The Impact of Alternative Telework Arrangements on Organizational Commitment: Insights from a Longitudinal Field Experiment

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ABSTRACT: While the structure of telecommuting, or telework, varies across companies, most arrangements offer employees the option to perform their work responsibilities from various locations. A number of factors provide a compelling case for employers to consider such arrangements for their employees, such as motivating better performance and fostering commitment to the organization. Using data that were collected during the longitudinal experiment reported in Hunton (2005), the present study seeks to better understand how organizations might achieve these goals by examining the impact of alternative telework arrangements on the organizational commitment of employees and by evaluating the relationships among telework arrangements, organizational commitment, and task performance. Participants in three of the telework conditions exhibited significant increases in affective, continuance, and normative commitment, relative to a control group; however, in one of the telework conditions (working exclusively at home), organizational commitment was equivalent to the control group. While we postulated that participants with higher numbers of work location alternatives would exhibit greater increases across all three dimensions of organizational commitment, this expectation was only marginally supported. Finally, we report a positive association between organizational commitment and task performance across the treatment conditions and find that organizational commitment mediates the relationship between the telework arrangements and task performance.

Keywords: organizational commitment; alternative telework arrangements; distributed work; telecommuting; field experiment; longitudinal study.

I. INTRODUCTION

Telecommuting and telework are terms that are often used interchangeably to describe employees who periodically, regularly, or exclusively perform work for their employers from home or another remote location that is equipped with the appropriate computer-based technology to transfer work to the central organization (e.g., WorldatWork 2009; Nilles 2004).
While the structure of telework varies across companies, most arrangements offer employees an option to perform their work responsibilities at home or the main office, and some arrangements offer further options among multiple satellite sites that are geographically more convenient than the traditional office space (e.g., Gajendran and Harrison 2007; Gray et al. 1993; PL 106-346 2000). Reed et al. (2006) maintain that the impetus for developing alternative telework arrangements continues to be compelling due to lengthy commutes for employees (high gasoline costs and time; environmental pollution), potential terrorist acts (especially in densely populated cities and high-rise office buildings), natural disasters that can impact business sustainability, and demands by legislators for work environment changes.

Some claim that 2008 was the year that redefined the concept of telecommuting due to a convergence of factors: rising fuel costs, the threat of business discontinuity arising from terrorism, the increasing emphasis on improving the work-life balance for employees, and the proliferation of high-speed and wireless Internet access (e.g., Anonymous 2009). Indeed, recent advances in information and communication technologies (e.g., high-speed Internet access, IP telephone, email, instant messaging, web conferencing) can support a plethora of possible telework arrangements. For example, the present study examines the impact of four alternative telework arrangements at one organization. Other opportunities might include organizations hiring new employees in remote locations, supporting acquisition strategies that leverage scarce skill sets, or retaining outstanding employees in newly acquired companies by not forcing them to relocate (e.g., Yu 2008).

Two of the many challenges presented by telework are how to offer employees the autonomy and work-life balance they desire (e.g., Gagné and Deci 2005) while engendering a sense of commitment to the organization (e.g., Golden 2006) and how to provide avenues for managers to accomplish their monitoring and control responsibilities (e.g., Gajendran and Harrison 2007). To better understand how to achieve the goals of stimulating organizational commitment and motivating employee performance, the purposes of this study are to examine the impact of alternative telework arrangements on the organizational commitment of employees and evaluate the relationships among telework arrangements, organizational commitment, and task performance. Our study also responds to issues identified by Hall et al. (2005); in particular, we examine all three components of organizational commitment (affective, normative, and continuance commitment) to help provide insight into ways organizations can retain valued employees.

Telecommuting issues have been studied across many industries, addressing a variety of employee and employer concerns. For instance, some governmental entities offer tax incentives or regulations to encourage telecommuting. Several counties in California offer a $500 tax credit to companies that offer telework programs, Georgia extends $20,000 tax credits to conduct feasibility studies and up to a $1,200 credit for each teleworker, and Virginia grants up to a $35,000 tax credit per company (e.g., Yu 2008). Virginia Governor Kaine issued an executive order that made August 3, 2009, a “Statewide Telework Day” to encourage employers to fully explore the feasibility and efficacy of telecommuting (e.g., ability to reduce traffic, value as a family friendly initiative, opportunity to test business continuity plans).

In addition, a number of studies suggest that work-redesign policies, such as telecommuting, can have a positive impact on the work-life balance of white-collar employees (e.g., Himmelspach 2008; Batt and Valcour 2003), legal professionals (e.g., Oklahoma County Bar Association 2003), management accountants (e.g., Frank and Lowe 2003), public accountants (e.g., Almer and Kaplan 2002), as well as employees at all levels in companies such as IBM, AT&T, Sun Microsystems, and Best Buy (e.g., Martin et al. 2008). WorldatWork (2009) reports that the number of American telecommuters is growing (12.4 million in 2006 to 17.2 million in 2008). The recurring
theme in all of these studies of telework is that employees are more loyal to the firm or entity because they appreciate the autonomy and improved quality of life that these work alternatives offer.

For more than a decade, accounting researchers have investigated different dimensions of organizational commitment with respect to accounting professionals (e.g., Kalbers and Fogarty 1995; Pasewark and Strawser 1996; Ketchand and Strawser 1998). However, the dynamic environment of public accounting could benefit from additional research in determining how the levels of all three dimensions of organizational commitment (continuance, affective, and normative) develop and change over an accountant’s tenure with a firm (e.g., Ketchand and Strawser 2001). Further, these authors note that in a competitive job market, accounting firms place a premium on retention of experienced employees, and, as a result, the effectiveness of policies and programs that firms implement (on different dimensions of organizational commitment) should be investigated.

A recent study analyzed the results of a longitudinal field experiment that dealt with the effect of four telework arrangements on various affects, cognitions, and behaviors of medical coders who worked for a national health care company (e.g., Hunton 2005). Managers of the company expressed a sense of urgency to evaluate several telework options to help mitigate aggressive strategies that unions were using in the healthcare industry to organize healthcare workers (e.g., American Society for Healthcare Human Resources Administration/IRI Consultants to Management, Inc. [ASHHRA/IRI 2005]). While understanding the impact of the telework arrangements on task performance was important to the managers, they also expressed a desire to examine whether the telework arrangements would strengthen the company’s ability to retain seasoned employees as losses associated with the relatively high rate of turnover in the company (e.g., expertise drain, workflow disruption, and training demands) far exceeded gains (e.g., lower wages for less experienced employees).

While task performance data were presented in the Hunton (2005) study, associations among the telework arrangements, organizational commitment, and task performance of the participants were not evaluated. Accordingly, the present study supplements and extends Hunton (2005) by analyzing pre-post experiment differences in organizational commitment from data that were collected during the field experiment. In particular, the participants represent 160 medical coders who worked for a health care company, which includes hospitals and clinics throughout the United States. Drawing on the theories of psychological contracts, self-determination, and procedural justice, we set forth and test hypotheses that link the overall impact of the telework arrangements of the health care company on organizational commitment (H1), the relative effect of each arrangement on organizational commitment (H2), and the association between organizational commitment and task performance (H3). We also pose a research question asking whether organizational commitment mediates or moderates the relationship between the telework arrangements and task performance.

