Technology enabled work: The role of self-efficacy in determining telecommuter adjustment and structuring behavior

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Abstract

We explore factors associated with employees’ ability to cope with the challenges of telecommuting—an increasingly pervasive new work mode enabled by advances in information technologies. Telecommuting can trigger important changes in employees’ job responsibilities, especially with respect to the degree of proactivity required to effectively work from a distance. Survey responses from a sample of 723 participants in one organization’s formal telecommuting program were used to examine the inter-relationships between telecommuter self-efficacy and extent of telecommuting on telecommuters’ ability to cope with this new work context. Results indicate that there is a positive association between telecommuter self-efficacy and both employees’ behavioral strategies (i.e., structuring behaviors) and work outcomes (i.e., telecommuter adjustment). Moreover, these positive relationships are accentuated for employees who telecommute more extensively. Implications for research and practice concerning the effect of technology on jobs and careers are presented.

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1. Introduction

Recent advances in information technology have altered employees' jobs and careers in fundamental ways. One of the most prevalent and important changes that new information technologies have brought about is the ability for employees to work anytime and anywhere. In fact, approximately 23.6 million US workers, or more than 10% of the US workforce, reported telecommuting (i.e., working from home as a remote office) at least part time (International Telework Association & Council, 2000). Moreover, the effects of this change are not concentrated in one portion of the labor force—formal telecommute programs are being offered to employees across the spectrum of occupational categories and hierarchical positions (Kurland & Bailey, 1999). Organizations such as AT&T and Cisco Systems, for example, offer telecommuting to over 50% of their employees (Business Week, 1998).

Telecommuting has immediate effects on where and when people work, but perhaps of even greater importance, telecommuting may lead to significant changes in employees' jobs and careers. Many job and career changes may be instituted by an organization and its management to accommodate employees' reduced physical proximity. These may include task redesign to enhance autonomy, development of new communication and co-ordination protocols, and formal mentoring and networking programs (Raghuram, Garud, Wiesenfeld, & Gupta, 2001). At the same time, employees themselves are increasingly playing a proactive role in redefining their job roles and responsibilities and making career related decisions (Bridges, 1994; Lent, Brown, & Hackett, 1994; Wrzesniewski & Dutton, 2001). Moreover, the very factors that create the need for job changes may also define how these changes are enacted. Specifically, telecommuters may be more able to shape and define individual job roles and responsibilities because their work mode allows greater autonomy. This autonomy results from the fact that they are working from a remote location, they are highly skilled knowledge workers, and they have the necessary information technology tools (Bridges, 1994; Mirchandani, 1999). Consequently, this research focuses on telecommuters' proactive attempts to define their job responsibilities and careers.

Overall, telecommuters' job performance and career choices are likely to depend upon their ability to cope with the demands of this information technology-enabled work. Telecommuters who implement behavioral strategies to proactively adapt their job responsibilities in response to the changes, and attain successful individual work outcomes, will flourish and yield a variety of benefits to their employers. However, telecommuters who fail to cope with the new demands (i.e., telecommuters whose work attitudes and performance are negative and whose behavioral strategies are ineffective) may be ineffective in executing their job responsibilities, witness derailment of their careers, and be costly to their employers. Understanding the factors associated with telecommuters' work outcomes and behavioral strategies is therefore critical for both scholars and managers, yet little research has explored this topic to date (Cascio, 1999).

Research suggests that individuals' abilities and motivations are important predictors of their behavioral strategies and their adjustment to a new work context (e.g.,
Nelson, Quick, & Eakin, 1988; Nicholson, 1984; Saks, 1995). Self-efficacy, in particular, is a critical predictor of adjustment and the degree to which employees use effective behavioral strategies (Bandura, 1997; Maddux & Lewis, 1995). According to self-efficacy theory, individuals judge their ability to successfully cope with new challenges when presented with environmental demands, thus developing domain-specific self-efficacy beliefs. Based on this judgment, individuals initiate and persist with behavioral strategies to manage the challenges that they confront and attain successful outcomes (Bandura, 1997; Maddux, 1995).

This paper investigates the relationship between employees’ self-efficacy in the telecommuting domain (henceforth referred to as telecommuter self-efficacy) and their ability to adapt to challenges that accompany working from a remote location (e.g., lack of structure and ambiguity). Specifically, we examine telecommuters’ adaptation with respect to their work outcomes (i.e., positive attitudes and perceived work performance) and their behaviors (i.e., proactive change in job responsibilities). To verify that the source of challenge is telecommuters’ remote location, we evaluate the extent of telecommuting as a moderator of the relationship between telecommuter self-efficacy and telecommuters’ outcomes and behaviors.

