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The Influence of Participation in a Part-Time Telecommuting Program on the Productivity and Job Attitude among Full-Time Employees of a Large Public Sector Organization in Louisiana

Laura Blair Naquin

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The Influence of Participation in a Part-Time Telecommuting Program on the
Productivity and Job Attitude among Full-Time Employees of a Large Public Sector
Organization in Louisiana

by

Laura Blair Naquin

Undergraduate honors thesis under the direction of

Dr. Michael Burnett

Director of School of Human Resource Education and Workforce Development

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Louisiana State University
& Agricultural and Mechanical College
Baton Rouge, Louisiana

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ABSTRACT

The primary purpose of this study was to determine the influence of participating in a telecommuting work program on the productivity among employees of a large public sector organization.

Telecommuting, an alternative work arrangement that allows employees to work from home or another convenient location instead of requiring them to work from the office, has dramatically increased in prevalence in recent years. Concerns exhibited by managers of organizations that offer the arrangement to employees center on the fear of a decline in the productivity of telecommuters because they are not directly supervised on a daily basis. Therefore, it is necessary to determine the impact that telecommuting has on employee productivity.

The target population of this study was defined as all employees of publicly funded agencies in Louisiana, and the accessible population was defined as the twenty-one participants in the pilot telecommuting program implemented by the large public sector organization in Louisiana. The instruments used to collect data included a questionnaire and a worksheet used to report performance of participants.

Using a dependent t-test, the researcher found a statistically significant increase in the productivity of employees when telecommuting compared to their productivity before entering the telecommuting arrangement. Based on calculations of the mean, standard deviation, frequencies, and percent of agreement on applicable

survey items, the researcher also found that employee satisfaction increased as a result of their telecommuting.

The researcher recommended expanding the telecommuting program within the publicly funded agency and implementing telecommuting programs within other publicly funded agencies in Louisiana. The researcher also recommended further research on the long-term effects of telecommuting, on the elements of telecommuting that most significantly impact satisfaction, and on the correlation between personality traits and satisfaction.

CHAPTER 1: INTRODUCTION

Rationale

“There’s no such thing as work-life balance. There are work-life choices, and you make them, and they have consequences,” insisted former General Electric Chief Executive Jack Welch at the 2009 Society for Human Resource Management’s conference. Despite Welch’s prominence as a business leader, many conference attendants vehemently disagreed with his position; in fact, it seems quite likely that a majority of workers throughout the United States support the view espoused by Welch’s detractors (Tuna et al., 2009). While employees once unquestioningly worked as many hours as their bosses deemed necessary and adhered to any schedule set by management, an increasing number of employees currently rejects the idea of a regimented forty-hour week worked Mondays through Fridays from eight to five, with the typical hour-long lunch break. Most employees today strongly value achieving a work-life balance, with 86% of working Americans reporting this balance, coupled with career fulfillment, as their top work priority. Generation X, which approximately encompasses those aged twenty to forty, is considered the first generation to exhibit a dominant preference for flexibility in the workplace, though Generation Y has enthusiastically adopted the tenet as well. With the emergence of Generation Y, whose members are all younger than thirty, as a growing segment of the workforce, work-life balance is becoming more of an entitlement than a benefit in the eyes of the average employee (“Recruiting and Managing,” 2007).

Since this trend appears only to be gaining in momentum, employers will soon have no choice but to acquiesce to demands of their employees for more flexibility. Many organizations have already implemented policies that focus on helping to improve the work-life balance of employees. New technological developments have enabled agencies to offer innovative tactics to support employee flexibility. One of these strategies rising in popularity consists of allowing employees to work from home or another convenient location instead of requiring them to work from the office. This work structure, known as telecommuting, promises numerous advantages for employers and employees alike. Beyond the evident increase in flexibility that telecommuting offers, monetary benefits to employees include savings on fuel, vehicular maintenance, apparel, dry cleaning, child care, and meals. Some benefits enjoyed by organizations that allow their employees the option of telecommuting involve improved recruitment and retention and decreased absenteeism, along with tangible reductions in expenditures on office space, furniture, and equipment (Eslinger, 2003).

Understandably, telecommuting poses several concerns for organizations, most notably involving the productivity of employees who are no longer directly supervised on a daily basis. The management of an agency may hesitate to institute a telecommuting program because of apprehension that diminished supervision will result in a reduction in the quantity of work accomplished by employees. Before extending the offer of telecommuting to a large number of employees, the

management of an organization should, therefore, attempt to determine the impact such a program would have on productivity.

Purpose and Objectives

The primary purpose of this study is to determine the influence of participating in a telecommuting work program on the productivity among employees of a large public sector organization.

Objectives

Specific objectives established by the researcher to guide the study include the following:

- I. Describe telecommuting employees of a large public sector organization on the following professional demographic characteristics:
 1. Tenure with agency
 2. Job title
 3. Distance between home and office
 4. Number of days designated for telecommuting per week
 5. Cost reduction
 6. Separation of work and home life
 7. How often employee contacts and is contacted by the office when telecommuting
 8. Whether or not local manager telecommutes

II. Determine the impact of the telecommuting program on the following factors as perceived by telecommuting employees of a large public sector organization:

1. Time management
2. Ability to work at personal peak time
3. Ability to meet work objectives
4. Planning and organization
5. Productivity
6. Changes to working style
7. Distraction while working
8. Perceived support of immediate family/roommates
9. Relationship with immediate family/roommates
10. Relationship with coworkers
11. Perceived support of coworkers
12. Resentment from coworkers
13. Trust issues with coworkers
14. Coworker interest in telecommuting
15. Guilt
16. Missing the social interaction of the office
17. Relationship with supervisor
18. Relationship with local manager

19. Confidence of local manager in employee
20. Trust issues with local manager
21. Attitude toward telecommuting
22. Attitude toward job
23. Promotion of telecommuting
24. Expectations of telecommuting compared to reality
25. Opinion on number of days designated for telecommuting
26. Use of unplanned leave
27. Opinion on amount of time spent telecommuting
28. Future career choices
29. Recommendation on expansion of telecommuting program

III. Determine the productivity of employees of a large public sector organization for the three months prior to implementation of telecommuting as measured by the following aspects of work assignment completion and quality:

1. Percentage of assignments completed
2. Number of customer complaints
3. Number of quality control findings
4. Percentage of incorrect eligibility decisions
5. Number of expired renewals
6. Number of procedural closures

7. Number of hours of unplanned sick and annual leave
8. Number of hours of outreach worked per month.

IV. Determine the productivity of employees of a large public sector organization for the six months following the implementation of telecommuting as measured by the following aspects of work assignment completion and quality:

1. Percentage of assignments completed
2. Number of customer complaints
3. Number of quality control findings
4. Percentage of incorrect eligibility decisions
5. Number of expired renewals
6. Number of procedural closures
7. Number of hours of unplanned sick and annual leave
8. Number of hours of outreach worked per month.