We find that organizational commitment increased in three of the four telework conditions relative to a control group; interestingly, the most popular telework arrangement, ex ante (allowing employees to work exclusively at their homes), indicated a non-significant change in organizational commitment from the control group. Overall, there was a significantly positive association between organizational commitment and task performance. Finally, results suggest that organizational commitment mediates the relationship between the treatment conditions and task performance.

Bailey and Kurland (2002) suggest that extant research on alternative telework arrangements has been largely unsuccessful in explaining what happens after firms and employees adopt distributed-work policies. The present study begins to address this concern, and contributes to
theory and practice in the following ways: First, the research method involved a randomized, 1 between-participant, longitudinal field experiment; hence, we gain valuable insight into some key ramifications of a distributed-work initiative aimed at improving the work-life balance and autonomy of employees, while maintaining management’s ability to monitor and control work performance. Second, we find that the Meyer et al.’s (1993) revised three-component model of organizational commitment yielded satisfactory convergent and divergent validity in a field setting. Third, the results indicate that providing employees with certain telework arrangements improves their commitment to the organization and task performance. Fourth, our analyses suggest that organizational commitment mediates the link between the telework arrangements examined in this study and task performance—a finding that holds theoretical implications for organizational-commitment researchers. These results should be of interest to public accounting firms, other organizations that hire accountants, and accounting researchers, as telework appears to be a viable option for many facets of the accounting profession.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Alternative Telework Arrangements

A number of reports indicate that alternative telework arrangements are becoming more common (e.g., Kowalski and Swanson 2005; Shanks 2007) due to a number of advantages that are possible for individuals and employers (e.g., Daniels et al. 2001; Fairweather 1999; Kowalski and Swanson 2005; Montreuil and Lippel 2002; Shanks 2007). For example, employees typically view telecommuting as an opportunity to remain in the workforce and still attend to family issues, reduce (or eliminate) commuting time, increase job autonomy, achieve flexible working hours, and obtain valuable training in information and communication technologies. Research suggests that employers might gain more satisfied employees, which could translate into increased retention, reduced employee relocation costs, lower absentee rates, and greater employee commitment to the organization (e.g., Mamaghani 2006).

In general, most research on alternative telework arrangements has been cross-sectional or descriptive in nature (e.g., Gill 2005; Schweitzer and Duxbury 2006; Wicks 2002), and extant studies examining the effect of alternative telework arrangements on organizational commitment rely primarily on surveys that captured data at one point in time (e.g., Golden 2006; Hyland et al. 2005). Although there are several longitudinal studies that describe and evaluate various workplace characteristics as they relate to organizational commitment (e.g., Begley and Czajka 1993; Blakely et al. 2003; Scott-Ladd et al. 2006), we know of no longitudinal field experiment that examines the effect of alternative telework environments on the organizational commitment of employees. As a result, relatively little is known about the impact of specific telework options.

Earlier studies treat different telecommuting configurations as a single construct. For example, Hyland et al. (2005) used a questionnaire to investigate the effects of flexible work arrangements (i.e., flextime, compressed workweek, and telework) on performance and affective commitment, but they did not differentiate between various telework options the workers used. Gajendran and Harrison (2007) report their meta-analysis of telecommuting, indicating that “home” was the primary location for telecommuting in many of the studies they included in their analysis (other telework options were not considered separately). These studies appear to implicitly assume that all telework options have the same impact on the organizational commitment of employees.

1 In this study, the term “randomized” refers to the randomization of sites (hospitals) to treatment conditions.
Organizational Commitment

Although greater employee commitment to an organization is generally viewed as desirable due to the costs associated with retention and turnover (e.g., Saul 2007), employee commitment may be viewed positively in some instances but detrimentally in other situations, particularly if overly strong commitment reflects blind loyalty that allows employees to support and participate in unethical behavior (e.g., Meyer and Allen 1997; Verschoor 2006). Employees, though, have observed turbulence associated with management-initiated changes in the structure of organizations over the past two decades, and these changes have altered employees’ perceptions of and reactions to the employment relationship (e.g., Zhao et al. 2007). As a result, the concept of employee commitment is sometimes regarded as an artifact of the past. For instance, Mills (2007) claims that employment benefits that reward employee loyalty and longevity have been discontinued or replaced with cash, and as job security has been replaced with uncertainty, employees are less likely to be committed to an organization over time.

The issue of organizational commitment, especially as it relates to retention, is an important issue for the health care industry. Although the management teams in health care organizations are constantly and systematically working on initiatives and policies to improve retention, health care organization employee turnover rates remain high compared with other service industries (e.g., Lebbin 2007). It is within this context that our field study experiment was developed. One of the authors was contacted by the management team of a large health care organization to assist in the development of a field study to develop alternative telework arrangements for employees, evaluate the efficacy of different telecommuting strategies, and assess the potential impact of these strategies on the organizational commitment and task performance of the medical coders. As part of this study, we administered the Meyer et al. (1993) revised three-component model of organizational commitment to develop our hypotheses regarding affective, continuance, and normative commitment of the employees in this organization. According to the model, employees may experience varying degrees of all three forms of commitment. In general, organizational commitment reflects a psychological state that characterizes the employees’ relationship with the organization, which has implications for their decision to continue or discontinue membership in the organization (e.g., Meyer and Allen 1997; Meyer et al. 1993).

Affective Commitment

The affective component of organizational commitment refers to an employee’s emotional attachment to the organization, as well as an individual’s identification with—and involvement in—the organization. It is the process by which the goals of an organization and those of the individual become more closely integrated or aligned (e.g., Hall et al. 1970). Accordingly, employees with a strong affective commitment are said to continue employment with an organization because they want to or choose to do so (e.g., Meyer and Allen 1997). Based largely on results suggesting that affective commitment has the strongest and most consistent relationship with desirable outcomes, such as retention, attendance, and performance, affective commitment is the most widely studied component of organizational commitment (e.g., Bergman 2006; Meyer and Allen 1997).

Affective commitment is also reported to be positively and significantly correlated with job redesign (including autonomy and feedback), employee empowerment, and self-determination (e.g., Ugboro 2006). Jaros’ (1995) study results suggest that an employee’s affective commitment is the most important component of organizational commitment in predicting turnover intentions, which implies that organizations interested in reducing voluntary turnover behavior can do so by fostering affective commitment. Subsequent studies find a positive and significant correlation between affective commitment and job satisfaction (e.g., Freund 2005; Yeh 2007) and suggest that
management consider policies that increase job satisfaction to reduce turnover (e.g., Yeh 2007). Collectively, these studies suggest that higher levels of affective commitment from employees are advantageous to an organization or business.

Continuance Commitment

Continuance commitment refers to an employee’s perception that there are costs associated with leaving the organization; thus, employees whose primary link to the organization is based on this component remain with the company because they believe they need to do so (e.g., Meyer and Allen 1991, 1997). Continuance commitment can develop as a result of any action that management might take or any organizational event that increases the costs of leaving the organization (e.g., Meyer and Allen 1997). Commonly discussed antecedents of continuance commitment are investments (something valuable that an employee would lose if he or she left the organization) and the employee’s perceptions of employment alternatives; however, neither of these antecedents has an impact on employees unless (or until) they are aware of them and their implications (e.g., Becker 1960; Meyer and Allen 1984, 1997; Whitener and Walz 1993).