2. Factors associated with telecommuters’ individual work outcomes and behavioral strategies

2.1. The role of telecommuter self-efficacy

Telecommuting involves working away from centralized office environments, often from home. Such remoteness is likely to be associated with a distinct set of work experiences which can perhaps be best understood by considering the similarities and differences between prototypical traditional office settings and home office settings. In traditional office settings, for instance, employees’ organizational counterparts, such as supervisors and co-workers, are likely to be co-located with them and therefore more conveniently available and accessible. With the increasing prevalence of workplace design options such as cubicles and common meeting spaces, employees in centralized office spaces may be aware of and in contact with one another regularly and with little effort. Such contact helps organize and structure employees’ work activities and can influence individual outcomes.

For example, even the mere presence of supervisors or co-workers may remind employees of appropriate goals and priorities. Supervisors may monitor work progress by stopping in or asking questions during hallway conversations. Employees in need of help or advice can seek out resources in their immediate vicinity. Of course, employees in centralized office spaces may occasionally be distracted by their coworkers’ efforts to socialize, but norms constraining these activities are often established by other proximal employees, and sometimes the relationship-building benefits of socializing help facilitate performance in the long run (Raghuram, 1996). Salient cues in an office environment are often work-oriented, potentially reinforcing employees’ focus on their work. Also, individuals’ work pace naturally
synchronizes with the pace of people around them. In sum, in a traditional office setting individuals may be more likely to be exposed to cues that help define and constrain not only the nature of their tasks and the outcomes that are desirable, but also the process by which the work should be done and how outcomes should be obtained.

In comparison, employees working from home are relatively distanced from their organizational counterparts. Moreover, the home-based work environment may be relatively more fluid and unstructured. For instance, specific times to begin or end the workday are less likely to be clearly defined by an employee’s organizational counterparts. Deadlines for completing a task and pressures to organize the day may be more distant and more easily ignored when employees work alone from a home setting. At home, pressures to respond immediately to office cues are lower because voicemail and email messages are easier to postpone or ignore than co-workers standing over an employee’s shoulder asking for help. In sum, formal and informal procedures, schedules, and monitoring mechanisms are likely to be relatively less apparent in a home office than in traditional office settings.

Exacerbating the fluidity of the work environment at home are competing non-work demands that may be more salient and accessible than they would be in a centralized office environment. Indeed, the boundaries between work and non-work aspects of a telecommuter’s life may be blurred when the two domains occupy the same physical space. For example, some telecommuters report being tempted to complete household chores or relax during work hours (Mirchandani, 1999). Under these conditions, one potentially critical factor is telecommuters’ ability to self-reflect and self-manage.

The above suggests that for employees in such ambiguous and remote settings, individual beliefs may be one important personal resource shaping outcomes. In particular, individuals with higher self-efficacy have been shown to be more likely to attain valued outcomes and also derive satisfaction from their jobs (Bandura & Schunk, 1981; Judge & Bono, 2001; Stajkovic & Luthans, 1998). This occurs because efficacy beliefs motivate individuals to anticipate positive and negative outcomes of different pursuits and to plan a specific course of action to realize valued outcomes. Individuals with stronger self-efficacy beliefs may experience higher performance levels because they may be motivated to exert greater effort and are more persistent (Gist & Mitchell, 1992; Phillips & Gully, 1997; Stevens & Gist, 1997). They remain task-focused and think strategically in the face of difficulties, and approach potential threats with the confidence that they can exercise control over them (Bandura & Wood, 1989).

Telecommuters’ adjustment to a remote context (with respect to their positive attitudes and work performance) may also depend on their confidence in their ability to effectively meet the challenges of the new work context. Thus, telecommuters with greater self-efficacy may confront the demands inherent in telecommuting armed with a greater belief in their personal competency and higher motivation, resulting in greater adjustment to telecommuting.

Hypothesis 1a. Telecommuter self-efficacy will be positively related to telecommuter adjustment.
We have suggested that telecommuters with greater self-efficacy are more likely to be motivated to meet the challenges of telecommuting and attain positive outcomes. In addition to influencing outcomes through enhanced motivation, self-efficacy may also impact telecommuters’ work behaviors. Telecommuters often must independently exercise control over their behaviors and learn to draw boundaries between their work and non-work time (Goldsborough, 2000; Kurland & Bailey, 1999; Mirchandani, 1999). Self-regulatory abilities, whereby individuals exercise discipline to organize and apply their skills to a challenging context, reflect individuals’ self-efficacy (Bandura, 1997; Maddux, 1995). We expect self-efficacy to serve as a key predictor of telecommuters’ behavioral strategies when they are faced with the challenge of working from an isolated environment.