V. Compare the productivity, as measured by the following aspects of work assignment completion and quality, for the three months prior to initiation of telecommuting to the fourth, fifth, and sixth month of telecommuting:

1. Work assignment completion score
2. Leave score
3. Outreach score

Significance of the Study

Telecommuting, also called telework or teleworking, refers to employees' use of technology to work from their homes or from various locations other than a central traditional office. This alternative work arrangement offers a plethora of potential benefits to employees and employers alike. Principal advantages to employees range from monetary savings resulting from reduced commuting time and decreased time spent in the office to time savings from fewer commutes and the ability to avoid scheduling conflicts between work and personal needs. Telecommuters also have the potential to experience greater job satisfaction, increased autonomy involving work assignments and scheduling, and improved morale. Organizations encounter financial savings from the need for less physical office space for employees, fewer equipment purchases, lower utility bills, and similar cost reductions. More importantly, employers that implement telecommuting programs enjoy enhancement of their human capital, including improved employee recruitment and retention because potential and current employees commonly consider telecommuting to be an attractive organizational feature.

While the advantages of telecommuting appear quite attractive, the management of many organizations naturally expresses concerns over the impact that the lack of direct supervision inherent in telecommuting programs may have on the productivity of their employees. Other concerns for employers involve the areas of equipment and technical support, data and equipment security, and the possibility of

deterioration of the relationships between telecommuters and employees working in a traditional arrangement. While the literature addresses many employer concerns and offers solutions that have proven successful for managing technical, security, and relational issues, it actually suggests that many telecommuting programs result in higher levels of employee productivity than do traditional work arrangements when the appropriate individuals and jobs are selected for participation. However, it is understandable that management of an organization would nevertheless express some apprehension over whether its own employees will actually be as productive when telecommuting.

If the telecommuting program implemented by the public sector agency in this study proves to be successful, then its management may expand the program and offer it to all employees deemed appropriate candidates. Additionally, if this organization enjoys widespread success with telecommuting, it is likely that other public sector agencies within the state of Louisiana will implement telecommuting programs as well. Offering the option of telecommuting to public sector employees may increase the attractiveness of these public sector organizations to potential job applicants, improving the potential for state agencies to attract more qualified employees while simultaneously resulting in employer savings. If telecommuting proves to be a successful and attractive option for agencies, then both employees and employers will enjoy a multitude of benefits.

CHAPTER 2: OVERVIEW OF RELATED LITERATURE

Alternative Work Arrangements

Alternative work arrangements, also referred to as “flexible work arrangements,” are defined as work arrangements that afford employees the opportunity to follow more variable schedules than traditional eight-hour workdays through flexibility in either the scheduling of hours, number of hours, or location of work, or in some combination of the three. The most prevalent types of alternative work arrangements include reduced-time or part-time work, flextime, compressed workweeks, job sharing, and telecommuting. Reduced- or part-time employees usually work fewer than forty hours a week, either spending fewer than five full days or fewer than eight hours a day at the office. Flextime entails an employee spending a standard number of hours per day and/or week working but with variable starting or ending times that are determined by the employee. An employee who participates in a compressed workweek arrangement typically works a standard number of hours over a workweek within fewer than five full days or a works a standard number of hours over a two-week period within fewer than ten full days. For example, an individual may work four ten-hour days or nine nine-hour days per period in one of these arrangements. The practice of job sharing involves two employees splitting the tasks of a particular job through part-time schedules that combine to equal a full workweek. Finally, telecommuting entails an employee performing work from a location other than the workplace (SHRM, 2009).

The leading reason for employers surveyed by the Society for Human Resource Management to offer alternative work arrangements is to satisfy employee requests. Two other common motives include concern for the difficulty faced by employees in balancing their professional and personal lives and a desire to become more competitive in terms of employee attraction and retention. A total of ninety-seven percent of the organizations that indicated that they have some form of flexible work arrangement in place reported that the arrangement had a “somewhat positive” or “positive” impact overall on the personal lives of their employees. Additionally, ninety-one percent claim improvements in employee satisfaction, morale, and engagement, and eighty-nine percent declare greater employee retention as a result of the programs.

Only approximately thirteen percent of the organizations that reported offering flexible work arrangements to their employees have instated formal evaluation programs intended to measure the success of the programs (Victor, 2009). This lack of formal measurement systems can be largely attributed to the difficulty inherent in the creation of these human resource metrics; however, experts predict that the growing interest in alternative work arrangements will lead to the development of meaningful systems of measuring them in the near future (Kanter et al., 2008). While the vast majority of companies that offer alternative work arrangements consider them to be either successful or very successful, organizations that have established methods of assessing the effects of the arrangements tend to regard them as more

successful than those without these metrics. This phenomenon suggests that instituting means of evaluating these work arrangements would be beneficial to both the organization (because they would provide management with more accurate information for assessing the organization) and to employees who currently participate in or desire to participate in these programs in the future (because flexible work arrangements would be viewed more favorably by management if positive empirical results are discovered, thereby garnering them additional organizational support).

Among all forms of flexible work arrangements examined by the study, telecommuting appears to be most strongly impacted by the presence or absence of a measurement system. It is considered to be significantly more successful by organizations that have implemented methods of evaluation than by those that have not and have no plans to do so. Some of this disparity in the organizational perception of telecommuting programs stems from the traditional assumption that employee presence in the workplace directly correlates with productivity. In the current post-industrial work environment, however, this perception has begun to be considered outdated, given the increasing prevalence of knowledge-based work and corresponding decline of hands-on, production-based work. Though many employers now recognize that the physical presence of employees is not necessary for their performance of many work tasks, the perspective that employees must be present in the workplace in order to be productive nonetheless remains widespread. Therefore,

evaluation systems for telecommuting programs are especially valuable in dispelling the myth that employees can only be productive when they are physically present in the office (Victor, 2008).

Definition of Telecommuting

The notion that telecommuting refers simply to working from home is a common misconception (Ravi et al., 2007). Telecommuting, in fact, refers to a work arrangement that allows employees to complete at least some portion of the work that they would normally perform in a central workplace at an offsite location for some or all of their work schedules. When telecommuting, employees interact with coworkers, supervisors, and external contacts through the use of electronic media instead of commuting to the office and interacting face-to-face. Thus, beyond merely working at home, telecommuting additionally encompasses working while traveling, at telecommuting centers, at satellite offices, and other alternative work locations (Bailey et al., 2002). Currently, many employees even temporarily telecommute while on vacation, often working on reduced schedules or simply responding to urgent requests from the office. Employees who telecommute may do so exclusively, for a portion of the workweek, under special circumstances, on a project-specific basis, or in cases of emergency (Feldman, 1997).

Increasing Popularity of Telecommuting

Although telecommuting did not garner widespread attention as a feasible alternative work arrangement until the late 1980s or the early 1990s, the International Telework Association and Council attributes the origin of telecommuting to the National Science Foundation, a prominent source of funding for federal telecommuting programs, in 1973. Since telecommuting was first introduced, it has grown exponentially in scope and pervasiveness (Zelinsky, 1994). Telecommuting is steadily gaining exposure as a feasible option for private and public sector organizations whose leaders aspire to give their employees more flexibility while reducing the costs associated with stationing employees in the traditional office environment (Mokhtarian, 1997).