Unlike affective commitment, much of the extant research on continuance commitment suggests that employees with strong continuance commitment might be poorer performers, engage in fewer citizenship behaviors, and exhibit more dysfunctional behaviors, relative to those with weak continuance commitment (Meyer and Allen 1997). Recently, Meyer et al. (2004) proposed that employees with higher levels of continuance commitment will perceive that their options are limited and will, thereby, be motivated to satisfy only the minimum requirements of employment (e.g., minimize work attendance, minimum task performance to maintain job).

However, several studies on continuance commitment suggest that alternative employee motivations may be present. For example, more years of employment were associated with higher levels of continuance commitment among social welfare agency employees, but not among employees in a communications agency (e.g., Abbott et al. 2005). McConnell (2003) examined the relationship between person-organization (P-O) fit and reported continuance commitment to be highly and positively correlated with P-O fit, and this association was stronger than the P-O fit with either affective or normative commitment. In another study, employees who reported better quality benefit communication (greater familiarity with the benefit system) also reported higher levels of continuance commitment (e.g., Sinclair et al. 2005).

Overall, theory and research is equivocal regarding the organizational benefits of increasing an employee’s continuance commitment. On one hand, more continuance commitment might foster an attitude of meeting minimum expectations (e.g., Meyer et al. 2004), while on the other hand, more continuance commitment can positively affect employee performance (e.g., Johnson and Chang 2006).

Normative Commitment

Normative commitment refers to an employee’s feelings of obligation to remain with an organization because of his or her belief that it is the right thing to do or that he or she should do so (e.g., Meyer and Allen 1991, 1997). This form of commitment might develop through conditioning (rewards and punishments) or through observation and imitation, which individuals learn from their family, culture, or the organization (e.g., Wiener 1982). Normative commitment could also result from investments that an organization makes in an individual which might be perceived as difficult for the individual to repay (e.g., Meyer and Allen 1991; Scholl 1981). Employees might find such an imbalance uncomfortable and choose to stay with the organization out of a sense of obligation, i.e., reciprocity for a benefit (Gouldner 1960; Meyer et al. 2002). Finally, if employees believe they are obligated to their employer in an exchange relationship (psychological contract), normative commitment might develop. That is, if employees believe that an organization
has invested in them, they can develop a personalized social contract with the firm that they work to fulfill (e.g., Rousseau 1995).

According to Meyer and Allen (1991), due to the distinct emphasis on obligations that are unique to normative commitment, this component of organizational commitment might well be the missing link in our understanding of the influence of psychological contracts on employee commitment. This is important because, of the three forms of organizational commitment described above, the least is known about the development of normative commitment (e.g., Meyer and Allen 1991).

Hypotheses

Alternative Telework Arrangements and Organizational Commitment

In the present study, management of the health care organization was faced with unfavorable turnover rates and employee demands for alternative telework environments. As suggested by Lebbin (2007), management recognized the need to communicate with employees and to consider reasonable accommodations for its work environment. Accordingly, the telework environment arrangements to which senior management and the employees agreed reflected a psychological contract where management expected the employees to perform their duties at the same level as if they were working exclusively at the downtown hospital locations, and the employees expected management to treat them with the same respect, dignity, and fairness as if they were working at the traditional office space.

The theory of psychological contracts refers to an individual’s belief or perception that a promise has been made (e.g., management will institutionalize an alternative telework arrangement policy) and certain obligations will be forthcoming in exchange for the promise (e.g., the medical coders will perform their tasks as competently at the distributed work location as they would if they were working from the downtown office location). Psychological contracts contain both explicit promises (e.g., verbal or written agreements) and implicit promises (e.g., good faith or fairness).

Following the theory of psychological contracts, we propose that the employees believed the organization made promises to them (to implement a telework policy) and as a result, they developed a personalized social contract with the health care organization to meet management expectations regarding their work performance (e.g., Rousseau 1995). We argue that this social contract developed, in part, based on the perceptions of the employees that management listened to their concerns and desires and then made the decision to implement an alternative telework arrangement in response to their desires. Thus, drawing on the principle of participation in decision making, the medical coders should feel more motivated, have higher job satisfaction, and have increased organizational commitment (e.g., Kappelman and Prybutok 1995; Pearson and Duffy 1999; Scott-Ladd et al. 2006).

We hypothesize that management’s policy to implement an alternative telework arrangement promoted a sense of employee involvement and empowerment, such that the medical coders felt greater emotional attachment to the organization (affective commitment), higher perceived costs associated with leaving the organization since they might not be able to telecommute at another organization (continuance commitment), and increased obligation to remain with the organization because management attended to their desires (normative commitment). Accordingly, we test the following hypothesis:

H1: Pre-to-post experiment mean differences in the affective, continuance, and normative dimensions of organizational commitment will be significantly greater where telework is allowed, relative to a control group where telework is not allowed.
Options of Work Location and Organizational Commitment

According to Patall et al. (2008), most Americans believe that having choices promotes health and happiness, making choices is a way to meaningfully define oneself as an individual, and engaging in volitional acts of choice can yield positive impacts on an individual’s feelings, beliefs, and behavior. These authors note that both laboratory and field research indicate that choice has positive consequences across diverse circumstances, including the workplace. That is, individuals “will be more intrinsically motivated to persist at a task to the extent that the activity involves their personal choice and/or provides opportunities to make choices” (e.g., Patall et al. 2008; 271). Further, the opportunity to make choices leads to an increased sense of personal control (e.g., Taylor 1989) and enhanced motivation (e.g., Iyengar and Lepper 1999).

However, having extensive choices versus limited choices is not necessarily more desirable or intrinsically motivating (e.g., Iyengar and Lepper 2000). Self-determination theory suggests that some choices may be better than others in supporting an individual’s needs for autonomy, thus having a greater impact on intrinsic motivation and related outcomes (e.g., Gagné and Deci 2005; Patall et al. 2008); that is, choices that reflect an individual’s personal values, goals, or interests will have the greatest effect on motivation and performance. In the present study, employees (medical coders) demanded that management offer a flexible telecommuting policy, thus options contained therein would likely affect their personal goals and interests.

Management tested four alternative telework arrangements (e.g., Hunton 2005): work only from home (one option); work at home or at the traditional downtown location (two options); work at home or at a satellite office that was geographically located fairly close to the employee’s home (two options); work at home or at the downtown office or at the satellite office (three options). All of these choice conditions responded to the medical coders’ demands to be able to work from home and not be forced to drive to the downtown office location. Based on Iyengar and Lepper’s (2000) results, the number of options (one to three) that management examined appears to be reasonable. Based on theories of choice and self-determination, we test the following hypothesis.

H2: Pre-to-post experiment mean differences in the affective, continuance, and normative dimensions of organizational commitment in the telework treatment conditions will increase significantly as more alternative telework location options are offered.