As Bandura (1997) suggested, self-efficacy operates as a generative capability that organizes cognitive and behavioral sub-skills through which efficacy beliefs produce their effects. With respect to telecommuting, successfully managing the change may require employees to enact behavioral strategies that structure and direct their work behavior, such as goal setting, developing new and desirable behaviors, and independently assessing progress. These strategies parallel the self-regulatory techniques highlighted in the existing domain-specific self-efficacy literature that includes goal setting, development of rules for influencing the environment, and monitoring the self (Maddux, 1995; Saks & Ashforth, 1996). In a telecommute context, these activities may be referred to as structuring behavior—specifically, daily activities associated with the proactive planning, prioritizing and organizing of work. Telecommuters with stronger self-efficacy may be more likely to proactively initiate behavioral strategies that alter the way they execute their job responsibilities in an effort to manage the new set of demands (Wrzesniewski & Dutton, 2001). These behavioral strategies are likely to take the form of structuring behaviors, whereby employees proactively define their job responsibilities to include self-regulation and self-management.

Hypothesis 1b. Telecommuter self-efficacy will be positively related to employees’ structuring behavior.

2.2. Extent of telecommuting as a moderator of self-efficacy effects

All employees who telecommute may be legitimately called “telecommuters” although the extent to which they telecommute has important implications for how they experience their work context. Indeed, the extent of telecommuting is likely to be a critical factor related to employee outcomes but has seldom been taken into account in research on telecommuting. Telecommuters vary a great deal in the proportion of work time that they work from home (Wiesenfeld, Raghuram, & Garud, 1999a). This may be because of the nature of telecommuters’ jobs, the availability of workspace at home, the extent of job-related travel, commute time, and organizational attempts to realize real estate cost savings in conjunction with a telecommuting program. Variations in telecommuting arrangements may range from full-time telecommuting to part-time. Full-time telecommuters may come into the central office only once a month or even once a quarter. Less extensive
part-time telecommuters may telecommute one day a week or less. The latter are likely to have dedicated office space in the central office location and may view telecommuting as a supplemental work mode rather than their primary mode of work. Within the same organization, a wide range of telecommute options may be available.

How extensively employees telecommute has important implications for the relationship between self-efficacy and both telecommuter adjustment and structuring behavior. In particular, those who telecommute extensively can be viewed as more remote and therefore more likely to directly and consistently face the challenges that remoteness poses. For example, as the number of days worked from home increases, so does the difficulty in maintaining contact with the organization and co-workers. While constant presence in the office may not be necessary to maintain sufficient exposure to supervisors’ priorities, co-workers’ demands, and organizational procedures, those seldom in the office are likely to experience these organizational cues as especially weak. They may therefore require greater self-organization in order to effectively meet organizational demands and avoid the distractions of competing non-work responsibilities (Mirchandani, 1999).

We have suggested that remoteness imposes challenges to employees’ adjustment (such as by endangering employees’ positive attitudes and perceived work performance) and their behavioral strategies (such as demanding that job responsibilities are redefined to involve greater structuring behavior). We have further suggested that telecommuter self-efficacy may help telecommuters meet the challenges of remoteness. Telecommuters’ perceptions of their ability to respond effectively to the demands of their context are necessarily contingent upon the degree of challenge that the context involves. In particular, the strength of individuals’ self-efficacy in a given domain is expected to be more important the more challenging the context involves (Bandura, 1997; Stumpf, Brief, & Hartman, 1987). By extension, then, the relationship between telecommuter self-efficacy and telecommuters’ motivation and ability to manage telecommuting (both with respect to perceived adjustment outcomes and behaviorally) should be stronger the more remote telecommuters are, or the more extensively they telecommute.

These arguments suggest an interactive relationship between the extent to which employees telecommute and their self-efficacy. In particular, telecommuter self-efficacy may be a more important predictor of telecommuter adjustment and structuring behavior in the less structured and more challenging context faced by those who telecommute more extensively.

Hypothesis 2a. Extent of telecommuting will moderate the relationship between telecommuter self-efficacy and adjustment to telecommuting, such that self-efficacy will be more positively associated with adjustment for employees who telecommute more extensively than for those who telecommute less extensively.

