences between the groups, and no significant differences were found. However, in light of how similar the two groups were on six of the other seven substitutes and neutralizers, the practical significance of this result is questionable.

Initiating Structure and Consideration. Hypotheses 2(a), 2(b), and 2(c) aimed to examine whether four distinct types of leadership behaviors (i.e., Initiating Structure, Consideration, and Transactional and Transformational Leadership) would be influential in the telecommuting environment. Specifically, this second set of hypotheses was interested in whether telecommuting and non-telecommuting subordinates will rate their leaders differently on these four different types of leadership behaviors.

Hypothesis 2(a) stated that telecommuters will describe their leaders as significantly higher on Initiating Structure than will non-telecommuters reporting to the same leaders. The hypothesis was tested with an independent samples *t*-test, which compared the means of the ratings given by the telecommuters and the non-telecommuters on the Initiating Structure items from the Leadership Survey. Hypothesis 2(b) stated that telecommuters will describe their leaders as significantly lower on Consideration than will non-telecommuters reporting to the same leaders. The hypothesis was tested with an independent samples *t* test, which compared the means of the ratings given by the telecommuters and the non-telecommuters on the Consideration items from the Leadership Survey. Table 7 presents the means and standard deviations obtained for the study's subsamples of telecommuters and non-telecommuters, and indicates the significant differences (from the *t* tests between the two subsamples), where applicable.

As evidenced in Table 7, neither hypothesis received support. However, Hypothesis 2(a) was supported with marginal significance ($p = .053$), where telecommuters saw their leaders as higher on Initiating Structure than did non-telecommuters. There were no differences in how the two groups perceived the Consideration behaviors of their leaders. Further analysis of these results will be provided in the discussion section.

Transactional and Transformational Leadership. Hypothesis 2(c) stated that telecommuters will describe their leaders as significantly higher on Transactional leadership and significantly lower on Transformational leadership than will

Table 7

Variable Means and Standard Deviations for Hypotheses 2(a) and 2(b)

	Telecommuters (n = 24)		Non-telecommuters (n = 17)	
	M	*SD*	*M*	*SD*
Initiating structure	4.38*	.52	4.06*	.49
Consideration	3.99	.59	3.85	.64

Note: *Marginally significant difference (using a t-test) between the two subsamples on this variable for p = .053

non-telecommuters reporting to the same leaders. This hypothesis was tested in two ways. First, the means for the leadership behaviors that comprise Transactional Leadership (i.e., Contingent Rewards, Management-by-Exception Active, and Management-by-Exception Passive) were calculated and compared with three independent samples *t* tests. In a similar manner, the means for the leadership behaviors that comprise Transformational Leadership (i.e., Idealized Influence, Inspirational Motivation, Individualized Stimulation, and Individualized Consideration) were calculated and compared with five independent samples *t*-tests. Table 8 presents the means and standard deviations obtained for the study's subsamples of telecommuters and non-telecommuters. As evidenced from the table, none of the Transactional and Transformational scales yielded significant results.

The second way to test Hypothesis 2(c) was to calculate the means for Transactional Leadership and for Transformational Leadership. Therefore, the mean of all the items from the Leadership Survey that tested Transactional Leadership was calculated, and the mean of all the items from the Leadership Survey which tested Transformational Leadership was also calculated. Two independent samples *t*-tests were used – one tested for differences between how telecommuters and non-telecommuters rated their leaders on Transactional Leadership, the second tested for differences in the ratings on Transformational Leadership. However, the two *t* tests were not significant, ($p = .92$ and $p = .96$ respectively) and therefore hypothesis 2(c) was not supported (means and standard deviations are shown in Table 9).

Table 8

Variable Means and Standard Deviations for Hypotheses 2(c)

	Telecommuters ($n = 24$)		Non-telecommuters ($n = 17$)	
Transactional Leadership Variables	*M*	*SD*	*M*	*SD*
Contingent Reward	4.19	.87	3.85	.93
Management-by-Exception Active	2.23	.77	2.47	.89
Management-by-Exception Passive	2.13	1.03	2.26	.89
Transformational Leadership Variables				
Inspirational Motivation	4.02	1.04	3.88	.89
Idealized Influence	2.92	1.03	2.88	1.14
Individualized Consideration	3.44	1.17	3.41	1.09
Individualized Stimulation	3.38	1.14	3.53	.92

Note: No significant differences (using *t* tests) were found between the two subsamples on the variables listed.

Table 9

Variable Means and Standard Deviations for Hypotheses 2(c)

	Telecommuters (n = 24)		Non-telecommuters (n = 17)	
	M	*SD*	*M*	*SD*
Transactional Leadership	2.68	.96	2.69	.92
Transformational Leadership	1.84	.58	1.86	.51

Note: No significant differences (using *t* tests) were found between the two subsamples on the variables listed.

Supervisors Data

Lastly, the third set of hypotheses aimed at examining whether leaders who supervise both telecommuters and non-telecommuters would report similar, or different, levels of Initiating Structure, Consideration, and Transactional and Transformational Leadership that the leaders think they exhibit with their telecommuting and non-telecommuting subordinates, respectively.

Initiating Structure and Consideration. Hypothesis 3(a) stated that managers of telecommuters and non-telecommuters would describe themselves as significantly higher on Initiating Structure and significantly lower on Consideration with their telecommuting subordinates than with their non-telecommuting subordinates. The hypothesis was tested with two related groups *t* tests, none of which yielded significance ($p = .67$ and $p = .34$, respectively). Means and standard deviations are shown in Table 10. Thus, the managers perceive their levels of Initiating Structure and Consideration to be quite similar with both their telecommuting and non-telecommuting subordinates.

Transactional and Transformational Leadership. Hypothesis 3(b) stated that managers of telecommuters and non-telecommuters will describe themselves as significantly higher on Transactional leadership and significantly lower on Transformational leadership with their telecommuting subordinates than with their non-telecommuting subordinates. This hypothesis was also tested with two related groups *t* tests. However, the first related groups *t*-test (which tested the Transactional leadership part of the hypothesis) could not be calculated at all because the ratings that managers had given themselves were virtually the same, and therefore a test of significant differences could not be performed by SPSS. The *p* value for the Transformational

Table 10

Variable Means and Standard Deviations for Hypotheses 3(a)

	With Telecommuters (n = 13)		With Non-telecommuters (n = 13)	
	M	*SD*	*M*	*SD*
Initiating structure	3.13	.45	3.12	.46
Consideration	3.44	.49	3.40	.53

Note: No significant differences (using related-group t tests) between the two subsamples were found for these variables.

Table 11

Variable Means and Standard Deviations for Hypotheses 3(b)

	With Telecommuters (n = 13)		With Non-telecommuters (n = 13)	
	M	*SD*	*M*	*SD*
Transactional Leadership	1.62	.74	1.62	.74
Transformational Leadership	3.01	.53	3.05	.53

Note: No significant differences (using related-group t tests) between the two subsamples were found for these variables.

Leadership *t* test was .39. The means and standard deviations obtained through the related groups *t* tests are shown in Table 11.