Organizational Commitment and Performance

Based on management’s decision to test alternative telework arrangements for the medical coders, the health care organization was forced to invest a considerable amount of money to equip each of the distributed work sites (including employees’ homes) with the same information and communication technologies that were available in the downtown offices. Via this technology, the medical coders’ task performance would be monitored and assessed electronically, rather than by face-to-face supervision as was the case when the employees worked at the downtown offices. The impact of electronically monitoring employees can raise a number of concerns (e.g., evaluation fairness), and might adversely affect employee attitudes and performance, even if employees believe that computer monitoring is the most procedurally fair (or just) type of monitoring under the circumstances (e.g., McNall and Roch 2007).

Procedural justice refers to the fairness of policies or processes that decision-makers use to determine or implement decisions (e.g., Lind and Tyler 1988; Thibaut and Walker 1975). Maiese (2004) identifies four characteristics that make procedures perceptually fair: (1) an emphasis on consistency, (2) the decision-making authority treats people fairly, takes their viewpoint into consideration and cares about their needs, which engenders trust, (3) the decision-makers give the other party a voice in the process, and (4) the decision processes are transparent. When managers
implement fair practices (e.g., giving them voice, being consistent, using transparent procedures) with respect to their employees, then employees’ trust in management increases (e.g., Cremer et al. 2006). A considerable body of research confirms the positive impact of perceptions of procedural fairness by employees on their subsequent attitudes and behaviors, including organizational commitment and job performance (e.g., Cohen-Carash and Spector 2001; Colquitt et al. 2001; Davis and Rothstein 2006; Platow et al. 2006; Rhoades and Eisenberger 2002). More recently, Salamon and Robinson (2008) found that when employees feel they are trusted by management (e.g., given voice and then allowed to work at alternative telework arrangements), responsibility norms are strengthened and performance is improved.

Based on the theory of procedural justice, we posit that the medical coders will view the computerized monitoring of their task performance as fair because management listened to their concerns (gave them voice) and agreed to implement an alternative telework arrangement, indicating that management cared about their needs and, therefore, the employees’ trust in management was enhanced. Further, management made a significant investment in the employees by developing an alternative telework arrangement policy, installing the required technology to implement the policy, and paying for the cost of training the coders on the technology. As a result, we anticipate the medical coders’ emotional attachment (affective commitment), perceived cost of losing a valuable benefit (continuance commitment), and feelings of obligation (normative commitment) to the health care organization will be positively related to their performance. We test this hypothesis.

**H3:** Pre-to-post experiment mean differences in the affective, continuance, and normative dimensions of organizational commitment will be positively associated with pre-to-post experiment mean task performance differences across the alternative telework conditions.

Finally, Salamon and Robinson (2008) suggest that employees who are more committed to the organization will, in turn, perform better. Yet, many organizational commitment researchers want to know more about the relationship between organizational commitment and performance: Specifically, does organizational commitment mediate or moderate the association between a stimulus of interest (e.g., telework arrangements) and consequential outcomes (e.g., task performance) (Klein et al. 2009)? A moderator variable interacts with a stimulus variable, thus altering the direction or strength of the relationship between the stimulus and the consequential response; a mediator variable intervenes between the stimulus and response, thus helping to causally explain the relationship (e.g., Frazier et al. 2004). If a variable of interest, such as organizational commitment, serves a moderating role, the association between the stimulus (telework arrangements) and the response (task performance) would be considered to be relatively weak, possibly because it is only effective for some employees at certain levels of organizational commitment; on the other hand, if organizational commitment serves a mediating role, this would suggest that the relationship between the stimulus and response is relatively strong, and the mediator can help to explain the mechanism behind the relationship (e.g., telework arrangements directly affect organizational commitment, which directly affects performance). If organizational commitment is found to be a mediator, this would suggest that intervention strategies aimed at boosting organizational commitment should yield predictable increases in task performance—a finding that would be important and relevant to both theorists and practitioners.

It is important to mention that we recognize the complexity of the web of psychological mechanisms between the alternative telework strategies examined in this study and task performance. Had we been able to develop and test a more sophisticated model, we would have done so. However, the field experiment was already quite intricate and lengthy, and management restricted
our ability to examine a more robust model of organizational commitment; thus we are limited in our analyses. Nevertheless, we believe that there is value in examining the following research question, while recognizing our limitations:

**RQ:** Will organizational commitment mediate or moderate performance?

### III. METHODOLOGY

We summarize the field experiment herein, but some of the finer details can be found in Hunton (2005). The experiment involved a large health care company with hospitals and clinics located in most major cities throughout the United States. The company engaged in a large-scale conversion to a paperless environment, which included digitizing medical records in all of their hospitals and clinics. As a result of the conversion to a paperless environment, senior representatives of the medical coder community formally requested that management offer telework options. They contended that the coders’ job responsibilities could be performed from any location and that they should not be forced to commute to downtown hospital locations.

Management of the health care company agreed to consider the possibility of enacting a more flexible work environment policy, but due to a variety of concerns (e.g., supervision of the employees, cost of supporting employees at alternate work sites, possible performance issues), they determined that a trial period was necessary to evaluate the effectiveness of options. Management expressed a sense of urgency to attend to the coders’ demands due to the aggressive strategies that unions were using in the healthcare industry to organize healthcare workers (ASHHRA/IRI 2005). Hence, the board of directors, management, and senior coder representatives agreed to test four different telecommuting strategies.

**Design**

Four hospitals, each from a different city, were randomly chosen as experimental treatments, and a fifth hospital from yet another city was randomly chosen as a control group, resulting in an unbalanced, randomized $2 \times 2 \times 1$ design. The treatment and control group hospitals were unaware of the field experiment. A post-experiment debriefing, reported in Hunton (2005), indicated that participants assumed all medical coders across the company were exposed to the same work policy under which they had been operating during the experimental period.

Prior to the experiment, all medical coders were required to perform their work in offices located at or nearby the hospitals, referred to as downtown office space. All employees who were involved in the experiment were allowed to telework from home. In addition, in certain treatments, there was another option; that is, the company established satellite offices that were strategically located in suburban areas that were near to clusters of employees’ homes. On average, the satellite offices reduced commuting miles by two-thirds. The satellite locations and the coders’ homes were equipped with the same technology as the downtown offices at company expense so that coders could perform their work without technological impediments.

The experiment involved an unbalanced five-cell design that included a randomized between-participants portion involving a two (downtown office space available: no or yes) by two (satellite office space available: no or yes) design, where working at home was an option in all conditions, and a fifth control group where no telework was allowed. We use the following codes to identify the treatment conditions: $D =$ downtown only (control group); $H =$ home only; $D + H =$ downtown and home; $S + H =$ satellite and home; $D + S + H =$ downtown and satellite and home.
Dependent Variables

Data collection began in January of the experimental year, whereupon the pre-experiment organizational commitment instrument was administered. Six months later (July 1st), the experimental treatments were initiated. The experiment terminated on December 31st of the same year. In January of the subsequent year, a final survey was administered, which included the post-experiment organizational commitment instrument. We used Meyer et al.’s (1993) revised three-component model of organizational commitment to measure affective, continuance, and normative commitment of the medical coders. Wording of the response items is reported in Table 1.

Regarding task performance, the medical coders were paid a fixed amount for every “medical chart” that they coded. The number of charts they completed on a daily basis was recorded in the health care company’s database. However, the total number of charts coded was adjusted on a weekly basis for quality, and the net result is termed quality-adjusted performance. The medical coders were paid on the basis of quality-adjusted performance.