Hypothesis 2b. Extent of telecommuting will moderate the relationship between telecommuter self-efficacy and structuring behavior, such that self-efficacy will be more positively associated with structuring behavior for employees who telecommute more extensively than for those who telecommute less extensively.
3. Method

3.1. Participants and procedure

A web-based survey was circulated to all 2400 formally registered telecommuters in a large multinational telecommunications organization headquartered in North America that offers a voluntary telecommute program. An email was sent to all the telecommuters with letters from the researchers and the organization’s telecommute program manager explaining the purpose of the study (that is, to examine telecommute program effectiveness) and encouraging them to reply to the survey. A reminder letter was sent to the participants after 10 days encouraging non-respondents to respond to the survey. We received responses from 756 individuals overall, yielding a response rate of 31.5%. Of the 756 respondents, 504 (i.e., 67%) were female; consistent with the proportion of women registered in the telecommute program (i.e., 60%). The mean tenure in the organization was 9.5 years in our sample as compared to 9.7 years among all program participants. The average experience with telecommuting in our sample was 18.9 months, approximating the 21 months of experience among all program participants. The consistency between our sample’s profile and the profile of program participants suggests that non-response bias was not a significant concern.

From this overall set of respondents we selected 723 who worked at least one-half day per week from home because we wished to focus exclusively on a sample that has some continuous experience in telecommuting. Of the 723, 27 did not report their job categories. The remaining set of respondents consisted of 14% engineers (general, technical support, sales, or project); 28% specialists (general, technical support, marketing, customer service, and project); 32% managers (general, technical, customer service, finance, sales, and marketing); 11% high-level strategy or top management (advisor, consultant, and top management) and 14% staff (customer service, technical, and administrator). There were 67% females in the selected sample. The mean experience with telecommuting of our selected sample was 19 months.

The survey introduction explained the purpose of the study to the respondents, i.e., to understand factors related to their telecommuting program. Instructions requested that respondents answer all questions with respect to the telecommute context.

Because telecommuting is a relatively new phenomenon, we began our explorations by interviewing different constituencies affected by telecommuting (telecommuters, telecommuting program managers, and subordinates of telecommuters) to understand their concerns and the factors that help them adjust to the changes brought on by telecommuting. Based on our interview findings with 12 such individuals and based on previous research, we developed a pilot survey. This pilot was administered to 98 telecommuters in a telecommunications organization that had introduced a voluntary telecommute program a year prior to the pilot study. The organization participating in the pilot survey is different from the focal organization in which we collected data reported in this paper. Responses from the pilot survey were analyzed to examine scale reliability. Items that led to low reliability of a composite variable were either modified to reflect the telecommuting context more accurately or were deleted. Similarly, the write-in comments were used to modify and refine the survey questions with the overall objective of arriving at a reliable set of measures.
3.2. Measures

We used 7-point scales for all measures described below, with scale anchors of “strongly disagree” (1) and “strongly agree” (7), except where indicated.

**Dependent variables.** We measured telecommuters’ structuring behavior using a 5-item scale developed for the study (α = .82). This measure assessed employees’ efforts to proactively plan and organize their workday. A sample item is, “I begin my day by setting my performance goals.”

We measured adjustment to telecommuting with a 5-item scale (α = .77). These items build upon previous research on indicators of employee adjustment in new work contexts. For example, newcomer adjustment has been operationalized as employees’ perceived ability to cope, job satisfaction, organizational commitment, performance, and intent to remain with the organization (Nelson et al., 1988; Saks, 1995). A sample item from the scale we modeled on these previous measures is, “All in all, I am satisfied with telecommuting.”

**Independent variables.** The self-efficacy literature suggests that domain-specific self-efficacy is most effective as a predictor of individuals’ experiences within a particular context (Bandura, 1997). Thus, measures of self-efficacy that are cast at an intermediate level of generality (in this context, self-efficacy beliefs relevant to the telecommute domain) are the most appropriate. Therefore, we asked respondents to evaluate their self-efficacy in the telecommute context using three items adapted from Sherer et al. (1982). A sample item is, “When telecommuting ... If something looks too complicated, I will not even bother to try it” (reverse scored); α = .83.

We operationalized extent of telecommuting by asking respondents to report the number of days in a typical week that they worked from home. In our sample, this ranged from .5 to 7 days per week, with a mean of 3.29 days per week.

**Control variables.** We used three control variables: gender, experience with telecommuting and job category. We controlled for gender because previous theorizing suggests that women may prefer telecommuting and may therefore be expected to exert greater effort in adjusting to telecommuting demands (Hill, Miller, Weiner, & Colihan, 1998). We controlled for experience with telecommuting because there may be a learning process through which telecommuters come to understand telecommuting demands. We measured experience with telecommuting by calculating the number of months since the date that respondents began telecommuting. We controlled for job category because ability to adjust may be influenced by the extent to which tasks are supervisory in nature and the extent to which job responsibilities can be structured. The five different dummy-coded jobs: engineers, specialists, managers, top management, and staff, were coded into four variables, where staff was used as a comparison category.