The growing popularity of telecommuting can be partially attributed to technological developments that have redefined the workplace. Today, many employees use computers and telephones to accomplish the majority of their work, a trend that has expanded the possibilities for work locations (Davenport, 2005). Other forms of technology that are frequently utilized to enhance the practice of telecommuting include Global Positioning System (GPS) devices, centralized portals, Software-as-a-Service (SaaS), and smartphones. GPS can be used by employees to expedite the process of planning their routes to work locations and to familiarize themselves with new locales. Alternatively, the technology can be utilized by employers to locate their employees, allowing them to ensure that employees are

actually working in the location to which they have been assigned. A rising number of companies that offer the option of telecommuting to their employees have developed centralized portals that are specifically designed to facilitate the use of mobile browsers by telecommuters, allowing them to access company information by logging onto a single Web site rather than onto multiple ones. Another computer-related development that has proven to be beneficial to telecommuters is SaaS, which is a method of online hosting for software. Employees using SaaS can access company software through the internet without having to physically install it on their own computers. This flexibility benefits employees by affording them the opportunity to perform work from any computer, regardless of where the software is installed. It also provides organizational savings in the form of reduced installation costs, the assurance that software will remain current, and a decrease in the amount of time spent by employees handling installation issues. Finally, smartphones have exploded in popularity in recent years, triggered by innovation, convenience, and market saturation. These devices, far more sophisticated than simple cellular phones, allow employees the capability to make phone calls, to read and send emails, view documents, and use the internet through their readily available hand-held devices. All of these advances in technological development have significantly contributed to the accessibility of employees and to the ease with which employees can view information and communicate with both superiors and coworkers, trends that have

considerably intensified the feasibility and practicality of telecommuting (Harper, 2009).

While vast innovation in various forms of technology has clearly filled a prominent role in the growth of telecommuting, the role of technology is primarily to support the alternative work arrangement—it does not independently stimulate its growth. The transition from the Industrial Age to the Information Age has significantly increased the pressure exerted on organizations to decrease costs while simultaneously improving employee recruitment and retention, a seemingly paradoxical task that can be accomplished through the assistance of a telecommuting program. Other major factors contributing to the genesis of the telecommuting movement include a political emphasis on environmental issues and employees' desires to balance their work schedules with their family lives (Zelinsky, 1994). In fact, the trend of increasingly numerous employee requests for flexibility in their work arrangements is considered by many to be the leading cause of the telecommuting movement. It is suggested that the strength of the preferences demonstrated by employees for telecommuting will eventually compel the majority of organizations to offer the option of telecommuting to as many employees as possible to allow them to remain competitive in the labor market. Because telecommuting presents numerous advantages to employers, however, it is further suggested that this movement will effectually benefit employees and employers alike (Mokhtarian, 1997).

Effects of Telecommuting on Employee Autonomy

Currently, no single theory explaining the consequences of telecommuting exists; however, several themes emerge as prevalent topics of research. The first of these relates to psychological control, or autonomy, and encompasses the personal assessments made by employees regarding the degree to which they are able to decide when and how to perform their jobs (Dubrin, 1991). Inherent in telecommuting is an increase in the control given to the employee resulting from the reduction in direct supervision and often from a corresponding reduction in specific supervisory direction. Telecommuters are frequently given more freedom in determining the best manner in which to perform an assignment and are also frequently allowed increased flexibility in their work schedules. There is general agreement among scholars of management that enhancing the feelings of control experienced by employees over their work structure can potentially improve both their motivation and satisfaction. These positive effects clearly translate into organizational advantages in recruiting and retaining employees (Standen et al., 1999).

Effects of Telecommuting on Work-Life Balance

Another heavily debated issue concerning the effects of telecommuting involves its impact on work-family interface. Some researchers consider telecommuting to be indisputably positive through its facilitation of greater synthesis of work and family life (Duxbury, et al., 1998). Telecommuting increases employees' boundary flexibility, a term that refers to the amount of control that telecommuters

exert over the location and scheduling of their work. This flexibility allows employees to balance conflicting demands between work and family by scheduling work tasks to minimize the potential for interferences between the two. Employees who telecommute have the ability to plan their work around familial commitments thereby improving their relationships with family members while remaining productive in the workplace (Ashforth et al., 2000).

Others take the position that the same boundary flexibility could actually escalate conflict between work and family obligations. Standen (1999) contests that work-family conflict is intensified by telecommuting because working at home allows family members to disrupt employees while they work. Likewise, family members may resent a telecommuter's inattention to them when the employee is working while they are home. However, empirical support for this viewpoint remains inconclusive (Duxbury, et al., 1998).

Effects of Telecommuting on Work Relationships

Apprehension about the possibility for diminished relationships between telecommuters and their supervisors, telecommuters and their traditionally-employed coworkers, and telecommuters and other telecommuters is also discussed in the literature. Some scholars hypothesize that the relationships between telecommuters and their coworkers and supervisors are weakened by less frequent interactions, diminished communication (Lengel et al., 1988), and the lack of socialization among employees (Short et al., 1976). Unsurprisingly, these negative effects are predicted to

have the most significant impact on employees who spend the majority of their workweeks telecommuting. Nevertheless, the prevalence of part-time telecommuting arrangements, since fewer than ten percent of telecommuters participate in full-time alternative work arrangements, suggests that most employers who allow workers to telecommute may endeavor to balance employee autonomy and flexibility with a positive workplace dynamic (Qvortrup, 1998).

An empirical study involving 12,833 employees who telecommute conducted by Gajendran and Harrison (2007) addressed some of the primary concerns that researchers discuss about telecommuting, including those expressed by Lengel and Short. The extensive findings of Gajendran and Harrison, however, refute nearly all of the negative claims. These researchers found no evidence to support the frequently stated claim that telecommuting impedes career progress and causes relationships between employees and their supervisors to deteriorate. Likewise, they found no evidence that telecommuting causes any negative relational outcomes whatsoever. They thus concluded that, generally, telecommuting has a positive impact on all stakeholders, including employers, employees, and communities. They also claim that the inherent advantages of telecommuting far outweigh the disadvantages associated with it and throughout their research experienced considerably more success in finding empirical evidence for its benefits than for its purported drawbacks. Based on their results, they strongly support its increased utilization (Gajendran et al., 2007).

Prevalence of Telecommuting in the Public vs. Private Sectors

Employees who work in the public and private sectors alike are increasingly frequently asking for the ability to telecommute, an arrangement that many organizational leaders view as mutually beneficial. While many of them wish to instate telecommuting programs, a common concern lies in confusion surrounding, or sometimes in unrealistic estimates of, the proportion of a given workforce that can and should participate. Of course, individuals who hold certain types of jobs are not viable candidates for telecommuting due to the nature of their work. For example, medical professionals who interact directly with patients, maintenance employees, and highway patrol officers, to name a few, would obviously be ineligible for telecommuting, at least for the performance of their typical duties. The manner in which employees execute their work often impacts the benefits that they experience from telecommuting as well. Both job classification and employee work style strongly affect the percentage of workers for whom telecommuting is a suitable option within any given agency; therefore, a participation rate of approximately twenty to twenty-five percent is considered to be an appropriate average among institutions that allow telecommuting. However, this participation rate does fluctuate significantly depending on the nature and goals of the organization in question (Davis et al., 2001).