Exploratory Analyses

General employee satisfaction. A number for exploratory analyses were carried out in order to examine additional research questions of interest. One goal was to find out whether the Initiating Structure, Consideration, Transactional and/or Transformational Leadership behaviors of the supervisors, or the Leadership Substitutes and Neutralizers, would explain any of the variance in general employee job satisfaction. General satisfaction has been used in many previous studies of the influence of substitutes and neutralizers (e.g., Howell & Dorfman, 1981; Howell & Dorfman, 1986, Podsakoff et al., 1996), and thus was chosen as the criterion variable for the exploratory part of this research as well. Employees were simply asked to indicate whether they were satisfied with their jobs or not on the Leadership Survey. The intent was to run a series of correlations between the Job Satisfaction (JS) score (used as the criterion), and the ratings given by the telecommuters and non-telecommuters on the four leadership behaviors (used as predictor variables) and the self-ratings of the employees on the substitutes and neutralizers (used as predictor variables as well), in order to see how much of the variance between criterion and predictors was shared variance. A series of Multiple Regression Analyses (MRA) was planned using a single potential substitute and a single leadership behavior as predictors of the criterion at a time in order to find out whether any of the supposed substitutes would indeed emerge as true substitutes in this study (replication of Howell & Dorfman, 1986). However, none of these analyses was possible because all of the telecommuting and the non-telecommuting subordinates reported being

satisfied with their jobs (i.e., JS = 1). In other words, the JS variable was constant, and therefore neither simple correlations nor MRAs could be executed.

Interactions between telecommuting status and various demographic variables. A series of MANOVAs was conducted in order to determine whether there are any interactions between telecommuting status and employee sex, employee age, employee's length of employment at company, employee's length of time spent under current supervisor, the telecommuting status of the employee supervisor, and the type of industry employees and supervisors worked in. Unfortunately, although participants were grouped in no more than two groups in each of the above-listed categories with the purpose of increasing sample size, no MANOVA yielded significant results. Arguably, a bigger sample size would help detect interesting interactions.

Length of telecommuting experience and number of days per week spent telecommuting. Lastly, the telecommuting subsample was examined on its own in order to see whether the length of telecommuting experience and the number of days per week spent telecommuting actually produce a difference within that subsample only. Again a series of MANOVAs was conducted but no significant interactions emerged here as well. Presumably, the number of participants was once more responsible for the lack of significant findings.

DISCUSSION

The purpose of this study was to find out whether three different theories of leadership would produce similar or different results in a context thus far overlooked by leadership researchers – telecommuting. The bottom line seems to be that leadership theories would indeed have the same implications in telecommuting environments, just as in "normal" face-to-face milieus. The two subsamples of telecommuting and non-telecommuting subordinates rated the Initiating Structure, Consideration, Transactional and Transformational leadership behaviors of their supervisors in a very similar manner. Further, the supervisors gave themselves almost identical ratings on the self-report measures of the same four leadership behaviors. Even more so, the telecommuting subsample was expected to rate ten leadership substitutes and neutralizers as more important to their everyday work activities than the non-telecommuting subsample, but this did not occur either. The implications of these results will be discussed next.

Leadership Substitutes and Neutralizers

Physical distance (SDBSS). It was intriguing to see that of the ten Substitutes and Neutralizers studied, telecommuters and non-telecommuters differed significantly only on the "Physical Distance" neutralizer. On the surface, this finding is really not very exciting. as telecommuters are physically away from their supervisors. However, the finding is important for two reasons. Firstly, it could be looked at as a manipulation check – out of all 10 substitutes and neutralizers, telecommuters and non-telecommuters differed on this (expected) one only. In other words, this might mean that the participants did take the job of filling out the survey seriously and that the lack of significant findings

when it comes down to the other nine substitutes and neutralizers is probably due to real feelings and not to a sampling error.

Secondly, recall that according to Howell et al. (1997), leadership neutralizers, and specifically Physical Distance, create an influence vacuum, and therefore the leader's behaviors have limited usefulness. If this were true, then leader's behaviors such as Initiating Structure, Consideration, and Transactional and Transformational leadership, would indeed be non-influential in the telecommuting environments studied. Unfortunately, a direct test of this possibility could not be conducted because the Job Satisfaction variable was constant. Still, the ratings that telecommuters and non-telecommuter gave to their supervisors were statistically the same (with the exception of Initiating Structure). In other words, if both groups have similar perceptions of the leadership behaviors of their supervisors, then the supervisors must be exhibiting one and the same leadership qualities regardless of whether their subordinates telecommute or not. Therefore, it might be that Physical Distance does not prevent leadership from influencing subordinates in neither a physically close, nor in a physically distant, environment.

Ability, experience, training and knowledge (AETK). It is quite interesting that the telecommuters and non-telecommuters in this study scored similarly on the AETK substitute. Demographic analyses of the workforce (e.g., Helling, 2000; Van Horn & Storen, 2000) and published non-empirical articles and interviews (e.g., Goldsborough, 1999; Riley et al., 2000) describe telecommuters as very responsible and knowledgeable people who are able to handle difficult situations without much help from the physically distant office. Further, Ross (1990) confirmed empirically that performance level was the

only significant predictor of telecommuting status – the better performers in her study were the ones who were allowed to telecommute. Thus, it was expected that telecommuters in this study would view themselves as more able and knowledgeable than will non-telecommuters.

So why were these results not replicated here? One possible explanation is that the results here are different because this research utilized self-report ratings. In other words, both telecommuters and non-telecommuters here reported perceiving themselves as highly competent and knowledgeable, but of course self-reports may not be very credible. Unfortunately, performance data for the two subsamples was not collected, and it would have provided a more objective test of the AETK hypothesis. Still, supervisors were asked to indicate on their survey which group of subordinates they thought was more productive. As shown in Table 1, four supervisors thought telecommuters were more productive, one though non-telecommuters were more productive, and eight thought the two groups were equally productive. Therefore, in this sample at least, the ability level of telecommuters and non-telecommuters appears to really be the same. This is quite contrary to many previous studies that have reported higher productivity scores for telecommuters than for non-telecommuters (e.g., Hill et al., 1998, Ross 1990).

Professional orientation (PO). It was expected that telecommuters would view themselves as more professionally-oriented than non-telecommuters, and therefore would give themselves higher ratings on the PO substitute than non-telecommuters. The "Professional Orientation" substitute suggests that employees derive their performance feedback, satisfaction etc., from colleagues in the same occupational specialty who may not necessarily be employees of the same organization. In other words, going to a

conference and meeting and exchanging ideas with people in the same profession would be viewed as a more valuable and important experience than exchanging ideas with co-workers. It was thought that telecommuters would rate themselves higher on the PO items than non-telecommuters because they are not in physical contact with co-workers, but they may keep in touch over e-mail with others in the same occupational specialty.

However, the ratings yielded by the PO scale were quite similar for both subsamples, which again was counter to what previous articles have suggested (e.g., Goldsborough, 1999; Van Horn & Storen, 2000). These and other sources have described telecommuters as highly professional employees, very responsible individuals, quite knowledgeable, etc. Interestingly though, none of these sources represents an empirical work which compares telecommuters with non-telecommuters. Rather, the conclusion that telecommuters are highly professional is based on demographic analyses of the workforce, or on interviews of telecommuters, according to which telecommuters fall in the "Professionals" category. The present empirical investigation, though, fails to confirm this conclusion because, at least with the current sample, telecommuters and non-telecommuter did not differ in terms of (self-perceived) professionalism.