4. Data analysis

Hypotheses 1a and 1b, assessing the main effects of telecommuter self-efficacy on telecommuter adjustment and on structuring behavior respectively, were
analyzed using multiple regression. We included telecommuter self-efficacy, extent of telecommuting, and control variables as the independent variables. To test Hypotheses 2a and 2b concerning the moderating effect of extent of telecommuting, we used hierarchical multiple regression in which we added the interaction term to the two main effects (telecommuter self-efficacy and extent of telecommuting). To remove effects of any multi-collinearity introduced by the interaction term, we centered the main effects and used the centered variables to calculate the interaction term, using the method suggested by Aiken and West (1991). We then conducted an F test to assess whether the addition of the interaction term contributed

Fig. 1. Interaction between self-efficacy and extent of telecommuting on telecommuter adjustment.

Fig. 2. Interaction between self-efficacy and extent of telecommuting on structuring behavior.
significantly to the variance explained. To further understand the meaning of the significant interactions, we plotted the interaction in Figs. 1 and 2 following the procedure recommended by Aiken and West (1991). In plotting the significant interactions, we performed a median split on the extent of telecommuting variable.

5. Results

Table 1 provides the descriptive statistics for the variables used in this study. The correlation table provides preliminary support for our hypotheses. Telecommuter self-efficacy is positively correlated with telecommuter adjustment \( (r = .30, \ p < .01) \) and with structuring behavior \( (r = .34, \ p < .01) \). The control variable of gender is positively correlated with telecommuter adjustment \( (r = .09, \ p < .05) \). Since males are coded as 0 and females as 1, the positive correlation implies that females report higher adjustment.

In the first step of the regression analyses, both gender and telecommute experience are significantly associated with telecommuter adjustment and gender is significantly associated with structuring behavior. None of the job category control variables are significantly associated with telecommuter adjustment, but engineers and top managers show a negative relationship with structuring behavior.

Hypothesis 1a states that telecommuter self-efficacy will be positively related to telecommuter adjustment. The hierarchical regression results (Table 2, column 1) show that the relationship between telecommuter self-efficacy and telecommuter adjustment is positive \( (\beta = .27, \ p < .01) \), thus supporting Hypothesis 1a. Hypothesis 1b states that telecommuter self-efficacy will be positively associated with structuring behavior. The hierarchical regression results (Table 2) show that the relationship between telecommuter self-efficacy and structuring behavior is positive \( (\beta = .31, \ p < .01) \), thus supporting Hypothesis 1b.

Hypothesis 2a states that extent of telecommuting will moderate the relationship between telecommuter self-efficacy and telecommuter adjustment such that self-efficacy will be more strongly associated with adjustment for employees who telecommute more extensively than for those who telecommute less extensively. Results support our predictions (see Table 2, column 2). Specifically, the interaction term is significantly related to telecommuter adjustment \( (\beta = .07, \ p < .05) \), and the change in \( R^2 \) is also significant \( (F_{\text{change}} = 4.00, \ p < .05) \). Overall the regression explains 16% of the variance.

Hypothesis 2b states that extent of telecommuting will moderate the relationship between telecommuter self-efficacy and structuring behavior such that self-efficacy will be more strongly associated with structuring behavior for employees who telecommute more extensively than for those who telecommute less extensively. The moderated regression analysis results support our predictions (Table 2, column 4). Specifically, the interaction term is significantly related to structuring behavior \( (\beta = .10, \ p < .01) \), and the change in \( R^2 \) is also significant \( (F_{\text{change}} = 8.00, \ p < .01) \). Overall the regression explains 19% of the variance.
Table 1
Means, SDs, and intercorrelations of study variables

<table>
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<tr>
<th>Variable</th>
<th>Mean</th>
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<td>Gender (% female)</td>
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<td>Telecommute experience (months)</td>
<td>19.01</td>
<td>20.73</td>
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<td>Engineers (%)</td>
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<td>Management (%)</td>
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<td>Specialist (%)</td>
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<td>Top management (%)</td>
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<td><strong>Independent variables</strong></td>
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<tr>
<td>Telecommuter self-efficacy</td>
<td>6.46</td>
<td>.89</td>
<td>.03</td>
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<td>Extent of telecommuting (days)</td>
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<tr>
<td>Structuring behavior</td>
<td>5.40</td>
<td>.94</td>
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<tr>
<td>Telecommuter adjustment</td>
<td>5.53</td>
<td>.94</td>
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*Note. Variables 7, 9, and 10 were measured on a scale of 1–7. Higher scores indicate higher agreement/presence of the measured variable.