The third annual CDW Telework Report examines and compares the prevalence of telecommuting arrangements within the federal government and within

private sector organizations. This report describes the consistent growth in the incidence of telecommuting among federal governmental employees. In the year 2007, approximately three times the number of federal employees began telecommuting as did private sector employees. Additionally, more than half of all federal employees are afforded the opportunity to telecommute; whereas, only fifteen percent of all employees who work in private sector corporations are given the option. At the time that the data were collected for the report, about forty percent of private sector companies had developed and implemented formal, written telecommuting policies, suggesting that the adoption rate of telecommuting arrangements within the private sector may be substantial, while the participation rate in these arrangements may be low (CDW Corporation, 2008).

In spite of the report's implication that governmental agencies are quickly surpassing private corporations in their adoption of telecommuting programs, private sector organizations have actually been implementing telecommuting programs for years, though admittedly with fewer participants and at a slower rate. For example, AT&T implemented a six-month pilot telecommuting program in 1989 that was considered to be very successful. The company's program was determined to have significantly improved employee morale, employee productivity, and job satisfaction because of the improved work environment that it provided its employees. These factors, in turn, increased many employees' job commitment and loyalty, thereby reducing turnover within the company (AT&T, 2004).

Another private sector organization to enjoy a well-established and notably successful telecommuting program is IBM Corporation. The organization, which has been widely renowned for its continuous implementation of progressive business practices, instituted a telecommuting program for its employees more than a decade ago that has been demonstrated to provide significant benefits to both the company and its employees. These favorable results have led IBM's program to evolve into the establishment of multiple "virtual offices," which are considered to be a highly developed form of telecommuting that give employees a great deal of flexibility in their work locations and schedules. As with the original telecommuting initiative, this program has also demonstrated significant benefits for IBM and its employees (Coleman, 2004).

A primary cause of the relative abundance of federal telecommuters can be traced to serious concerns expressed by governmental leaders during the end of the 1980s surrounding an anticipated decrease in the ability of the government to attract qualified employees stemming from the then-predicted expectation for a tightening of the labor market. One of the strategies proposed by the U.S. Office of Personnel Management to remedy this predicament was to implement small-scale telecommuting pilots and, if they proved successful, to execute telecommuting programs on a broad scale. This strategy was very well-received by the federal government, as its logical preference was for non-salary incentives to attract employees (OPM, 1993). Once their logistics were determined, the initial

telecommuting programs achieved such success that the arrangements were offered to rapidly increasing numbers of federal employees, and 1990 President Bush resoundingly endorsed telecommuting as a practical method of improving the quality of life of employees, benefitting air quality, and reducing energy consumption (Wheeler, 1990). Once the momentum for telecommuting had begun to spread, many leaders in the federal government encouraged its adoption wherever it was deemed feasible. In January of 1996 President Clinton's Management Council executed the National Telecommuting Initiative, which was chiefly intended to raise the number of federal telecommuters but also aspired to increase telecommuting in other industries (DOT, 1997). Governmental support for the telecommuting of federal employees has remained strong over the past two decades, and several new initiatives encouraging telecommuting for these employees have been implemented over the years. This activity has resulted in a continual rise in the number of federal telecommuters since the 1980s (Cowley, 1989).

Telecommuting in State Government

Following the example set by the federal government in its outright encouragement of telecommuting programs, most states have begun to implement similar programs of their own within the public sector throughout the past two decades. A common reason cited for states' adoption of these alternative work arrangements mirrors the one that stimulated interest on behalf of the federal government; namely, worries about attracting employees to state agencies. Leslie

Scott, the association manager of the National Association of State Personnel Executives (NASPE), references the aging workforce as a key element of the concern. She maintains that approximately thirty percent of the workforces employed by state governments could become eligible for retirement within the next five years, while thirteen percent of that group will be able to retire within one year. She asserts that Generation Y and younger generations, who will be needed to replace the retiring Baby Boomers, expect and demand workplace flexibility and warns that members of these generations will refuse to work in an environment that fails to meet their needs to balance work and their personal lives. So far, six states, namely, Florida, Georgia, Kentucky, Oregon, Virginia, and Texas, have implemented telecommuting programs within every agency and program that is a part of the state's government. An additional twenty-eight states offer telecommuting to certain state employees or to those within particular regions (Dusenberry, 2007).

Despite the evident pervasiveness of these work arrangements, Gilyot (2002), who is affiliated with Southern University at New Orleans, attests that within state governments, "the telecommuting phenomenon's initiative has not reached a national, mainstream level of success yet" (p. 1). Gilyot et al. conducted a study to examine the occurrence of telecommuting in state governmental agencies, in which 33 states were randomly selected as a sample. Based on the existing body of knowledge on telecommuting, it was predicted that strong economic conditions, population density, and strength and number of distance learning initiatives within state government

would be positively correlated with the number and strength of telecommuting programs within a particular state. It was found that the strongest predictor of the presence or absence of high-quality, widespread telecommuting programs is actually the strength of distance learning programs within the state. The strength of distance learning programs, in turn, is largely determined by the extent to which technological advancements have been promoted and adopted within state government.

The state of Louisiana ranked below twenty-six of the thirty-three states examined in terms of telecommuting programs. Factors considered in the ranking include telecommuting policies, initiatives, visibility, length (number of years program had been in existence), and equipment quality. This study suggests that the state of Louisiana has lagged behind most other states in the development and implementation in telecommuting programs (Gilyot et al., 2002). However, factors that led to the initial expansion of telecommuting, specifically, employee requests, improvements in technology, efforts to improve employee attraction and retention, and initiatives to reduce costs, have grown in importance within the state's public sector. Additionally, recent natural disasters including Hurricanes Gustav, Ike, Katrina, and Rita have increased the flexibility and adaptability of Louisiana employees, encouraging many to become more innovative in both their work practices and workplaces. Although most of the workplace mobility necessitated by these events was temporary in nature, it resulted in increased employee comfort with

the notion of working from alternative locations (U.S. General Service Commission, 2010).

Advantages and Disadvantages Associated with Telecommuting

Telecommuting offers numerous benefits to employees, organizations, and even the environment that extend far beyond the original motivation for implementing these programs. Joseph Grzywacz conducted an empirical study in 2007 that found workplace flexibility, as contributed by telecommuting, to be an important component of workplace health and further to be a critical factor in successful worksite health promotional programs. His study focuses on the effectiveness of telecommuting programs in organizational endeavors to improve the well-being of employees. The findings report that telecommuting generally results in increased morale, increased job satisfaction, improvements in the balance between work and family obligations, decreased job stress, and decreased employee turnover. This report also documented that supervisors typically rate the work of telecommuters higher on personal performance reports (Grzywacz, 2007).

In addition to these intangible advantages enjoyed by employees, substantial concrete benefits result from telecommuting as well. Some telecommuters have reported that they save the equivalent of five workweeks per year in time, which is time that they would have otherwise spent commuting to their workplaces. Allowing an individual to telecommute for even one day a week would save the individual twenty percent of his or her current expenditures in fuel consumption, and allowing

the use of telecommuting two days a week would save forty percent. Similarly, telecommuting employees would incur lower maintenance costs on their vehicles due to the reduction in wear and tear resulting from commuting to work. Telecommuters additionally save significantly on wardrobe costs and the on cost of meals purchased during the work day (Nickson et al., 2004).