Organizational Rewards not within the Leader's Control (ORNWLC). It was expected that telecommuters will perceive their leader as less influential in the distribution of rewards because of the physical distance factor, or because, according to previous work, (e.g., Fitzer, 1997), telecommuters get promoted on the basis of their abilities and thus depend less on their leaders for recognition and rewards. However, the ORNWLC factor, described by some as a substitute (i.e., Podsakoff et al., 1996) and by others as a neutralizer (i.e., Howell et al., 1997), received similar ratings from the

telecommuters and the non-telecommuters in the study. In other words, both groups of employees perceived their leaders to have a similar amount of influence over the employees' promotional opportunities, pay raises, and the distribution of other organizational rewards. Therefore, leaders may actually not lose their perceived powers, regardless of how physically close they are to their subordinates.

Need for independence (NI) and need for supervision (NS). Again quite contrary to literature suggestions, the "Subordinate Need for Independence" items, as well as the "Need for Supervision" items, were rated similarly by both groups of employees. It was expected that telecommuters will report having a very high Need for Independence and a very low Need for Supervision because they are professionals, independent thinkers, and highly trained (e.g., Goldsborough, 1999), whereas the office workers were expected to have low Need for Independence and high Need for Supervision. This was not the case; there were no differences between the groups.

This result might be a function of the sample surveyed. Both telecommuters and non-telecommuters were in the same occupations, reported to the same leaders, and had comparable levels of years of experience with the company. Further, as shown by the results of this very study, neither group perceived itself to be more competent and knowledgeable, or more professionally-oriented, than the other. In other words, the sample was not comprised of some individuals who felt confident in their skills, and of others who had doubts about their abilities. Thus, it is no surprise that both groups scored relatively high on NI and relatively low on NS (see Table 2). These results actually are in alignment with Ross's (1990) finding that "need for guidance and feedback" was not found to distinguish telecommuters from non-telecommuters. Further, Howell and

Dorfman (1986) found that their subsamples of professionals and nonprofessionals differed significantly on the NI substitute. But since the present sample consisted of professionals only, apparently it did not matter whether they telecommuted or not.

Comfortableness with computer technology (CC). Because telecommuters must rely strictly on computers and IT in general in order to do their job and must also know how to fix computer-related problems when working from home (e.g., Fritz & Narasimhan, 1998; Goldsborough, 1999; Riley et al., 2000), it was expected that telecommuter would report feeling more comfortable with computers than non-telecommuters. However, the two groups did not differ significantly on this substitute either. Arguably, this finding is explained by the widespread use of computers nowadays, regardless of whether one works at home or from the office.

Indifference towards organizational rewards (ITOR). The ITOR substitute was one of three substitutes that was actually expected *not* to make a difference between the two subsamples, i.e., both telecommuters and non-telecommuters were expected to equally care about the organizational rewards they receive. Interestingly, although with marginal significance, the ITOR variable actually produced a difference – telecommuters cared more about rewards than non-telecommuters. This could be explained as a way for telecommuters to compensate for the difficulties they reportedly face when working from home such as less promotion opportunities (Igbaria, 1999), isolation from office colleagues (Goldsborough, 1999), fewer communication opportunities (Konradt & Renate, 1999), and blurred boundaries between work and family life (Hill's et al., 1998).

Task provided feedback concerning accomplishments (TPF). It was expected that both telecommuters and non-telecommuters would rate the TPF substitute similarly. In

general, people like to hear how they are performing, and therefore it was expected that both groups of participants would need an outside source (such as a supervisor) to help evaluate their work more objectively. Thus, it was expected that both groups would score relatively low on the TPF scale. Although there really were no differences between the groups, surprisingly the groups TPF means were relatively high (see Table 2). Thus, both telecommuters and non-telecommuters are able to obtain feedback from the tasks that they do themselves.

One explanation of this finding is that both telecommuters and non-telecommuters were professionals. In other words, they were competent and knowledgeable enough to do their jobs independently. Therefore, they must have considered themselves able to evaluate their own performance, just as shown by Igbaria's (1999) results. Still, the wording of the TPF items itself might be responsible for this result because it does not explicitly state that the task is the only source of feedback. Therefore, the TPF scale might need to be revisited by Substitutes researchers.

Intrinsically satisfying tasks (IST). The last substitute under examination in this research, IST, was also not expected to make a difference between to two groups – both telecommuters and non-telecommuters were expected to derive part, but not all, of their job satisfaction from the tasks that they do. Indeed, no significant differences between the groups were found. Both subsamples scored quite high on the ITS scale thus indicating that their job satisfaction does depend to a considerable extent on their job tasks.

Initiating Structure and Consideration

Initiating structure. Of the leadership behaviors under investigation, Initiating Structure was the only one that reached significance, albeit marginal. Specifically,

telecommuters perceived their leaders to be higher on the Initiating Structure leadership behavior than equivalent office workers. In other words, one and the same leader was generally viewed as more Structure-Initiating by his/her telecommuting subordinates than by his/her non-telecommuting subordinates.

This result, although approaching significance, was strongly anticipated from previous literature suggestions. The physical distance, then, seems to really be a factor in how much structure is given to subordinates by the leaders in environments such as telecommuting. Leaders probably think that they need to be more explicit about what needs to be done and how. Indeed, this is evident in literature that describes the tasks of telecommuters' managers. Consider that telecommuters' managers establish and clearly communicate the work schedule to the telecommuter, coordinate and communicate work assignments, delineate liability resulting from personal injury or loss of property, make sure telecommuters do not get disrupted by clients, co-workers and other telecommuters during non-office hours (Ellison, 1999; Nilles, 1998; USOPM, 1997). These managerial functions could easily be classified as IS behaviors.

Whether the telecommuting subordinates like receiving so much structure, though, is a different question that, unfortunately, was overlooked. Thus, what we have learned from this study is that, indeed, telecommuters perceive their leaders as more structure-initiating than non-telecommuters. Further, if it could be judged by the satisfaction scores, there were virtually no differences reported in general job satisfaction between telecommuters and non-telecommuters – every single participant reported he/she was satisfied with his/her job. Therefore, the perception of receiving more structure seems to not decrease job satisfaction for the telecommuting subsample.

This result definitely needs further empirical testing because of conflicting literature findings from studies that could be applied to the telecommuting setting as well. On the one hand, some authors' results would suggest that leaders high on IS would make telecommuters happier. For instance, Egan et al.'s (1998) research would suggest that telecommuters' managers need to be high on IS in order to make sure that miscommunication and miscoordination happen as rarely as possible. Further, Graetz et al. (1998), and Konradt and Renate's (1999) research suggests that managers need to be high on IS in order to decrease the higher cognitive workload associated with remote contexts. Lastly, Howell and Frost's (1989) research suggests that managers need to be high on IS in order to decrease the role conflict and ambiguity experienced in remote settings. On the other hand, Keller's (1989) research would suggest that telecommuters might not appreciate leaders high on IS because they generally do not require a lot of clarification of their tasks and thus would prefer less IS from their leaders.