* $p < .05$.

** $p < .01$. 
Table 2
Hierarchical regression: Testing main effects and interaction effects

<table>
<thead>
<tr>
<th>Variables</th>
<th>Dependent variable: Telecommuter adjustment</th>
<th>Dependent variable: Structuring behavior</th>
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<tr>
<td></td>
<td>$\beta$ ($SD$)</td>
<td>$t$</td>
</tr>
<tr>
<td>Gender</td>
<td>.09**</td>
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<tr>
<td>Telecommute experience</td>
<td>.11**</td>
<td>3.09</td>
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<td>Job: Engineering</td>
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<td>-.43</td>
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<tr>
<td>Job: Management</td>
<td>-.05</td>
<td>-.80</td>
</tr>
<tr>
<td>Job: Specialists</td>
<td>-.00</td>
<td>-.08</td>
</tr>
<tr>
<td>Job: Top management</td>
<td>-.05</td>
<td>-1.01</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>.27**</td>
<td>7.68</td>
</tr>
<tr>
<td>Extent of telecommuting</td>
<td>.24**</td>
<td>6.80</td>
</tr>
<tr>
<td>Self-efficacy * Extent of telecommuting</td>
<td>.07*</td>
<td>2.02</td>
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<tr>
<td>$R^2$ (adjusted)</td>
<td>.15</td>
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<td>$F$ value</td>
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</tr>
<tr>
<td>$F$ change</td>
<td>$F_{(1,66)} = 4.00^*$</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.

**p < .01.
We plotted the significant interactions in the next step. The slopes suggest that the positive relationships between self-efficacy and telecommuter adjustment (Fig. 1) and between self-efficacy and structuring behavior (Fig. 2) are stronger for employees who telecommute more extensively than for those who telecommute less extensively. This pattern supports Hypotheses 2a and 2b.

6. Discussion

In this study, we show a link between telecommuter self-efficacy and adjustment and between telecommuter self-efficacy and structuring behavior. The results of this study suggest that telecommuter self-efficacy is positively associated with telecommuters’ reported adjustment and structuring behavior. Furthermore, the positive relationship between telecommuter self-efficacy and the two dependent variables is stronger among those who telecommute more extensively. Our findings regarding the interactive relationship between self-efficacy and extent of telecommuting reinforce the critical role that self-efficacy plays as a means of aiding individuals in coping with the most challenging telecommuting arrangements—those that involve full-time telecommuting. Furthermore, our results draw attention to the relevance and importance of structuring behavior as a manifestation of employee proactivity in the increasingly prevalent context of remote work. This research has important implications for both research and practice.

6.1. Implications for theory and research

Results from this study support and extend previous research suggesting the importance of self-efficacy in the context of new work forms. Previous research demonstrates the usefulness of self-efficacy in adjustment to new organizations and new countries (Caligiuri, Hyland, Joshi, & Bross, 1998; Harrison, Chadwick, & Scales, 1996; Jones, 1986; Nelson et al., 1988; Saks, 1995). The present study demonstrates the relevance of self-efficacy in the telecommuting context. It suggests that self-efficacy is an important individual variable that explains behaviors and outcomes obtained when employees work remotely facilitated by new information technologies. An interesting avenue for research may be to examine telecommuters’ careers longitudinally to evaluate the role of self-efficacy in influencing career progression and career-related satisfaction (Lent, Brown, & Larkin, 1987; Stumpf et al., 1987).

Additionally, it may be worthwhile to investigate whether relationships such as those we report emerge in other contexts in which jobs change due to technological advances. In particular, technological change evolves rapidly and unpredictably, suggesting that the impact of technologies on employees’ jobs and careers may often be characterized by uncertainty. Some of the past research on self-efficacy suggests that efficacy beliefs are particularly important in such uncertain and difficult contexts (Hill, Smith, & Mann, 1987). If so, self-efficacy may be a crucial factor in understanding linkages between technology, jobs, and careers even outside the telecommuting domain.
This study brings into focus the relevance of self-efficacy and structuring behavior in the context of a new work mode—telecommuting. Indeed, one can build upon the findings from this study to explore the role that self-efficacy and structuring behavior can play in an individual’s ability to deal with organizational changes besides telecommuting. For instance, efforts to organize around teams or simplify organizational structures have the effect of reducing the boundaries between roles, jobs, and departments and putting greater responsibility on workers to self-organize and self-regulate individually or in work groups. Moreover, increased use of contingent work, temporary work, and transnational work also requires employees to operate autonomously (Malone & Laubacher, 1998). The present research suggests that self-efficacy and structuring behaviors may be especially promising constructs to explore in this regard. However, future research may also address other ways that employees cope with greater autonomy and isolation. For example, employees may utilize social mechanisms, such as developing an effective social network and utilizing their network ties to reduce the isolation they experience.