Naturally, organizations often also benefit significantly from telecommuting arrangements. Employee retention, recruitment, and productivity, traditionally foremost concerns of employers, all seem to be positively correlated with the incidence of telecommuting. Secondary benefits such as reduction in the rate of absenteeism, both due to time conflicts and to communicable diseases that are not so serious that they impede or prevent working, are also important considerations. Employers that implement telecommuting programs require less office space to accommodate employees because it is possible to schedule telecommuters on rotations so that workspace can be shared among individuals who report to the office on different days or at different times. Accordingly, savings arise from reduced utility, furniture, equipment, and supply costs that are diminished by the decreased number of employees simultaneously present at work.

Some advantages resulting from telecommuting programs even extend to the environment and the community. Fewer employees commuting to work translates into a reduction in traffic congestion, which, in turn, results in improvements in air quality resulting from the decrease in vehicle usage. Similarly, a decrease in the number of

vehicles traveling on the roads will help to alleviate the ever-increasing strain on the existing transportation infrastructure. Even broader implications for the implementation of telecommuting initiatives include the potential for the reduction of both oil imports and gasoline usage, decreases in the emissions of greenhouse gases, and the slowing of global warming. Obviously, all of these will be more substantial with the expansion and increased adoption of telecommuting programs (Lister et al, 2009).

While the advantages associated with telecommuting are certainly numerous and substantial, in order to be implemented successfully, these programs require vigilant consideration for some common concerns. First, problems associated with the equipment required to perform the work include limitations in offsite availability of computer systems; the inability of servers to handle remote access; availability of the necessary technology; and the necessity for telecommuters to have computers at home (Lombard et al., 1997). Specific concerns for the organization include matters such as security breaches; theft of equipment and information; lack of a detailed telecommuting plan; training deficiencies; managerial resistance to telecommuting; failure to establish and communicate goals; and trust issues among telecommuters or between them and their non-telecommuting counterparts. Some obstacles more specific to employees include poor workplace literacy skills; lack of commitment to the job; a sense of isolation while at home; and coworker resentment towards

telecommuters due to either jealousy or displeasure at having to perform some of the telecommuters' typical duties (McCloskey, 1998).

Summary

Because telecommuting has only recently experienced an explosion in growth, considerably less literature surrounding it exists than is available for more established disciplines. Some areas, such as advantages and disadvantages to the organization and employee, have been studied fairly extensively, while others remain relatively unexplored, particularly in the area of telecommuting in state government and the demographics of public sector telecommuters. However, as the field of telecommuting continues to gain momentum, it is presumable that any gaps that currently exist will be filled as growing interest in the arrangement results in increases in research.

Flexible work arrangements have risen in prominence during recent years for reasons including employee demands for flexibility, employer desire for cost-effective methods of recruitment and retention, increasing fuel costs, technological advances, and, in the public sector, governmental encouragement. Telecommuting represents one of the most rapidly growing forms of alternative work arrangements, and its expansion can be attributed to the same forces that stimulate the development of flexible work arrangements as a whole (Victor, 2008).

While telecommuting is quickly spreading to all types of organizations, it has enjoyed more rapid growth among federal employees than among private sector or

state employees. This trend largely results from strong initiatives developed by the federal government in the late 1980s to offer the arrangement on a widespread basis. This dominance of telecommuting by the public sector has positive implications for its ability to attract and retain qualified employees because it is a low-cost method of competing with private sector corporations, which may be able to offer higher salaries than are possible in the public sector (Nilles, 1998). State officials have begun to recognize these benefits, and, as a result, escalating numbers of telecommuting programs within state government are being developed (Gilyot et al., 2002).

Although all of the previously cited concerns pose serious threats to telecommuting programs, the majority can easily be overcome before the implementation of these programs and will entirely cease to be problematic once they are addressed. Some studies go so far as to suggest that even some significantly flawed telecommuting programs are still largely beneficial because they give employees increased autonomy over their work, and this autonomy is strongly correlated with worker satisfaction and worker retention. However, one of the best strategies for reducing obstacles inherent in telecommuting that directly relate to employees requires the selection of only those with the appropriate job duties, skills, attitudes, performance levels, and abilities for telecommuting arrangements. Telecommuting is not optimal for every employee; therefore, it is absolutely imperative for organizations to identify those individuals who would be well-suited for these programs and only offer the option to those employees. It has been asserted

repeatedly, though, that the advantages greatly surpass the disadvantages inherent in telecommuting for both employers and employees. Benefits offered by telecommuting to employers and employees alike, including monetary and time savings and improved loyalty, attraction, and retention, abound and forecast continued escalation of the telecommuting movement (Dawis et al., 1968).

CHAPTER 3: METHODOLOGY

Population and Sample

This study involves a large public sector agency within the state of Louisiana that recently implemented a small-scale pilot of a telecommuting program allowing employees deemed eligible to telecommute for some or all of the workweek.

Management of this organization has expressed intentions to extend the program gradually to an increasing number of participants after the introduction of the first group to telecommuting. Thus, the target population of this study is defined as all employees of publicly funded agencies in Louisiana. The accessible population consists of the twenty-one participants in the pilot telecommuting program, a group that also comprises the research sample for this study. Since all of the members of the accessible population were involved in the study, the sample of the study was comprised of a census of the accessible population. These individuals represent the first set of employees to be introduced to telecommuting within the agency.

Instrumentation

The instruments used for the purpose of this research were developed in a joint effort between the project liaison within the large public sector agency, subject matter experts within the agency, and the researcher. They were also validated by subject matter experts who work in the agency. Two instruments were included in this study, a questionnaire distributed to participants in the program and a worksheet that the supervisors of participants used to report their performance for the three months

immediately preceding and the six months following the inception of the telecommuting program. The questionnaire includes fifty-two questions and consists of both open-ended and multiple-choice items. Some of the questions were intended to gather personal characteristics including tenure with agency, job title, distance between home and office, number of days designated for telecommuting per week, how employees receive messages from the office when telecommuting, how often they contact and are contacted by the office when telecommuting, perceived support of immediate family/roommates and of coworkers, whether or not supervisor telecommutes, whether or not local manager telecommutes, and toward working at home. Others solicited information regarding the participants' perceptions of the impact of their telecommuting on cost reduction, the separation of work and home life, time management, ability to work at personal peak time, ability to meet work objectives, planning and organization, productivity, changes to working style, distraction while working, relationship with immediate family/roommates, relationship with coworkers, resentment from coworkers, trust issues with coworkers, missing the social interaction of the office, relationship with supervisor, relationship with local manager, confidence of local manager in employee, trust issues with local manager, attitude toward job, promotion of telecommuting, use of unplanned leave, and future career choices. The performance reporting worksheet was devised as a means of assessing productivity for each employee, as defined by the total number of

each type of application processed per month and the total number processed within a certain number of days.

Data Collection

Data for this study were collected using the two instruments described above, after the researcher obtained permission to do so from the project liaison within the agency. The first instrument to be distributed was the performance reporting worksheet, which was given to supervisors of telecommuting participants after they had been selected for the pilot program but at least three months prior to the beginning of their telecommuting. The supervisors rated the productivity of their employees, measured by the number of certain types of applications and renewals processed per month. These figures are representative of the type of work that comprises the majority of their job tasks. Supervisors gave employees ratings in each applicable category every month and after the nine-month period returned the completed forms to the project liaison within the agency who then gave copies to the researcher.