TABLE 1
Organizational Commitment

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<thead>
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<th>Affective Commitment</th>
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<tbody>
<tr>
<td>1. I would be very happy to spend the rest of my career with this company.</td>
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<td>2. I really feel as if this company’s problems are my own.</td>
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<td>3. I do feel a strong sense of “belonging” to my company.</td>
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<td>4. I do feel “emotionally attached” to this company.</td>
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<td>5. I do feel like “part of the family” at my company.</td>
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<td>6. This company has a great deal of personal meaning for me.</td>
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<th>Continuance Commitment</th>
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<tr>
<td>7. Right now, staying with my company is a matter of necessity as much as desire.</td>
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<tr>
<td>8. It would be very hard for me to leave my company right now even if I wanted to.</td>
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<tr>
<td>9. Too much of my life would be disrupted if I decided I wanted to leave my company now.</td>
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<tr>
<td>10. I feel that I have too few options to consider leaving this company.</td>
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<tr>
<td>11. If I had not already put so much of myself into this company, I might consider working elsewhere.</td>
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<td>12. One of the few negative consequences of leaving this company would be the scarcity of available alternatives.</td>
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<th>Normative Commitment</th>
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<tr>
<td>13. I do feel an obligation to remain with my current employer.</td>
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<tr>
<td>14. Even if it were to my advantage, I do not feel it would be right to leave my company now.</td>
</tr>
<tr>
<td>15. I would feel guilty if I left my company now.</td>
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<tr>
<td>16. This company deserves my loyalty.</td>
</tr>
<tr>
<td>17. I would not leave my company right now because I have a sense of obligation to the people in it.</td>
</tr>
<tr>
<td>18. I owe a great deal to my company.</td>
</tr>
</tbody>
</table>

Each item was accompanied by a seven-point response scale, where 1 = Strongly Disagree, 7 = Strongly Agree.

---

2 Hunton (2005, 120) states: “The medical company employed quality control techniques to evaluate medical coders’ accuracy. Medical coding supervisors draw a weekly random sample of medical coders’ work and test for errors using statistical control software. The supervisor assigns a “quality accuracy rating” (QAR) to the medical coder for the week (0 to 100 percent) based on the sample results. The QAR affects each coder’s pay; specifically, the company multiplies
Since the health care company would not allow us to report the exact number of charts coded, for confidentiality, privacy, and competitive reasons, we indirectly measured quality-adjusted task performance by calculating each coder’s monthly deviation from the control group’s quality-adjusted performance for the same month. For instance, assume that the control group’s quality-adjusted performance for a given month was 1,000 medical charts. If three medical coders in the treatment conditions recorded 1,000 (Coder 1), 1,100 (Coder 2) and 950 (Coder 3) medical charts in the same month, their task performance metrics would be 1.00, 1.10 and 0.95, respectively.

Participants

Employees who capture information from the digitized patient medical records are called medical coders. These employees analyze the information that healthcare providers enter into patients’ medical records and then assign appropriate codes (enter into an electronic database) for diagnostic work and other procedures. Medical coding is necessary for filing claims and for receiving reimbursements. A total of 179 medical coders were initially involved in the pre-experiment survey in January of the experimental year. At the end of the experiment, 19 of the initial participants were no longer employed by the health care company, thus leaving 160 medical coders in the study. The 160 participants’ mean (standard deviation) age was 27.08 (5.05) years, mean (standard deviation) years as a medical coder was 5.22 (3.85), and mean (standard deviation) years with their current employer was 2.51 (2.39). There were 140 female and 20 male medical coders in the final sample. The mean (standard deviation) distance between the coders’ home and their respective downtown offices was 18.31 (5.78) miles. The following numbers of medical coders participated in each of the conditions: D = 28, H = 31, H + D = 35, H + S = 29 and H + S + D = 37. More detail about the sample is reported in Hunton (2005).

IV. RESULTS

Preliminary Testing

Table 2 offers descriptive statistics for both pre- and post-experiment measures of the components of organizational commitment. Pre-experiment affective commitment (m = 4.03) is significantly higher than pre-experiment continuance commitment (m = 2.64, t = 7.90, p = 0.01) and pre-experiment normative commitment (m = 2.42, t = 10.46, p = 0.01), but the continuance and normative dimensions of organizational commitment are not significantly different from each other (t = 1.37, p = 0.17). Interestingly, post-experiment mean scores for all three dimensions (affective mean = 4.96; continuance mean = 4.73; normative mean = 4.67) are significantly (p < 0.01) higher than pre-experiment means, but the post-experiment means are not significantly different from each other (p > 0.20). The standardized Cronbach’s alpha for each dimension of organizational commitment is relatively high, both pre- and post-experiment.

Further examination of the organizational commitment instrument was conducted using factor analysis and the results are reported in Table 3. Regarding the pre-experiment measures of organizational commitment, the three dimensions fell into three distinct factors, each with eigenvalues greater than 3.0, and all 18 items accounted for 73.88 percent of the cumulative variance. The post-experiment administration of organizational commitment obtained similar results, although the order of factors (based on eigenvalues) was different. Nevertheless, the cumulative variance accounted for was relatively high (87.67 percent).

---

the total number of medical charts coded for the week by the QAR to determine the number of charts for which the coder will be paid.” Thus, the term “quality-adjusted performance” represents the gross number of medical charts coded minus the estimated number of charts that were coded with error, where the estimate is based on statistical sampling.
Table 4 presents the results of ANCOVA testing on the post-experiment organizational commitment measures, where the pre-experiment measures comprise the covariate, thereby resulting in least square means. Analysis of this nature allows the reader to examine the organizational commitment results relative to the measurement scale relatively low, 7 relatively high. The least square means of overall, continuance, and normative commitment in the control condition were significantly below the midpoint (p-values were less than 0.01), while affective commitment was not significantly different from the midpoint (p = 0.15). The least square means across all dimensions of organizational commitment in the home only condition were significantly below the midpoint of the scale (all p-values were less than 0.10). Finally, the

Table 4 presents the results of ANCOVA testing on the post-experiment organizational commitment measures, where the pre-experiment measures comprise the covariate, thereby resulting in least square means. Analysis of this nature allows the reader to examine the organizational commitment results relative to the measurement scale (1 = relatively low, 7 = relatively high). The least square means of overall, continuance, and normative commitment in the control condition were significantly below the midpoint (4) of the scale (all p-values were less than 0.01), while affective commitment was not significantly different from the midpoint (p = 0.15). The least square means across all dimensions of organizational commitment in the home only condition (H) were significantly below the midpoint of the scale (all p-values were less than 0.10). Finally, the

### TABLE 2

Descriptive Statistics: Pre-Post Experimental Measures of Organizational Commitment