In the present study, telecommuters seemed not to mind the extra structure they received. However, because this problem was not really the focus of the current study, and because of these inconsistent implications in the literature, an empirical investigation is necessary. Indeed, a related question should be empirically tested in the future as well: whether telecommuters require, explicitly or implicitly, that they be provided with more structure, or whether the leaders think that they need to provide more structure to telecommuters because of the physical distance.

Consideration. There were no differences in how telecommuters and non-telecommuters perceived the Consideration behaviors of their supervisors. This was not expected to occur at all based on quite well grounded previous literature findings. For

instance, Reinsch (1997) found that telecommuters had lower levels of trust in and affect for their managers than non-telecommuters. Lowry (1996) established that, although statistically the amount of communication between remote and co-located employees and their supervisors was the same as reported by the employees themselves, the remote employees felt that they are more isolated and that they receive less communication from their supervisors than the co-located employees. Further, Dana (1999) reported that remote staff members engaged in significantly less frequent communication with their managers than local staff members (however, according to her findings, once the relationship is established, the amount of communication is considerably less important). At any rate, regardless of previous findings, the two subsamples in this study failed to produce statistically significant differences in how they viewed the C behaviors of their leaders.

Transactional and Transformational Leadership

Transactional Leadership. The third type of leadership under investigation, Transaction Leadership, consists of Contingent Reward (CR), Management-by-Exception Passive (MBEP) and Management-by-Exception Active (MBEA). Telecommuters were expected to rate their supervisors higher on this type of leadership than non-telecommuters for much of the same reasons the IS ratings were expected to be different. However, the overall Transactional Leadership ratings did not differ between the two subsamples, and neither did the ratings on the three subcategories that make up Transactional Leadership.

The bottom line is that, although these results are to be taken with a grain of salt due to the significance level, telecommuters do seem to perceive their managers as more

focused on IS and on results, mistakes, failures and deviations. However, given that all telecommuters, just as all non-telecommuters, reported they are satisfied with their jobs, their managers' behaviors must not be very bothersome to them. After all, they might intuitively understand that due to the physical distances, managers naturally would be more "business-like" and less "buddy-like." It is also possible that supervisory leadership is simply not important to telecommuters' and non-telecommuters' overall job satisfaction score. All of these propositions need further empirical investigation.

Transformational leadership. The last type of leadership behavior under investigation, Transformational Leadership, consists of Inspirational Motivation (IM), Idealized Influence (II), Individualized Consideration (IC), and Individualized Stimulation (INDST). Telecommuters were expected to rate their supervisors lower on this type of leadership than non-telecommuters for much of the same reasons the C ratings were expected to be different. However, the overall Transformational Leadership ratings did not differ between the two subsamples, and neither did the ratings on the four subcategories that make up Transformational Leadership.

Supervisors' Data

Quite interestingly, despite the results from the subordinates' sample that suggest that supervisors of both telecommuters and non-telecommuters do behave differently in at least some respects with their telecommuting and non-telecommuting subordinates respectively, the supervisors in this study themselves did not perceive any differences in their own behavior. The self-ratings they provided on Initiating Structure, Consideration and Transformational Leadership were statistically the same, and, in the case of Transactional Leadership, the self-ratings were virtually the same.

Apparently, supervisors simply do not think that they exhibit different behaviors with their two types of subordinates. Indeed, they may very well behave in the same manner in reality, but simply come across differently. In other words, the behavioral "differences" may be in the eye of the beholder. Unfortunately, given the lack of truly significant findings in the subordinates' data, it is hard to judge whether there really are inconsistencies between how supervisors think they behave and how their subordinates perceive the supervisors' behavior. Still, the results suggest that differences might emerge with a bigger sample. Therefore, an extension of this study is quite warranted, especially given that there is no previous research that has used such a within-subjects comparison.

Limitations and Future Research

The most significant limitation of this research is the small sample size. It was quite challenging to locate triads, or cases in which one and the same supervisor supervised both telecommuters and non-telecommuters. As stated previously, it is quite possible that significant differences would have emerged where expected with a larger sample.

Another limitation is that the typical "telecommuter" studied by previous researchers, is employed either in the communications industry, or in the computer industry, or in sales and marketing. However, half of this sample was comprised of a different type of telecommuters—medical transcriptionists. This could be a reason why the current findings differ from the existing ones.

Lastly, the Leadership Survey used in this research was comprised of a variety of leadership scales, but not in their entirety. This reduced the reliability of some of those scales considerably. Specifically, with regard to the subordinates data (see Table 4), the

Transactional Leadership scale had a very low reliability (.49), and the IS and C scales reliabilities were not very high (.68 and .67 respectively) either. Further, all of the Substitute scales consisted of 2 items only which inevitably leads to low reliabilities. Even more so, for 4 of the 10 Substitutes scales, the 2 items comprising the scale did not even correlate at the .05 or .01 levels. With regard to the supervisors' data (see Table 5), the reliabilities of the IS, C, TRANSACT and TRANSFORM scales were good when calculated for the aggregate data (i.e., ratings for telecommuters and non-telecommuters taken together). However, when reliabilities of those scales for telecommuters and non-telecommuters were calculated separately, the alpha values were somewhat lower. Therefore, it is advisable that future research uses the complete inventories, although this might lead to problems with participation due to the length of the survey.

The multitude of significant and marginally significant findings in the exploratory analyses suggests that there are many more research questions of interest which could be asked in order to gain a better understanding of how telecommuting makes a difference. For instance, the effects of gender, age, supervisors' telecommuting status, type of industry, length of employment at the company, and length of telecommuting experience, could all be investigated in their own right.

Further, because of the small sample size, this research could not conclusively answer the question of how telecommuting influences leadership processes. Therefore, an extension of this research is definitely needed, with a bigger sample, in order to answer the question definitively. Lastly, future research should really examine how other leadership theories besides Initiating Structure, Consideration, Transactional and Transformational Leadership, hold up in the telecommuting context. One very likely

candidate is Path Goal Theory, for example, or Leader-Member Exchange Theory, because these theories seem very likely to produce some interesting hypotheses that could be applied to the telecommuting context.

Conclusion

So, how do telecommuters' and non-telecommuters' ratings of their leaders' IS, C, Transactional and Transformational behaviors differ? How do leadership substitutes and neutralizers influence telecommuters and non-telecommuters respectively? The answer to both questions is – in a similar manner. But the more important question is why there were no differences where the literature strongly suggested there should be. One could argue that telecommuting, at least in this study, simply did not make a difference. The two groups were quite similar and the fact that one group telecommuted whereas the other did not apparently was not enough to produce a statistically significant effect.

Focusing on the characteristics of the two groups (see also Table 2), one observes that telecommuters and non-telecommuters shared the same professions. Most were women, most were in their 30s or 40s, most had 5 or less years of experience at the company and 5 or less years of experience under the current supervisor, most had a non-telecommuting supervisor, half were from the health care industry, and finally, all were satisfied with their jobs. Therefore, the sample was not very different on experience, professionalism, age or gender – all variables that according to previous research do make a difference in telecommuting.

Precisely because the two groups were so similar, with the exception of telecommuter status of course, one could claim that telecommuters and non-telecommuters perceived the leadership behaviors of their supervisors in a like manner,

and that substitutes and neutralize really do not influence the telecommuting environment any differently than the non-telecommuting environment. Still, given the relatively small sample size, as well as the large number for findings that approached statistical significance, further investigation of the veracity of these statements is warranted.