Our finding that self-efficacy is related to structuring behavior is consistent with research suggesting that individuals with a high sense of self-efficacy develop strategic skills in order to adapt to the challenges they confront. These findings further contribute to current theorizing by linking self-efficacy to employees’ proactive efforts to shape their jobs and work. The notion that work, jobs, and careers can be proactively self-defined has received a great deal of attention recently, in part due to changes in the way that organizations and individuals think of their relationship with one another and the nature of jobs (Bridges, 1994; Frese, Kring, Soose, & Zempel, 1996, 1997; Wrzesniewski & Dutton, 2001). The present paper highlights the importance of employee proactivity in the context of remote work. It also supports the theorized linkages between technology and employee proactivity suggested in previous research (Bridges, 1994).

Extending this link between technology and employee proactivity may have important implications for research on the evolving nature of jobs and careers. Notably, individuals who are exposed to pressures similar to those faced by telecommuters may also benefit from proactive behavioral strategies. Technological change, perceived remoteness, and the distractions that emerge when work boundaries are reduced and permeable may impact a wide range of employees across a variety of jobs and work modes (e.g., consultants, the self-employed, sales workers, members of virtual teams, and transnational employees). All of these factors can create the pressure for greater self-management and individuals’ influence in shaping job responsibilities and career development. Future research exploring changes in employees’ jobs and careers may therefore benefit from supplementing our understanding of the role of the organization and its management with an exploration of the role of individual proactivity in the continuing evolution of work and career patterns.

Our findings suggest that the extent to which a person telecommutes is a moderator of the relationship between telecommuter self-efficacy and telecommuter adjustment and the relationship between self-efficacy and structuring behavior. As we have pointed out, the telecommuting experience is likely to be very different for those who
telecommute more extensively relative to those who telecommute less extensively. Future research seeking a deeper understanding of employees’ experience of telecommuting may benefit from explicitly evaluating the role of extent of telecommuting.

The results of our study suggest that gender is significantly associated with the two dependent variables that we examined—telecommuter adjustment and structuring behavior. In particular, it appears that women in our sample are especially vigilant about how they structure their workday compared to men. Past research suggests that for women, multiple roles tend to be salient simultaneously (requiring conscious prioritization of roles) while for men the roles operate sequentially (suggesting roles are prioritized by the context) (Hall, 1972). Women’s proactive behavior may thus reflect the particular challenges they face in segmenting the home and work domains in which telecommuters simultaneously operate. Future research may be targeted at studying gender-based differences among telecommuters that may further explain these results.

We find that telecommuting experience is not associated with structuring behavior, suggesting that telecommuters are not more likely to independently implement such behavioral strategies with greater experience. However, telecommuting experience is positively related to adjustment, suggesting that telecommuter adjustment may result from a long-term learning process associated with experience. For example, over time employees may learn to use technology for maintaining communication and informational linkages with the organization. Such linkages may aid their job performance when working from a distance. Future research may be directed toward more fully specifying the relationship between telecommuter adjustment and telecommute experience.

A notable aspect of the present study is that it was conducted in a business organization. This field setting helps overcome some of the problems that may be inherent in simulated environments. Stajkovic and Luthans (1998) point out that simulated studies examining the impact of self-efficacy are ill-equipped to recreate conditions that individuals usually encounter in business settings, such as performance constraints, task ambiguity, and deficiencies in performance information. By examining the responses of individuals in a field setting, our study provides externally valid information about the relationship between self-efficacy and adjustment.

As with any other study, our study has several limitations. In calling attention to these limitations we also highlight corresponding areas for future research. One such limitation stems from our data potentially being subject to common methods bias. Although this bias may influence the main effects, common methods bias is unlikely to fully explain the moderation effects related to Hypotheses 2a and 2b. In particular, common methods bias should uniformly influence all respondents. Thus, it cannot explain why the relationship between self-efficacy and structuring behavior and between self-efficacy and telecommuter adjustment should be stronger for some respondents (i.e., those who telecommute more extensively) than for others. Nevertheless, future research integrating experimental and longitudinal research designs would help to clarify these issues.