<table>
<thead>
<tr>
<th>Construct</th>
<th>Variable</th>
<th>Measure</th>
<th>Pre-Experiment</th>
<th>Post-Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mean²</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>Organizational</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>Affective</td>
<td>Dimension</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affective</td>
<td>1</td>
<td>3.67</td>
<td>1.65</td>
</tr>
<tr>
<td></td>
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<td>4.07</td>
<td>1.82</td>
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<td></td>
<td>Affective</td>
<td>3</td>
<td>4.08</td>
<td>1.92</td>
</tr>
<tr>
<td></td>
<td>Affective</td>
<td>4</td>
<td>4.17</td>
<td>1.91</td>
</tr>
<tr>
<td></td>
<td>Affective</td>
<td>5</td>
<td>3.81</td>
<td>1.86</td>
</tr>
<tr>
<td></td>
<td>Affective</td>
<td>6</td>
<td>4.11</td>
<td>1.86</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>Affective</td>
<td>4.03</td>
<td>1.51</td>
</tr>
<tr>
<td></td>
<td>Continuance</td>
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<td>2.49</td>
<td>1.67</td>
</tr>
<tr>
<td></td>
<td>Continuance</td>
<td>2</td>
<td>2.69</td>
<td>1.85</td>
</tr>
<tr>
<td></td>
<td>Continuance</td>
<td>3</td>
<td>2.80</td>
<td>1.90</td>
</tr>
<tr>
<td></td>
<td>Continuance</td>
<td>4</td>
<td>2.66</td>
<td>1.85</td>
</tr>
<tr>
<td></td>
<td>Continuance</td>
<td>5</td>
<td>2.61</td>
<td>1.82</td>
</tr>
<tr>
<td></td>
<td>Continuance</td>
<td>6</td>
<td>2.59</td>
<td>1.76</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>Continuance</td>
<td>2.64</td>
<td>1.64</td>
</tr>
<tr>
<td></td>
<td>Normative</td>
<td>1</td>
<td>2.20</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td>Normative</td>
<td>2</td>
<td>2.34</td>
<td>1.38</td>
</tr>
<tr>
<td></td>
<td>Normative</td>
<td>3</td>
<td>2.50</td>
<td>1.61</td>
</tr>
<tr>
<td></td>
<td>Normative</td>
<td>4</td>
<td>2.46</td>
<td>1.59</td>
</tr>
<tr>
<td></td>
<td>Normative</td>
<td>5</td>
<td>2.51</td>
<td>1.63</td>
</tr>
<tr>
<td></td>
<td>Normative</td>
<td>6</td>
<td>2.50</td>
<td>1.66</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>Normative</td>
<td>2.42</td>
<td>1.23</td>
</tr>
<tr>
<td>Overall Average</td>
<td>Organizational</td>
<td>Commitment</td>
<td>3.03</td>
<td>0.88</td>
</tr>
</tbody>
</table>

² Scales: 1 = Very Low, 7 = Very High.

b Estimated inter-item reliability based on standardized Cronbach’s Alpha.
least square means across all dimensions of organizational commitment were significantly above the midpoint of the scale in the D/H, S/H and D/S/H treatment conditions (all p-values were less than 0.01).

Hypothesis Testing

The first hypothesis asserts that pre-to-post mean differences across all three dimensions of organizational commitment will increase significantly in the treatment conditions, relative to the control group. Referring to Table 4, the least square means are not significantly different from the control group (D) to the home only (H) treatment. However, all least square means are significantly higher in the D/H, S/H and D/S/H treatments relative to the control group. Accordingly, the first hypothesis is mostly supported, with the exception of the home only condition.

## Table 3

Factor Analysis Results: Pre-Post Experimental Measures of Organizational Commitment

<table>
<thead>
<tr>
<th>Construct</th>
<th>Variable</th>
<th>Measure</th>
<th>Pre-Experiment</th>
<th>Post-Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Factor #</td>
<td>Loadings^b</td>
<td>Factor #</td>
</tr>
<tr>
<td>Organizational</td>
<td>Affective Dimension</td>
<td>Affective 1</td>
<td>.93</td>
<td>3</td>
</tr>
<tr>
<td>Commitment</td>
<td>Affective 2</td>
<td>2</td>
<td>.56</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Affective 3</td>
<td>2</td>
<td>.86</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Affective 4</td>
<td>2</td>
<td>.82</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Affective 5</td>
<td>2</td>
<td>.84</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Affective 6</td>
<td>2</td>
<td>.80</td>
<td>3</td>
</tr>
<tr>
<td>Continuance Dimension</td>
<td>Continuance 1</td>
<td>1</td>
<td>.98</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Continuance 2</td>
<td>1</td>
<td>.86</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Continuance 3</td>
<td>1</td>
<td>.85</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Continuance 4</td>
<td>1</td>
<td>.90</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Continuance 5</td>
<td>1</td>
<td>.92</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Continuance 6</td>
<td>1</td>
<td>.93</td>
<td>2</td>
</tr>
<tr>
<td>Normative Dimension</td>
<td>Normative 1</td>
<td>3</td>
<td>.95</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Normative 2</td>
<td>3</td>
<td>.85</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Normative 3</td>
<td>3</td>
<td>.77</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Normative 4</td>
<td>3</td>
<td>.83</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Normative 5</td>
<td>3</td>
<td>.74</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Normative 6</td>
<td>3</td>
<td>.80</td>
<td>1</td>
</tr>
</tbody>
</table>

Eigenvalues^c

<table>
<thead>
<tr>
<th></th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Cumulative % Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.36</td>
<td>4.25</td>
<td>3.68</td>
<td>73.88%</td>
</tr>
<tr>
<td></td>
<td>9.91</td>
<td>3.41</td>
<td>3.42</td>
<td>87.67%</td>
</tr>
</tbody>
</table>

^a Varimax rotation.

^b Only factor scores ≥ .50 are shown.

^c Only factors with eigenvalues greater than 1.0 were retained.


### TABLE 4
ANCOVA Results: Dependent Variables Reflect Post-Experiment Least Square Means for Organizational Commitment

<table>
<thead>
<tr>
<th>Construct and Dimensions</th>
<th>Two-Way ANCOVA&lt;sup&gt;a,b&lt;/sup&gt;</th>
<th>One-Way ANCOVA&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Duncan’s Pairwise Comparison&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Downtown × Satellite</td>
<td>Five Treatment Levels</td>
<td>(α = .05)</td>
</tr>
<tr>
<td></td>
<td>(n = 129)</td>
<td>(n = 160)</td>
<td></td>
</tr>
<tr>
<td>Downtown</td>
<td>F 66.81  P .01</td>
<td>F 115.74  P .01</td>
<td>3.20 = 3.06 &lt; 5.03 &lt; 6.04 = 6.25</td>
</tr>
<tr>
<td>Satellite</td>
<td>F 258.33  P .01</td>
<td>F 35.51  P .01</td>
<td>3.58 = 3.41 &lt; 4.72 &lt; 6.09 = 6.65</td>
</tr>
<tr>
<td>Interaction</td>
<td>F 43.46  P .01</td>
<td>F 25.19  P .01</td>
<td>2.91 = 3.45 &lt; 4.81 &lt; 5.81 = 6.29</td>
</tr>
<tr>
<td>Overall Organizational Commitment</td>
<td>F 15.50  P .01</td>
<td>F 21.27  P .01</td>
<td>3.10 = 2.34 &lt; 5.55 = 6.22 = 5.77</td>
</tr>
<tr>
<td>Affective</td>
<td>F 15.48  P .01</td>
<td>F 51.40  P .01</td>
<td></td>
</tr>
<tr>
<td>Normative</td>
<td>F 21.27  P .01</td>
<td>F 40.31  P .01</td>
<td></td>
</tr>
<tr>
<td>Continuance</td>
<td>F 15.50  P .01</td>
<td>F 51.40  P .01</td>
<td></td>
</tr>
<tr>
<td>Normative</td>
<td>F 15.48  P .01</td>
<td>F 40.31  P .01</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Since the “Home Only” condition was not fully balanced in the experiment, it is not included in the two-way ANCOVA model; rather, it is included in the one-way (five-level) ANCOVA model.