Data regarding the personal characteristics of participants in the telecommuting pilot program were reported on the questionnaire that was distributed to them several months after they began telecommuting. Employees completed these questionnaires and returned them to the project liaison within the agency, who once again gave completed copies of the forms to the researcher. The data sets from the agency had been stripped of participant names, which were replaced with numeric

and alphabetical identifiers to protect the anonymity of the subjects, before the researcher received them.

Data Analysis

Objective I:

In order to describe telecommuting employees on selected professional demographic characteristics, the mean, standard deviation, frequencies, and percent of agreement (on applicable survey items) will be calculated on different scales based on responses to relevant items submitted to the survey given to all participants in the telecommuting pilot program.

Objective II:

In order to determine the impact of the telecommuting program on selected factors, as perceived by telecommuting employees, the mean, standard deviation, frequencies, and percent of agreement (on applicable survey items) will be calculated on different scales based on responses to relevant items in the survey.

Objective III:

Productivity of the telecommuting pilot participants was measured by the number of customer service applications processed within a three-month period by employees in a traditional office setting with direct oversight of supervisors and managers. Productivity scores for each participant will be determined by calculating the ratio of all application types processed by each participant within the number of days deemed appropriate for each type to the total completed; adding the ratio of

renewals completed within the predetermined number of days to the number assigned; subtracting from the term the number of expired renewals and procedural closures; subtracting from the sum of the ratios of applications and renewals the number of customer complaints, number of incorrect eligibility decisions, and number of quality control findings; and dividing the calculated term by the ratio of work time in the month minus the number of hours of unplanned sick leave, number of hours of unplanned annual leave, and number of hours of outreach worked to total work time in the month. Finally, the mean of all participants' totals for the three months prior to telecommuting will be determined, resulting in an overall productivity score for the traditional arrangement.

Objective IV:

Productivity of the telecommuting pilot participants was also measured by the number of customer service applications processed within a six-month period by the same employees when participating in a telecommuting arrangement. Productivity data were collected for the six months immediately following the institution of employees' telecommuting arrangements. Productivity scores for each participant will be determined by calculating the ratio of all application types processed by each participant within the number of days deemed appropriate for each type to the total completed; adding the ratio of renewals completed within the predetermined number of days to the number assigned; subtracting from the term the number of expired renewals and procedural closures; subtracting from the sum of the ratios of applications and renewals the number of customer complaints, number of incorrect

eligibility decisions, and number of quality control findings; and dividing the calculated term by the ratio of work time in the month minus the number of hours of unplanned sick leave, number of hours of unplanned annual leave, and number of hours of outreach worked to total work time in the month. The mean of the totals for the six months spent in a telecommuting arrangement will then be calculated for each participant.

Because the first three months during which employees participated in a telecommuting arrangement may represent an adjustment, productivity data from this period may not be reflective of their typical productivity when telecommuting. Therefore, only the productivity data from the last three months of telecommuting will be used to create a final productivity score for the telecommuting arrangement.

Objective V:

The productivity of employees in a traditional office setting with direct oversight of supervisors and managers will be compared to the productivity of the same employees when participating in a telecommuting arrangement using a dependent t-test to compare the productivity scores determined in fulfilling objectives III and IV.

CHAPTER 4: FINDINGS

The primary purpose of this study was to determine the influence of participating in a telecommuting work program on the productivity among employees of a large public sector organization. The dependent variable identified in this study whether participation in a telecommuting work program increased, decreased, or did not impact the productivity of full-time employees of a large public sector organization in Louisiana as defined by selected aspects of work assignment completion and quality.

Beginning three months before the pilot telecommuting program was implemented, data measuring the productivity of the twenty-one employees who had been selected to participate in the program were collected. After the participants in the program began to telecommute on a part-time basis, data measuring their perceptions of the program and their productivity while telecommuting were collected. This group of twenty-one employees served as both the accessible population and the sample for the study. This chapter describes the results of the study by objective.

Objective One

The first objective of this study was to describe telecommuting employees of a large public sector organization on the following professional demographic characteristics:

1. Tenure with agency
2. Job title
3. Distance between home and office
4. Number of days designated for telecommuting per week
5. Cost reduction
6. Separation of work and home life
7. How often employee contacts and is contacted by the office when telecommuting
8. Whether or not local manager telecommutes

All twenty-one participants in the telecommuting program were measured according to this objective. The results corresponding to each of the above variables are as follows:

Tenure with Agency

The first variable on which the participants were described was tenure with agency, measured in the number of years employed there. The number of years worked within the agency ranged from one to twenty-seven. The average tenure with

the agency was 6.24 years, and the standard deviation was 5.36 years. The largest group was the 3-6 year category (See Table 1).

Table 1: Tenure with Agency of Telecommuting Employees of a Publicly Funded Organization in Louisiana

Time with Agency	Frequency	Percent
<3	2	9.6
3-6	13	61.9
7-10	4	19.0
11-27	2	9.6

Note. Mean tenure with agency = 6.24 years, standard deviation = 5.36 years, and range is 1-27 years.

Job Title

This variable describes the job titles held by participants. Seventeen of the twenty-one participants, or 81%, were analysts, and there was one administrative coordinator, one program manager, one program monitor, and one program specialist (each comprised 4.8% of the total). The majority (17, or 81%) were analysts (See Table 2).

Table 2: Job Title of Telecommuting Employees of a Publicly Funded Organization in Louisiana

Title	Frequency	Percent
Administrative Coordinator	1	4.8
Analyst	17	81.0
Program Manager	1	4.8
Program Monitor	1	4.8
Program Specialist	1	4.8

Distance between Home and Office

This variable measures the distance in miles between participants' homes and offices. The farthest any of the telecommuters commuted was seventy miles, and the shortest distance was two miles. The mean distance of the participants' commutes was 15.05 miles, and the standard deviation of the distances was 15.06.

Number of Days Designated for Telecommuting

This variable describes the number of days per week designated for telecommuting for each participant. The number of days per week designated for telecommuting ranged from two to four, with 47.6% of participants telecommuting four days a week, 38.1% telecommuting 3 days a week, and 14.3% telecommuting two days a week. The average number of days per week designated for telecommuting was 3.33 and the standard deviation was .73.

Cost Reduction

The survey item measuring the variable “cost reduction” asked employees whether they experienced a reduction in their monthly expenses resulting from their telecommuting arrangements. If participants responded “yes,” they were asked to estimate their average monthly savings. All twenty-one participants (100%) reported a reduction in costs resulting from their telecommuting arrangement. The average cost reduction reported was \$136.43, and the standard deviation for this variable was 111.68 (See Table 3).

Table 3: Cost Reduction from Telecommuting Reported by Employees of a Publicly Funded Organization in Louisiana

Amount ^a	Frequency	Percent
<50	3	14.3
50-99	9	42.9
100-149	2	9.5
150-199	4	19.0
200-249	1	4.8
250 +	3	14.3

Note. Mean cost reduction was \$136.43, the standard deviation was 111.68, and the range was \$30 to \$480.

^aAmount in dollars per month.

Separation of Work and Home Life

This variable describes the degree of success participants reported experiencing at keeping their work and home lives separate while participating in the telecommuting work arrangement. Participants were asked to rate their success on the following scale: “successful, somewhat successful, or unsuccessful.” Twenty participants (95.2%) reported that they were successful at separating the two areas, and one participant (4.8%) reported being somewhat successful at the task.