Also, the mean telecommuter self-efficacy reported by our respondents was 6.46 on a scale of 1–7. This skewed value may be causing attenuation of the correlations
involving self-efficacy as well as of the overall effect sizes in our regression analyses, leading to a conservative test of our hypotheses. One possible explanation for these skewed values may lie in the fact that our sample consisted of voluntary telecommuters. Past research suggests that perceptions of self-efficacy may determine employees’ choice of career related activities and environments (Lent et al., 1994, 1999). Therefore, it is likely that telecommuters in our sample may have opted into this work mode based on their self-efficacy assessment. While most telecommute programs currently in place in organizations are voluntary, it may be useful for future studies to target some of the few existing mandatory telecommute programs in order to increase variation in telecommuter self-efficacy perceptions. Alternatively, future studies may include telecommuter self-efficacy scales that can more comprehensively reflect the challenges in a voluntary telecommute setting, thus leading to greater variance.

Another limitation is the relatively low response rate (31.5%) that we received. Although our analysis suggests that the sample we have is representative of the population from which it is drawn, a higher response rate would have made the results more robust.

6.2. Practical implications

Telecommuting has important effects on employees’ job responsibilities and their careers. We have argued that telecommuting not only influences the nature of employees’ job responsibilities (e.g., requiring task redesign to enable greater autonomy) but also how changes in employees’ job responsibilities come about (e.g., requiring more proactive efforts on the part of employees themselves). The very pattern of telecommuters’ careers may also change in a variety of ways. For example, the possibility of telecommuting may reduce employees’ need to change jobs or suspend careers to adapt to factors such as spousal relocation, child or elder care responsibilities, or health crises. Telecommuting may open up the possibility of developing a career for people who may otherwise be sidelined, such as those with physical handicaps who need special accommodations. Telecommuting influences the jobs and careers of those who work alongside telecommuters as well as the telecommuters themselves. For example, the job responsibilities of managers who supervise telecommuters are significantly altered by the new demands that such employees place on those around them (Wiesenfeld, Raghuram, & Garud, 1999b). Furthermore, telecommuting also may pose significant risks to employees’ career progress because telecommuters who fail to adjust to the demands of this new work style may find their careers derailed by their inability to maintain their job performance (Kurland & Bailey, 1999). The practical implications of effective management of telecommuting are therefore important to the jobs and careers of telecommuters as well as those who work alongside them and those who supervise them.

Results of our study offer several implications for the management of telecommute programs. For instance, the association between self-efficacy and our dependent variables is promising, particularly when we note that self-efficacy is both context-specific and malleable (Bandura, 1997). Consequently, self-efficacy effects
can be enhanced. Self-efficacy can be heightened through training interventions (e.g., Gist & Mitchell, 1992) as well as through leadership, via interpersonal expectancies (Eden, 1993). Supervisory trust may be an important variable in heightening telecommuters’ self-efficacy. Computer training, technology support, and mentoring by experienced telecommuters are additional ways in which telecommuter efficacy may be enhanced (Staples, Hulland, & Higgins, 1999).

Simulating potential experiences as a telecommuter is another way to increase self-efficacy (e.g., Mahler, Kulik, & Hill, 1993). Merrill Lynch has created a simulated environment for the employees who have volunteered for telecommuting. Specifically, Merrill Lynch isolates such employees from co-workers and supervisors for a week even before they begin telecommuting in earnest (Business Week, 1998). The objective is to provide employees a feel for what telecommuting might entail before they actually embrace this new work mode. Other mechanisms to help telecommuters learn faster include refresher courses, the institution of a “buddy system” whereby telecommuters can seek support from fellow telecommuters, and the inclusion of supervisors in training programs.

7. Conclusion

Technologies that we work with have the power to transform the ways in which we work. Such a transformation is evident in the changing nature of jobs and careers with the advent of new information technologies. These technologies provide individuals with an ability to work any time or anywhere even as they remain connected with one another. Indeed, these new technologies provide individuals with the flexibility to telecommute, simultaneously altering their job responsibilities and their career development opportunities. For employees and the corporation to benefit from telecommuting, however, it is essential to take into account not only the technologies involved, but also the motivations and abilities of individuals to deal with their new work environments, job responsibilities and career prospects. As we have noted and illustrated in this paper, employees with greater telecommuter self-efficacy are more likely to obtain positive outcomes and to proactively shape their job responsibilities to meet the demands that telecommuting imposes. Future research should examine how virtual workers utilize their motivations and abilities to proactively shape their jobs and careers over time.

References