<sup>b</sup> The dependent variable reflects the post-experiment mean index of the six response items (per dimension) after adjusting for the pre-experiment mean of the six-response-item mean index (per dimension). The pre-experiment index responses were used as covariates, but were nonsignificant in all ANCOVA models (p > .20). The likely reason why covariates were nonsignificant is that the three organizational commitment dimensions (pre-experiment) are nonsignificant across the five treatment conditions (overall organizational commitment, F = 0.16, p = .69; affective commitment, F = 0.20, p = .65; continuance commitment, F = 0.04, p = .84; normative commitment, F = 0.07, p = .79). The following demographic variables were tested as covariates, but none were significant (p > .10): age, years total experience, years experience with current employer, commuting miles, number of children at home.

<sup>c</sup> H = Home Only, D = Downtown Only, D + H = Downtown and Home, S + H = Satellite and Home, D + S + H = Downtown and Satellite and Home.

<sup>d</sup> Least square means reflect the post-experiment mean of six response items per dimension, after covariate adjustment for the pre-experiment mean of six response items per dimension.
The second hypothesis states that pre-to-post mean differences in affective, continuance, and normative commitment will increase significantly in the treatment conditions as more alternative telework location options are offered. Referring again to Table 4, least square means for the treatments with two options (D + H and S + H) are significantly greater than the home only (H) condition. However, between the two-option conditions, organizational commitment is greater in the S + H condition than the D + H condition, with the exception of normative commitment. Additionally, the least square means in the alternative telework environment that offers three options (D + S + H) are not significantly different from one of the two-option alternatives (S + H) across all dimensions of organizational commitment. Hence, for the most part, the second hypothesis is not supported.

The third hypothesis posits that post-experiment measures of affective, continuance, and normative dimensions of organizational commitment will be positively associated with task performance. Table 5 presents two correlation matrices: Panel A reflects pre-experiment measures of organizational commitment (January of the experimental year) and task performance (mean

| TABLE 5  
| Correlation of Organizational Commitment Items with Performance Metrics |
|---|---|---|---|---|
| \[ \text{Panel A: Pre-Experiment Correlation Matrix} \] | \[ \text{AC} \] | \[ \text{CC} \] | \[ \text{NC} \] | \[ \text{OOC} \] |
| Affective Commitment \[ ^{a} \] | \[ \text{AC} \] | .04 |
| Continuance Commitment \[ ^{a} \] | \[ \text{CC} \] | .05  
| Normative Commitment \[ ^{a} \] | \[ \text{NC} \] | .57*  
| Overall Organizational Commitment \[ ^{b} \] | \[ \text{OOC} \] | .70*  
| Task Performance \[ ^{c} \] | .09  
| \[ \text{Panel B: Post-Experiment Correlation Matrix} \] | \[ \text{AC} \] | \[ \text{CC} \] | \[ \text{NC} \] | \[ \text{OOC} \] |
| Affective Commitment \[ ^{d} \] | \[ \text{AC} \] | .35*  
| Continuance Commitment \[ ^{d} \] | \[ \text{CC} \] | .40*  
| Normative Commitment \[ ^{d} \] | \[ \text{NC} \] | .75*  
| Overall Organizational Commitment \[ ^{e} \] | \[ \text{OOC} \] | .64*  
| Task Performance \[ ^{f,g} \] | .64*  

\* Significant at p < .01. 
\^ Significant at p < .10. 
\[ ^{a} \] Pre-experiment means across the six items per dimension. 
\[ ^{b} \] Pre-experiment means across the 18 items that comprise the three dimensions. 
\[ ^{c} \] Pre-experiment mean quality-adjusted task performance from January through June. 
\[ ^{d} \] Post-experiment means across the six items per dimension. 
\[ ^{e} \] Post-experiment means across the 18 items that comprise the three dimensions. 
\[ ^{f} \] Post-experiment mean quality-adjusted task performance from September through December. 
\[ ^{g} \] Details about how performance varies across the treatment conditions can be found in Hunton (2005).
quality-adjusted task performance from January through June of the experimental year, and Panel B shows post-experiment measures of organizational commitment (January of the subsequent year) and task performance (mean quality-adjusted task performance from September through December of the experimental year). As a baseline of comparison, there was no significant correlation between organizational commitment and quality-adjusted task performance prior to the experiment (Panel A). Post-experiment, the association between organizational commitment and task performance was significant ($p = 0.01$) across all three dimensions of organizational commitment, as was the overall measure of organizational commitment. Thus, the third hypothesis is supported.

Finally, we proposed a research question asking whether organizational commitment mediates or moderates performance. To test for mediation, we followed the advice of Baron and Kenny (1986, 1176) by developing a path-analytic model, where the independent variable reflects the telework treatment conditions, the potential mediator indicates the pre-to-post experiment difference in organizational commitment, and the dependent variable comprises the pre-to-post experiment change in individual task performance (adjusted for quality). We did not include the control condition (downtown only); hence, the reduced sample size was 129.

As shown in Figure 1, the path between telework conditions and organizational commitment (0.89) was significant ($p < 0.01$), the path between organizational commitment and task performance (0.71) was significant ($p < 0.01$), and the path between telework conditions and task performance ($-0.05$) was not significant ($p = 0.47$). According to Baron and Kenny (1986), these results provide strong evidence that organizational commitment is a dominant mediator between the telework conditions tested in this study and task performance.

V. DISCUSSION

The purposes of the present study were to examine the impact of alternative telework arrangements on the organizational commitment of employees, and analyze associations among the telework conditions, organizational commitment, and individual task performance. The results suggest that the most popular telework strategy among the employees, ex ante (working exclusively at home), did not improve organizational commitment relative to a control group; however, organizational commitment was significantly higher when employees were allowed to choose between working at the downtown office or home, and significantly highest, yet equivalent, in the remaining two conditions (satellite office or home; downtown, satellite or home). Research findings also indicate that task performance was positively associated with organizational commitment, and

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3 The correlation results do not change regardless of which month, or combination of months, is used to assess task performance from January through June (pre-experiment).
4 As reported in Hunton (2005), task performance results settle into a discernable pattern around September of the experimental year. The correlation results do not change regardless of which month or combination of months is used to assess task performance from September through December (during the experiment). Management stopped the experiment in January of the subsequent year, as the entire health care company adopted the home + satellite + downtown telework policy.
5 More detail regarding precisely how task performance changed across the experimental months and across the treatment conditions can be found in Hunton (2005).
6 We also tested for mediation-moderation via four regression models: (1) telework conditions on task performance, (2) organizational commitment on task performance, (3) telework conditions and organizational commitment on task performance, and (4) telework conditions, organizational commitment and the interaction of telework conditions $\times$ organizational commitment on task performance. We used a cutoff value for significance at $p < 0.05$. We found significant relationships in models 1 and 2. When both telework conditions and organizational commitment were included, only organizational commitment was significant in models 3 and 4, and the interaction term was non-significant in model 4. Taken as a whole, the regression results indicate that organizational commitment mediates the relationship between the telework conditions and task performance, which is consistent with the path-analytic results shown in Figure 1.
organizational commitment mediated the relationship between the telework conditions and task performance.