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Appendix A

Informed Consent Form

(Employee Version)

Informed Consent Form

(To be completed by Subordinates)

The Department of Psychology / Special Education at Emporia State University supports the practice of protection for human subjects participating in research and related activities. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time, and that if you do withdraw from the study, you will not be subjected to reprimand or any other form of reproach.

The study requires that you complete the three parts of the enclosed survey. Part One contains 9 demographic questions. Part Two contains 22 questions that ask you to rate a variety of leadership qualities your supervisor possesses. Part Three contains 20 questions that inquire into your work experiences and practices. It should not take more than 20 minutes for you to complete these materials. All materials will be completed anonymously and the results will be kept confidential.

The major benefit of this study would be uncovering whether two of the most popular leadership theories have a place in a telecommuting context. A second benefit of the study would be revealing the leadership qualities supervisors of telecommuters and non-telecommuters possess. By participating in this study, you are helping to fill in those knowledge gaps.

Should you have any questions regarding the study in general, or this questionnaire in particular, please contact the principal researcher, Radostina Purvanova, at 620-343-9003 (after 5 p.m. and on weekends), or at 620-343-6800 x. 1101 during

business hours. Correspondence should be addressed to Radostina Purvanova, 1201 Triplett Dr., G 84, Emporia, KS 66801.

"I have read the above statement and have been fully advised of the procedures to be used in this project. I have been given sufficient opportunity to ask any questions I had concerning the procedures and possible risks involved. I understand the potential risks involved and I assume them voluntarily. I likewise understand that I can withdraw from the study at any time without being subjected to reproach.

Subject:_____ Date:_____

Appendix B

Informed Consent Form

(Supervisor Version)

Informed Consent Form

(To be completed by Supervisors)

The Department of Psychology / Special Education at Emporia State University supports the practice of protection for human subjects participating in research and related activities. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time, and that if you do withdraw from the study, you will not be subjected to reprimand or any other form of reproach.

The study requires that you complete the two parts of the enclosed survey. Part One contains 11 demographic questions. Part Two contains 22 questions that ask you to rate a variety of leadership qualities that you might possess. It should not take more than 20 minutes for you to complete these materials. All materials will be completed anonymously and the results will be kept confidential.

The major benefit of this study would be uncovering whether two of the most popular leadership theories have a place in a telecommuting context. A second benefit of the study would be revealing the leadership qualities supervisors of telecommuters and non-telecommuters possess. By participating in this study, you are helping to fill in those knowledge gaps.

Should you have any questions regarding the study in general, or this questionnaire in particular, please contact the principle researcher, Radostina Purvanova, at 620-343-9003 (after 5 p.m. and on weekends), or at 62-343-6800 x. 1101 during business hours. Correspondence should be addressed to Radostina Purvanova, 1201 Triplett Dr., G 84, Emporia, KS 66801.

"I have read the above statement and have been fully advised of the procedures to be used in this project. I have been given sufficient opportunity to ask any questions I had concerning the procedures and possible risks involved. I understand the potential risks involved and I assume them voluntarily. I likewise understand that I can withdraw from the study at any time without being subjected to reproach.

Subject:_____ Date:_____

Appendix C

Leadership Survey

(Employee Version)

LEADERSHIP SURVEY

(To Be Completed by Subordinates)

Instructions: Please respond to the following questions to the best of your knowledge. All responses will be kept confidential. After completing the questionnaire please place it in the self-addressed stamped envelope and place it in the mail. Thank you for participating!

Part One. Part One contains general questions that help draw a profile of the respondents. Please answer the questions as truthfully as possible. Rest assured that your answers will remain completely confidential.

Instructions: Circle or fill in the blank as appropriate:

Question:	Answer:
1. What is your gender?	Male Female
2. What is your age?	_____years old
3. How long have you been with the company?	____years and _____ months
4. Do you telecommute (i.e., work from home)? *If NO, skip down to question #7.*	Yes No
5. How long have you been telecommuting?	____years and _____ months
6. How many days a week do you work from your home?	1 2 3 4 5+
7. For how long have you reported to your current supervisor?	____years and _____ months
8. Does your supervisor him/herself telecommute?	Yes No

Question:	Answer:
9. What type of business industry is your company involved in (e.g., finance, health care, retail sales, etc.)?	_____
10. Overall, would you say you are satisfied with your job?	Yes No

Part Two. Part Two contains questions that ask you to evaluate a variety of leadership qualities your *SUPERVISOR* might possess. Please answer the questions as truthfully as possible. Again, rest assured that your answers will remain completely confidential.

Never 1	Seldom 2	Occasionally 3	Often 4	Always 5

The Person I am Rating...

1.	Lets group members know what is expected of them.	.....	1 2 3 4 5
2.	Makes his/her attitude clear to the group.	.....	1 2 3 4 5
3.	Decides what shall be done and how it shall be done.	.....	1 2 3 4 5
4.	Maintains definite standards of performance.	.....	1 2 3 4 5
5.	Is friendly and approachable.	.....	1 2 3 4 5

Never	Seldom	Occasionally	Often	Always
1	2	3	4	5

The Person I am Rating...

6.	Does little things to make it pleasant to be a member of the group.	.....	1 2 3 4 5
7.	Puts suggestions made by the group in operation.	.....	1 2 3 4 5
8.	Acts without consulting the group.	.....	1 2 3 4 5
9.	Discusses in specific terms who is responsible for achieving performance targets.	.....	1 2 3 4 5
10.	Makes clear what one can expect to receive when performance goals are achieved.	.....	1 2 3 4 5
11.	Waits for things to go wrong before taking action.	.....	1 2 3 4 5
12.	Demonstrates that problems must become chronic before taking action.	.....	1 2 3 4 5
13.	Focuses attention on irregularities, mistakes, exceptions and deviations from the standards.	.....	1 2 3 4 5
14.	Directs my attention toward failures to meet standards.	.....	1 2 3 4 5
15.	Talks enthusiastically about what needs to be accomplished.	.....	1 2 3 4 5
16.	Articulates a compelling vision of the future.	.....	1 2 3 4 5

Never	Seldom	Occasionally	Often	Always
1	2	3	4	5

The Person I am Rating...

17.	Instills pride in me for being associated with him/her.	.....	1 2 3 4 5
18.	Specifies the importance of having a strong sense of purpose.	.....	1 2 3 4 5
19.	Spends time teaching and coaching my colleagues and me.	.....	1 2 3 4 5
20.	Helps me to develop my strengths.	.....	1 2 3 4 5
21.	Seeks differing perspectives when solving problems.	.....	1 2 3 4 5
22.	Gets me to look at problems from many different angles.	.....	1 2 3 4 5

Part Three. Part Three contains questions that ask you to rate *YOURSELF* in terms of your work experiences. Please answer the questions as truthfully as possible. Again, rest assured that your answers will remain completely confidential.