Frequency of Calls Made to the Office while Telecommuting

Frequency of calls made to the office while telecommuting refers to the average number of calls per day made by employees to the office while they are working from an alternative location. Seventeen participants (81.0%) reported that they call the office once a day, three participants (14.3%) call the office twice a day, and one participant (4.8%) calls the office three or more times a day.

Frequency of Calls from the Office Received while Telecommuting

Frequency of calls from the office received while telecommuting refers to the average number of calls that telecommuters receive from the office when they are working from an alternate location. Nineteen participants (90.5%) reported that they receive calls from the office once a day, one (4.8%) receives calls from the office twice a day, and one (4.8%) receives calls from the office three or more times a day.

Whether Local Manager Telecommutes

Nineteen participants (90.5%) report that their local managers do not telecommute, and two (9.5%) report that their local managers do telecommute.

Objective Two

The second objective of this study was to determine the impact of the telecommuting program on the following factors as perceived by telecommuting employees of a large public sector organization:

1. Time management
2. Ability to work at personal peak time
3. Ability to meet work objectives
4. Planning and organization
5. Productivity
6. Changes to working style
7. Distraction while working
8. Perceived support of immediate family/roommates
9. Relationship with immediate family/roommates
10. Relationship with coworkers
11. Perceived support of coworkers
12. Resentment from coworkers
13. Trust issues with coworkers
14. Coworker interest in telecommuting

15. Guilt
16. Missing the social interaction of the office
17. Relationship with supervisor
18. Relationship with local manager
19. Confidence of local manager in employee
20. Trust issues with local manager
21. Attitude toward telecommuting
22. Attitude toward job
23. Promotion of telecommuting
24. Expectations of telecommuting compared to reality
25. Opinion on number of days designated for telecommuting
26. Use of unplanned leave
27. Opinion on amount of time spent telecommuting
28. Future career choices
29. Recommendation on expansion of telecommuting program

All twenty-one participants in the telecommuting program were measured according to this objective. The results corresponding to each of the above variables are as follows:

Time Management

This variable measures the participants' perceptions of telecommuting on their time management. The survey question used to determine this variable "Has telecommuting helped you better manage your time?" All twenty-one participants answered "yes," so 100% of participants perceive that telecommuting has improved their time management.

Ability to Work at Personal Peak Time

This variable measures the participants' perceptions of the effect of telecommuting on their abilities to work at their personal peak times. The survey question used to determine this variable reads "Has telecommuting enabled you to work at your personal peak time?" All twenty-one participants answered "yes," so 100% of participants perceive that telecommuting has improved their abilities to work at their personal peak times.

Ability to Meet Work Objectives

This variable measures the participants' perceptions of the effect of telecommuting on their abilities to meet work objectives. The survey question used to determine this variable reads "Has telecommuting favorably affected the way you meet work objectives?" All twenty-one participants answered "yes," so 100% of participants perceive that telecommuting has favorably affected their abilities to meet work objectives.

Planning and Organization

This variable measures the participants' perceptions of the effects of telecommuting on their planning and organization. The survey question used to determine this variable reads "Has telecommuting given you the opportunity to plan better and to be more organized?" All twenty-one participants answered "yes," so 100% of participants perceive that telecommuting has improved their planning and organization.

Productivity

This variable measures the participants' perceptions of whether telecommuting has helped them to become more productive. Twenty of the participants (95.2%) reported that telecommuting has helped them to become more productive and one (4.8%) reported no change in productivity due to telecommuting.

Changes to Working Style

This variable measures the participants' perceptions of whether telecommuting has helped them to make beneficial changes to their working styles including aspects such as habits, schedules, or methods. Thirteen participants (61.9%) reported that telecommuting helped them to make beneficial changes to their working styles, and eight (38.1%) reported no change.

Distraction While Working

This variable measures the participants' perceptions of whether they experience fewer distractions when working at home than they do when working in the office. Nineteen participants (90.5%) reported that they experience fewer distractions at home, while two (9.5%) report no change in distractions at home.

Perceived Support of Immediate Family/Roommates

This variable measures the participants' perceptions of their immediate family and/or roommates for their telecommuting. Twenty participants (95.2%) reported that their immediate family and/or roommates support their telecommuting, and one (4.8%) reported that the question was not applicable because the participant lives alone.

Relationship with Immediate Family/Roommates

This variable measures the participants' perceptions of the impact of telecommuting on their relationships with their immediate family and/or roommates. Eleven participants (52.4%) reported a positive impact on their relationships with their immediate family and/or roommates, and ten (47.6%) reported that telecommuting did not impact their relationships with their immediate family and/or roommates.

Relationship with Coworkers

This variable measures the participants' perceptions of the impact of telecommuting on their relationships with their coworkers. The answer choices given

were “yes, positively; yes, somewhat positively; no; yes, somewhat negatively; and yes, negatively.” Seventeen participants (81.0%) reported that telecommuting has not impacted their relationships with their coworkers, three (14.3%) reported that telecommuting has somewhat negatively impacted their relationships with their coworkers, and one (4.8%) reported that telecommuting has positively impacted his or her relationship with his or her coworkers.

Perceived Support of Coworkers

The variable measures participants’ perceptions of whether their coworkers support their telecommuting. Options given for responses included “yes, somewhat supportive, and no.” Sixteen participants (76.2%) reported that their coworkers support their telecommuting, four (19.0%) reported that they are somewhat supportive, and one (4.8%) reported that his or her coworkers are not supportive of his or her telecommuting.

Resentment from Coworkers

This variable measures participants’ perceptions of whether their coworkers resent their telecommuting. Participants were asked to respond to the survey item with the responses “yes, it’s a widespread problem; yes, a minority; or not at all.” Thirteen participants (61.9%) reported that coworker resentment was not a problem at all. Seven participants (33.3%) reported that a minority of coworkers resented their telecommuting. One participant (4.8%) reported that coworker resentment was a widespread problem.

Trust Issues

This variable measures participants' perceptions of whether trust issues with their coworkers resulted from their telecommuting. Twenty participants (95.2%) reported that no trust issues had resulted, and one participant (4.8%) reported that they had.

Coworker Interest in Telecommuting

This variable measures whether participants' coworkers have expressed interest in telecommuting. All twenty-one participants (100%) reported that their coworkers have expressed interest in telecommuting.

Guilt

This variable measures whether participants felt guilty about having the opportunity to telecommute while coworkers of their may not have had the opportunity to do so as well. Response options were "yes, very; yes, a little; and no." Eleven participants (52.4%) reported feeling a little guilty about having the opportunity, and ten (47.6%) reported no guilt.

Missing the Social Interaction of the Office

This variable measures whether or to what degree participants missed the social interaction of the office while telecommuting. Answer choices were "yes, very much; a little; and never." Thirteen participants (61.9%) reported missing the social interaction of the office a little, and eight (38.1%) reported never missing the social interaction.

Relationship with Supervisor

This variable measures the effects of participants' telecommuting on their relationships with their supervisors. Response options were "yes, it has improved; yes it has deteriorated; and no." Twelve participants (57.1%) reported that telecommuting has not affected their relationships with their supervisors, and nine (42.9%) reported that it has improved their relationships with their supervisors.