There are several key contributions of the current study. First, we administered the Meyer et al. (1993) revised three-component model of organizational commitment to investigate the impact of four specific telecommuting strategies on the affective, continuance, and normative commitments of medical coders in the health care industry. We found that the instrument exhibited satisfactory convergent and divergent validity in a longitudinal field setting. Second, using quality-adjusted individual task performance data, we determined that organizational commitment was positively associated with performance, and organizational commitment mediated the link between the telework conditions tested in this study and task performance. From a practical perspective, we obtained valuable insight into the dynamics of a management work policy that could have significant consequences for the participating company, as well as other organizations and business environments.

Our study responds to a number of concerns reported in the psychology and organizational behavior literatures. First, Bailey and Kurland (2002) claimed that extant research on alternative telework arrangements has been largely unsuccessful in explaining what happens after firms and employees adopt distributed work strategies. Our results suggest that, under certain circumstances, alternative telework arrangement policies and procedures can enhance both organizational commitment and task performance. Second, Gajendran and Harrison (2007) expressed concern that electronic monitoring of employees might mitigate the positive benefit of autonomy that is pivotal for successful telecommuting arrangements, and they specifically identified medical transcription employees. The participants in our study were medical coders and our results indicate that the

FIGURE 1
Mediation Analysis of Organizational Commitment on Performance

This model was calculated using AMOS (v16). Standardized path coefficients (p-values) are shown on the paths. Overall goodness of fit indices were satisfactory: RMSEA = .092, GFI = .98, NFI = .99, CFI = .98.
potentially negative electronic monitoring consequences of telecommuting did not appear to outweigh the positive autonomy benefits, as there were mostly positive gains in organizational commitment and task performance.

Finally, Gagné and Deci (2005) noted that self-determination theory has a strong empirical foundation, but relatively few studies have tested the theory within organizational settings. Our study responds to their Proposition 3: Autonomy-supportive work climates facilitate internalization of extrinsic motivation, resulting in more autonomous self-regulation of extrinsically motivated behavior; in other words, when the social context supports autonomy (i.e., ability to choose telework locations), the level of the employee’s identified and integrated motivation for the target activity (organizational commitment and performance) or domain will increase. Results from the current study lend support to their proposition.

Practical Implications

Neubert and Cady (2001) claim that managers of organizations routinely consider a variety of human resources policies to maximize the productivity of their workforces, and the success of such policies largely depends on obtaining the commitment of employees to the program or initiative. As managers face constant change, gasoline prices continue to fluctuate, and natural disasters and the potential of terrorism continue to impact business sustainability, alternative telework arrangements may become an even more common practice as companies try to manage costs and morale. Further, evidence exists to suggest that organizations supporting the use of telework and other alternative telework arrangements will be able to attract and retain knowledge workers (e.g., Schweitzer and Duxbury 2006).

Meyer et al. (1989) and Klein et al. (2009) claim that it is important for organizations to examine and monitor policies (aimed at increasing organizational commitment) after they are implemented because employees who are intrinsically motivated to value their association with the organization are more likely to remain with the company and work toward its success. Results of the present study indicate that (1) the managers were intentional and thoughtful about how they developed and implemented a policy of alternative telework arrangements for their employees, and (2) offering employees some alternatives with regard to telework locations seems to be much more important than the number of options. In so doing, the managers were able to enhance both the organizational commitment of the medical coders and their task performance. This was particularly important to the management of the health care organization for two reasons: First, turnover among the medical coders was a significant problem for the health care company and second, union representatives were very aggressively trying to unionize the medical coders.

Limitations and Directions for Future Research

A limitation of the present study is the sample of participants, which represents one company (health care organization) and one group of employees (medical coders). Accordingly, this limits generalizability of study results to other settings and tasks. Second, the alternative telework arrangement policy was employee-driven, which suggests that the employees were motivated to make the policy a success, relative to a management-initiated policy change of this nature. Another limitation of the current study is that the measurement of organizational commitment and task performance covered a one-year period, during which time there could have been other influences. Although the researchers went to great length to ensure that there were no confounding work-related policy changes that could have bolstered organizational commitment and task performance during the time period of the study, it is nevertheless possible that other factors could have partially accounted for the observed changes. Finally, we recognize that the web of moderating
and mediating factors that potentially affect the relationship between the telework alternatives examined in this study and task performance is likely more complex than our experiment suggests. Some of these limitations suggest possible future research that might further inform our current understanding of alternative telework arrangements and the impact of other such management policies on employees. For example, a longer study period might yield interesting and useful insights regarding the longer-term impact of alternative telework arrangements (and other policies) on employees’ organizational commitment and performance, as well as other factors of interest to management (e.g., social isolation of employees, amount of participation in policy decisions). For instance, after an extended period of time, employees’ normative commitment (feelings of obligation) might diminish; on the other hand, given different options for alternative telework arrangements (e.g., different options for each employee at a given location), affective commitment (emotional attachment) might increase. Further, employees might truly value those alternative telework arrangement options that may not be available elsewhere (continuance commitment), which might enhance or at least sustain their elevated level of performance. Longer test periods might also enhance our understanding of alternative telework arrangements as they affect employee turnover, particularly in career fields that experience more frequent movement of employees and are more vulnerable to unionization. Future studies might also focus more directly on the measurement of “trust” in the relationship between management and employees (for alternative telework arrangements and other management policies), and develop more refined causal models that include mediated and moderated relationships.

Finally, future research should attempt to test a more complete model of organizational commitment from antecedents through consequences. As a guide, researchers should consider Stallworth’s (2004) multidimensional conceptualization of organizational commitment in the public accounting environment, or Mathieu and Zajac’s (1990) meta-analysis of the antecedents, correlates, and consequences of organizational commitment. Interestingly, the framework used in Mathieu and Zajac’s (1990) study is congruent with Bonner’s (2008) suggestion to examine human judgment, decisions, and performance in the context of person, task, and environmental factors. Some of the “person” antecedent variables that have been shown to influence organizational commitment are age, sex, education, and ability; some of the “task” antecedents are scope, autonomy, challenge, and ambiguity; and, some of the environmental antecedents are organizational size and centralization, group cohesiveness, and participative leadership. We would add that telework arrangements are yet one more important environmental antecedent factor to consider. Some of the correlates that fall between antecedents and consequences are intrinsic motivation, job involvement, stress, and job satisfaction. Lastly, some of the consequences of organizational commitment are job performance, attendance, tardiness, and intention to leave the organization. As indicated in this brief synopsis, organizational commitment is a complex and multifaceted construct. Examining the linkage between telework and organizational commitment through a more holistic and panoramic framework can add theoretical richness and pragmatic significance to ever-expanding opportunities to incorporate telework in the accounting profession.

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