Never	Seldom	Occasionally	Often	Always
1	2	3	4	5

1.	Because of my ability, experience, training or knowledge, I have the competence to act independently of my superior in performing my day-to-day duties.	.....	1 2 3 4 5
2.	Because of my ability, experience, training or knowledge, I have the competence to act independently of my superior in performing unusual and unexpected job duties.	.....	1 2 3 4 5
3.	For feedback on how well I am performing, I rely on people in my occupational specialty, whether or not they are a member of my work unit or organization.	.....	1 2 3 4 5
4.	My job satisfaction depends to a considerable extent on people of my occupational specialty, but who are not members of my employing organization.	.....	1 2 3 4 5

Never	Seldom	Occasionally	Often	Always
1	2	3	4	5

5.	I cannot get very enthused about the rewards offered in this organization, or about the opportunities available.	.....	1 2 3 4 5
6.	This organization offers attractive payoffs to people it values.	.....	1 2 3 4 5
7.	After I've done something on my job, I can tell from the results I get whether I've done it correctly.	.....	1 2 3 4 5
8.	My job is the kind where you can make a mistake or an error, and not be able to see that you've made it.	.....	1 2 3 4 5
9.	It is hard to imagine that anyone could enjoy performing the tasks that I perform on my job.	.....	1 2 3 4 5
10.	My job satisfaction depends to a considerable extent on the actual tasks I perform on the job.	.....	1 2 3 4 5
11.	My chances for a promotion and/or pay raise depend on my immediate superior's recommendations.	.....	1 2 3 4 5

Never	Seldom	Occasionally	Often	Always
1	2	3	4	5

12.	My immediate superior has little say or influence over which of his/her subordinates receive organizational rewards.	.....	1	2	3	4	5
13.	The nature of my job is such that my immediate superior is seldom around me when I am working.	.....	1	2	3	4	5
14.	My immediate superior and I are seldom in actual contact or direct sight of one another.	.....	1	2	3	4	5
15.	I like it when a person in charge of a group I am in tells me what to do.	.....	1	2	3	4	5
16.	When I have a problem I like to think it through myself without help from others.	.....	1	2	3	4	5
17.	I feel comfortable using computers.	.....	1	2	3	4	5
18.	When my computer breaks down, I usually need help fixing it.	.....	1	2	3	4	5
19.	For my job related activities, it does not matter whether I have a manager or not.	.....	1	2	3	4	5
20.	The manager has a marked influence on my performance.	.....	1	2	3	4	5

Appendix D

Leadership Survey

(Supervisor Version)

LEADERSHIP SURVEY

(To Be Completed by Supervisors)

Instructions: Please respond to the following questions to the best of your knowledge. All responses will be kept confidential. After completing the questionnaire please place it in the self-addressed stamped envelope and place it in the mail. Thank you for participating.

Part One. Part One contains general questions that help draw a profile of the respondents. Please answer the questions as truthfully as possible. Rest assured that your answers will remain completely confidential.

Instructions: Circle or fill in the blank as appropriate.

Question	Answer
1. What is your gender?	Male Female
2. What is your age?	_____years old
3. How long have you been with the company?	____years and _____ months
4. How long have you been in a supervisory position?	____years and _____ months
5. How long have you been supervising telecommuters?	____years and _____ months
6. Currently, do you supervise **both** telecommuters and non-telecommuters?	Yes (both) No (only telecommuters) No (only non-telecommuters)
7. Do you telecommute yourself?	Yes No

Question	Answer
8. What type of business industry is your company involved in (e.g., finance, health care, retail sales, etc.)?	_____
9. Overall, would you say you are satisfied with your company's telecommuting program?	Yes No
10. In your opinion, which group of subordinates tends to be more productive?	Telecommuters Non-telecommuters Equal
11. In your opinion, which group of subordinates is more satisfied with their jobs?	Telecommuters Non-telecommuters Equal

Part Two. Part Two contains questions that ask you to evaluate a variety leadership qualities that *YOU* may or may not possess. Please note that you are being asked to answer each question twice. When answering the questions, first circle the relevant number in the first column, "Office Subordinates" while thinking of *YOUR* leadership qualities in terms of the subordinates you directly supervise *that are in the office 5 days a week.* Then think of your subordinates that *are not in the office 5 days a week, but sometimes work from their homes.* In the second column, "Telecommuting Subordinates," give *YOURSELF* a rating having in mind that second category of people.

Please answer the questions as truthfully as possible. Again, rest assured that your answers will remain completely confidential.

Never 1	Seldom 2	Occasionally 3	Often 4	Always 5

		Office Subordinates	Telecommuting Subordinates
1.	I let group members know what is expected of them.	1 2 3 4 5	1 2 3 4 5
2.	I make my attitude clear to the group.	1 2 3 4 5	1 2 3 4 5
3.	I decide what shall be done and how it shall be done.	1 2 3 4 5	1 2 3 4 5
4.	I maintain definite standards of performance for my subordinates.	1 2 3 4 5	1 2 3 4 5
5.	I am friendly and approachable.	1 2 3 4 5	1 2 3 4 5
6.	I do little things to make it pleasant to be a member of the group.	1 2 3 4 5	1 2 3 4 5
7.	I put suggestions made by the group in operation.	1 2 3 4 5	1 2 3 4 5
8.	I act without consulting the group.	1 2 3 4 5	1 2 3 4 5
9.	I discuss in specific terms who is responsible for achieving performance targets.	1 2 3 4 5	1 2 3 4 5

Never	Seldom	Occasionally	Often	Always
1	2	3	4	5

		Office Subordinates	Telecommuting Subordinates
10.	I make clear what one can expect to receive when performance goals are achieved.	1 2 3 4 5	1 2 3 4 5
11.	I wait for things to go wrong before taking action.	1 2 3 4 5	1 2 3 4 5
12.	I demonstrate that problems must become chronic before taking action.	1 2 3 4 5	1 2 3 4 5
13.	I focus attention on irregularities, mistakes, exceptions and deviations from the standards.	1 2 3 4 5	1 2 3 4 5
14.	I direct my subordinates' attention toward failures to meet standards.	1 2 3 4 5	1 2 3 4 5
15.	I talk enthusiastically about what needs to be accomplished.	1 2 3 4 5	1 2 3 4 5
16.	I articulate a compelling vision of the future.	1 2 3 4 5	1 2 3 4 5
17.	I instill pride in me for being associated with him/her.	1 2 3 4 5	1 2 3 4 5

Never	Seldom	Occasionally	Often	Always
1	2	3	4	5

		Office Subordinates	Telecommuting Subordinates
18.	I specify the importance of having a strong sense of purpose.	1 2 3 4 5	1 2 3 4 5
19.	I spend time teaching and coaching my colleagues and me.	1 2 3 4 5	1 2 3 4 5
20.	I help my subordinates to develop their strengths.	1 2 3 4 5	1 2 3 4 5
21.	I seek differing perspectives when solving problems.	1 2 3 4 5	1 2 3 4 5
22.	I get my subordinates to look at problems from many different angles.	1 2 3 4 5	1 2 3 4 5

Appendix E

The Initiating Structure and Consideration Scales

(see Rush, Thomas, & Lord, 1977)

Initiating Structure Items *

1. He lets group members know what is expected of them.**
2. He encourages the use of uniform procedures.
3. He tries out his ideas in the group.
4. He makes his attitudes clear to the group.**
5. He decides what shall be done and how it shall be done.**
6. He assigns group members to particular tasks.
7. He makes sure that his part in the group is understood by the group members.
8. He schedules the work to be done.
9. He maintains definite standards of performance.**
10. He asks that group members follow standard rules and regulations.

Consideration Items *

1. He is friendly and approachable.**
2. He does little things to make it pleasant to be a member of the group.**
3. He puts suggestions made by the group into operation.**
4. He treats all members as his equals.
5. He gives advance notice of changes.
6. He keeps to himself.
7. He looks out for the personal welfare of the group members.
8. He is willing to make changes.
9. He refuses to explain his actions.
10. He acts without consulting the group.**

* Response choices to each item include:

(5) Always

(4) Often

(3) Occasionally

(2) Seldom

(1) Never

** Indicates items that were incorporated in the Leadership Survey.

Appendix F

Multifactor Leadership Questionnaire (Rater Form)

(see Bass & Avolio, 1995)

Multifactor Leadership Questionnaire

Rater Form

Name of Leader: _____

This questionnaire is used to describe the leadership style of the above-mentioned individual as you perceive it. answer all items on this answer sheet. If an item is irrelevant, or if you are unsure or do not know the answer, leave the answer blank. Please answer this questionnaire anonymously.

Important (necessary for processing): Which best describes you?

__ I am at a higher organizational level than the person I am rating.

__ The person I am rating is at my organizational level.

__ I am at a lower organizational level than the person I am rating.

__ I do not wish my organizational level to be known.

Forty-five descriptive statements are listed on the following pages. Judge how frequently each statement fits the person you are describing. Use the following scale:

Never	Seldom	Occasionally	Often	Always
1	2	3	4	5

The Person I am Rating...

1. Provides me with assistance in exchange of my efforts. (CR)
2. Re-examines critical assumptions to question whether they are appropriate. (IS)
3. Fails to interfere until problems become serious. (MBE/P)
4. Focuses attention on irregularities, mistakes, exceptions and deviations from the standards. (MBE/A)**

5. Avoids getting involved when important issues arise. (LFL)
6. Talks about their most important values and beliefs. (II/B)
7. Is absent when needed. (LFL)
8. Seeks differing perspectives when solving problems. (IS)**
9. Talks optimistically about the future. (IM)
10. Instills pride in me for being associated with him/her. (II/A)**
11. Discusses in specific terms who is responsible for achieving performance targets. (CR)**
12. Waits for things to go wrong before taking action. (MBE/P)**
13. Talks enthusiastically about what needs to be accomplished. (IM)**
14. Specifies the importance of having a strong sense of purpose. (II/B)**
15. Spends time teaching and coaching. (IC)**
16. Makes clear what one can expect to receive when performance goals are achieved. (CR)**
17. Shows that he/she is a firm believer in "If it ain't broke, don't fix it." (MBE/P)
18. Goes beyond self-interest for the good of the group. (II/A)
19. Treats me as an individual rather than just as a member of the group. (IC)
20. Demonstrates that problems must become chronic before taking action. (MBE/P)**
21. Acts in ways that build my respect. (II/A)
22. Concentrates his/her full attention on dealing with mistakes, complaints and failures. (MBE/A)
23. Considers the morale and ethical consequences of decisions. (II/B)

24. Keeps track of all mistakes. (MBE/A)

25. Displays a sense of power and confidence. (II/A)

26. Articulates a compelling vision of the future. (IM)**

27. Directs my attention toward failures to meet standards. (MBE/A)**

28. Avoids making decisions. (LFL)

29. Considers me as having different needs, aspirations and abilities from others. (IC)

30. Gets me to look at problems from many different angles. (IS)**

31. Helps me to develop my strengths. (IC)**

32. Suggests new ways of looking at how to complete assignments. (IS)

33. Delays responding to urgent questions. (LFL)

34. Emphasizes the importance of having a collective sense of mission. (II/B)

35. Expresses satisfaction when I meet expectations. (CR)

36. Expresses confidence that goals will be achieved. (IM)

37. Is effective in meeting my job-related needs. (E)

38. Uses methods of leadership that are satisfying. (S)

39. Gets me to do more than I expected to do. (EE)

40. Is effective in representing me to higher authority. (E)

41. Works with me in a satisfactory way. (S)

42. Heightens my desire to succeed. (EE)

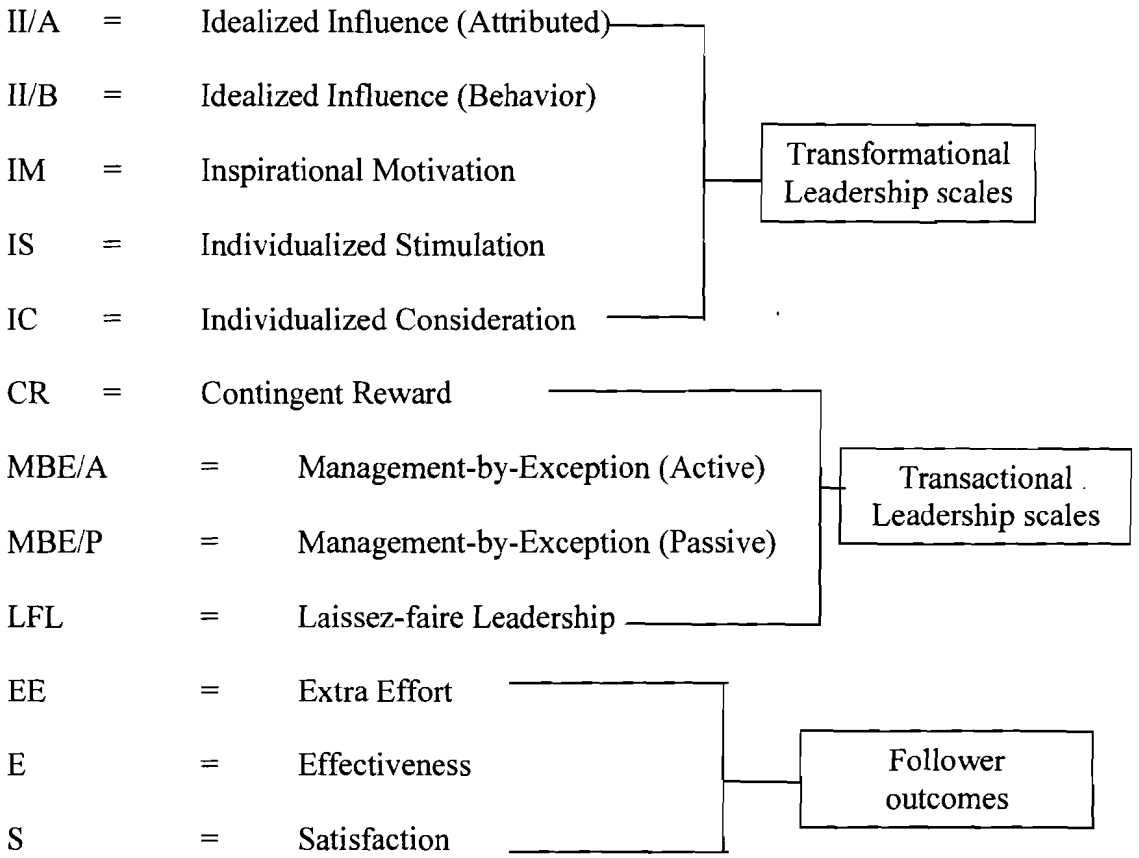
43. Is effective in meeting organizational requirements. (E)

44. Increases my willingness to try harder. (EE)

45. Leads a group that is effective. (E)

** Indicates items that were incorporated into the Leadership Survey.

Key:



Note: Bass and Avolio (1995) clarify that the two Idealized Influence scales were formerly known as Charisma. Also, Individualized Motivation is a new scale within the Transformational Leadership part of the LMQ.

Appendix G

Questionnaire Items for the Measurement of Substitutes for Leadership

(see Kerr & Jermier, 1978)

Substitutes for Leadership Questionnaire*

(1) *Ability, experience, training and knowledge* (Items from this scale were used in the Leadership Survey (LS))

- Because of my ability, experience, training or job knowledge, I have the competence to act independently of my immediate superior in performing my day-to-day duties.**
- Because of my ability, experience, training or job knowledge, I have the competence to act independently of my immediate superior in performing unusual and unexpected job duties.**
- Due my lack of experience and training, I must depend upon my immediate superior to provide me with necessary data, information, and advice. (R)

(2) *Professional orientation* (Items from this scale were used in the LS)

- For feedback about how well I am performing, I rely on people in my occupational specialty, whether or not they are in my work unit or organization.**
- I receive very useful information and guidance from people who share my occupational specialty, but who are not members of my employing organization.
- My job satisfaction depends to a considerable extent on people in my occupational specialty who are not members of my employing organization.**

(3) *Indifference towards organizational rewards* (Items from this scale were used in the LS)

- *I cannot get very enthused about the rewards offered in this organization, or about the opportunities available.* **
- This organization offers attractive payoffs to people it values. (R)**
- In general, most of the things I seek and value in this world cannot be obtained from my job or my employing organization.

(4) Unambiguous, routine, and methodologically invariant tasks

- Because of the nature of the tasks I perform, on my job there is little doubt about the best way to get the work done.
- Because of the nature of the work I do, I am often required to perform nonroutine tasks. (R)
- Because of the nature of my work, at the beginning of each work day I can predict with near certainty exactly what activities I will be performing that day.
- There is really only one correct way of performing my tasks.
- My job duties are so simple that almost anyone could perform them after a little bit of instruction and practice.
- It is so hard to figure out the correct approach to most of my work problems that second-guessers would have a field day. (R)

(5) *Task-provided feedback concerning accomplishments* (Items from this scale were used in the LS)

- After I've done something on my job, I can tell right away from the results I get whether I've done it correctly.**

- My job is the kind where you can make a mistake or an error and not be able to see that you've made it. (R)**
- Because of the nature of the tasks I perform, it is easy for me to see that I've done something exceptionally well.

(6) *Intrinsically satisfying tasks* (Items from this scale were used in the LS)

- I get a great deal of personal satisfaction from the work I do.
- It is hard to imagine that anyone could enjoy performing the tasks that I perform on my job. (R)**
- My job satisfaction depends to a considerable extent on the nature of the actual tasks I perform on my job.**

(7) *Organizational formalization*

- Clear, written goals and objectives exist on my job.
- My job responsibilities are clearly specified in writing.
- In this organization, performance appraisals are based on written standards.
- Written schedules, standards and word specifications are available to guide me on my job.
- My duties, authority and accountability are documented in policies, procedures and my job description.
- Written rules and guidelines exist to direct work efforts.
- Written documents (such as budgets, schedules and plans) are used as an essential part of my job.
- There are contradictions and inconsistencies among the written statements of goals and objectives. (R)

- There are contradictions and inconsistencies among the written guidelines and groundrules. (R)

(8) Organizational flexibility

- In this organization, the written rules are treated as a bible, and are never violated.
- People in this organization consider the rulebooks and policy manuals as general guidelines, not as rigid and unbending. (R)
- In this organization any time there is a policy in writing that fits some situation, everybody has to follow that policy very strictly.

(9) Advisory and staff functions

- For feedback about how well I am performing, I rely on staff personnel inside the organization, based outside my work unit or department.
- In my job I must depend on staff personnel located outside my work unit or department to provide me with data, reports, and informal advice necessary for my job performance.
- I receive very useful information and guidance from staff personnel who are based outside my work unit or department.

(10) Closely-knit, cohesive, independent work groups

- For feedback about how well I am performing, I rely on members in my work group other than my superior.
- The quantity of work I turn out depends largely on the performance of members of my work group other than my superior.

- The quality of work I turn out depends largely on the performance of members of my work group other than my superior.
- I receive very useful information and advice from members of my work group other than my superior.
- I am dependent on members of my work group other than my superior for important organizational rewards.
- My job satisfaction depends to a considerable extent on members of my work group other than my superior.

(11) *Organizational rewards not within the leader's control* (Items from this scale were used in the LS)

- On my job I must depend ion my immediate superior to provide the necessary financial resources (such as budget and expense money). (R)
- On my job I must depend ion my immediate superior to provide the necessary financial resources (such as file space and equipment). (R)
- My chances for a promotion depend on my immediate superior's recommendation. (R)**
- My chances for a pay raise depend on my immediate superior's recommendation.(R)
- My immediate superior has little say or influence over which of his or her subordinates receives organizational rewards.**
- The only performance feedback that matters to me is given me by my immediate superior. (R)

- I am dependent on my immediate superior for important organizational rewards. (R)

(12) *Spatial distance between superior and subordinates* (Items from this scale were used in the LS)

- The nature of my job is such that my immediate superior is seldom around me when I'm working.**
- On my job, my most important tasks take place away from where my immediate superior is located.
- My immediate superior and I are seldom in actual contact or direct sight of one another.**

(13) *Subordinate need for independence* (Items from this scale were used in the LS)

- I like it when the person in charge of a group I am in tells me what to do (R)**
- When I have a problem, I like to think it through myself without help from others.**
- It is important to me to be able to feel that I can run my life without depending on people older and more experienced than myself.

* Response choices to each item include:

(5) Almost always true or almost completely true

(4) Usually true, or true to a large extent

(3) Sometimes true, sometimes untrue or true to some extent

(2) Usually untrue, or untrue to a large extent, and

(1) Almost always untrue or almost completely untrue.

(R) Indicates reverse-scored item.

** Indicates items that were incorporated into the Leadership Survey.

Appendix H

Need for Supervision Scale

(see De Vries, Roe, & Taillieu, 1998)

Need for Supervision Scale Items

1. In this organization, the role of the manager is absolutely indispensable.
2. My manager cannot teach me anything.
3. For my job related activities, it does not matter whether I have a manager or not.**
4. I cannot see much added value of the manager on my work.
5. The manager has a marked influence on my performance.**

* Response choices to each item include:

(6) Agree completely

(5) Agree

(4) Neither agree not disagree

(3) Disagree

(2) Disagree completely

** Indicates items that were incorporated into the Leadership Survey.

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Dec. 30, 2002
Date

An Examination of Three Theories of Leadership in the Telecommuting Context
Title of Thesis

Mary Cooper
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1-7-03
Date Received