Relationship with Local Manager

This variable measures the impact of telecommuting on participants' relationships with their local managers. Nineteen participants (90.5%) reported that telecommuting has not affected the relationships, and two (9.5%) reported that it has increased their communication with their local managers.

Confidence of Local Manager in Employee

This variable measures the impact of telecommuting on the confidence of local managers in participants, as perceived by the participants. Seventeen participants (81%) report no change in the confidence exhibited by local managers in them, and four (19%) report that their local managers exhibit more confidence in them since they began telecommuting.

Trust Issues with Local Manager

This variable measures the impact of telecommuting on trust issues between participants and their local managers. The survey item used to determine this variable asked "What, if any, types of trust issues with your local manager resulted from

working at home?” All twenty-one participants (100%) reported no trust issues as a result of their telecommuting.

Attitude toward Telecommuting

This variable measures participants’ attitudes toward telecommuting. Nineteen participants (90.5%) reported positive attitudes toward telecommuting, and two (9.5%) reported neutral attitudes.

Attitude toward Job

This variable measures the impact of telecommuting on participants’ attitudes towards their jobs. Sixteen participants (76.2%) reported that telecommuting has greatly improved their attitudes towards their jobs, three (14.3%) reported that it has slightly improved their attitudes towards their jobs, and two (9.5%) reported that it has made no change in their attitudes toward their jobs.

Promotion of Telecommuting

This variable measures whether participants promote telecommuting to others as a result of their experiences in the telecommuting program. Nineteen participants (90.5%) reported promoting telecommuting to family, friends, and coworkers, and two (9.5%) reported that they do not promote telecommuting.

Expectations of Telecommuting Compared to Reality

This variable measures whether participants’ expectations of telecommuting matched the reality of telecommuting. All twenty-one participants (100%) reported that their expectations did match the reality.

Opinion on Number of Days Designated for Telecommuting

This variable measures participants' opinions on the number of days designated for telecommuting. The survey item used to determine the variable read, "How do you feel about the number of days designated for working at home?" Nineteen participants (90.5%) reported that the number was just right, and two (9.5%) reported that not enough days were designated for telecommuting

Use of Unplanned Leave

This variable measures the impact of telecommuting on participants' use of unplanned leave, as reported by them. Sixteen participants (76.2%) reported using less unplanned leave, and five (23.8%) reported no change.

Opinion on Amount of Time Spent Telecommuting

This variable measures participants' opinions on the amount of time spent telecommuting. Specifically, the survey item used to determine this variable asked, "Going forward, would you choose to spend more, less, or the same amount of time working at home?" Sixteen participants (76.2%) responded that they would spend the same amount of time working at home, four (19.0%) responded that they would spend more time working at home, and one (4.8%) responded that he or she would spend less time working at home.

Future Career Choices

This variable measures whether participants expect telecommuting to impact their future career choices. Twelve participants (57.1%) reported that it would very much affect their future career decisions, seven (33.3%) reported that it would somewhat affect future career decisions, and two (9.5%) reported that it would not affect future career decisions at all.

Recommendation on Expansion of Telecommuting Program

This variable measures participants' recommendations on expanding the telecommuting program. The survey item used to determine their responses read, "Would you recommend expanding the telecommuting program to include additional employees within this agency?" All twenty-one participants (100%) reported that they would recommend expanding it to include additional employees.

Objective Three

The third objective of this study was to determine the productivity of employees of a large public sector organization for the three months prior to implementation of telecommuting as measured by the following aspects of work assignment completion and quality:

1. Percentage of assignments completed
2. Number of customer complaints
3. Number of quality control findings
4. Percentage of incorrect eligibility decisions

5. Number of expired renewals
6. Number of procedural closures
7. Number of hours of unplanned sick and annual leave
8. Number of hours of outreach worked per month.

Productivity data were collected for seventeen of the twenty-one participants in the telecommuting program. The results of objective three are presented in Table 4. Overall, productivity scores ranged from 100.0% to 51.5%. The application type with the highest productivity rating over the three months was Long-Term Aid Applications, with a mean productivity of 90.0% for the first month and 100.0% for months two and three. The lowest productivity score reported was 51.5% and was for Illness Aid Applications during the second month. For the three-month period, renewal productivity was highest during the second month, with a productivity score of 88.0%.

No customer complaints or incorrect eligibility decisions were recorded during the three months, and the only month in the period during which quality control findings were reported was the third month (see Table 4), which had an average quality control score of 0.1.

The variable “final score” represents a combination of the previous measurements presented of the other variables used to determine productivity and thus serves as a measurement of overall productivity. The formula used to compute

the variable “final score” is represented in Chapter 3. Final scores for the period ranged from 80.9 to 86.2

Table 4: Productivity Measurements before Participation in a Telecommuting Arrangement among Employees of a Publicly Funded Organization in Louisiana

	Month 1	Month 2	Month 3
Task Measure	<u>Mean</u> Standard Deviation	<u>Mean</u> Standard Deviation	<u>Mean</u> Standard Deviation
Productivity			
Pregnancy Aid Applications	<u>89.4</u> 21.1	<u>89.1</u> 16.3	<u>90.1</u> 13.9
Temporary Family Aid Applications	<u>86.0</u> 33.6	<u>87.1</u> 18.0	<u>78.8</u> 32.7
Financial Aid Applications	<u>82.7</u> 33.6	<u>79.3</u> 24.4	<u>89.0</u> 23.1
Long-Term Aid Applications	<u>90.0</u> 14.1	<u>100.0</u> 0.0	<u>100.0</u> 0.0
Children’s Aid Applications (Type A)	<u>92.8</u> 9.1	<u>95.7</u> 9.0	<u>93.7</u> 8.6
Children’s Aid Applications (Type B)	<u>74.9</u> 37.8	<u>78.0</u> 39.1	<u>95.5</u> 10.1
Illness Aid Applications	<u>62.4</u> 30.4	<u>51.5</u> 32.1	<u>73.0</u> 32.2
Renewals	<u>74.0</u> 26.9	<u>88.0</u> 16.6	<u>73.3</u> 28.2
Quality			
Customer Complaints	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0
Quality Control Findings	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.1</u> 0.2
Incorrect Eligibility Decisions	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0
Expired Renewals	<u>1.6</u> 3.7	<u>1.0</u> 2.8	<u>0.5</u> 1.2

Procedural Closures	<u>0.2</u> 0.6	<u>0.1</u> 0.3	<u>2.6</u> 0.4
Leave			
Unplanned Sick Leave	<u>1.0</u> 2.3	<u>0.7</u> 2.0	<u>2.6</u> 6.2
Unplanned Annual Leave	<u>0.5</u> 1.9	<u>0.6</u> 1.0	<u>1.0</u> 2.2
Hours of Outreach	<u>1.5</u> 2.7	<u>0.6</u> 1.2	<u>2.7</u> 5.2
Final Score			
Final Score ^a	<u>80.9</u> 15.7	<u>82.4</u> 15.6	<u>86.2</u> 16.0

^a“Final Score” represents an overall measurement of all variables included in the table.

Objective Four

The fourth objective of the study was to determine the productivity of employees of a large public sector organization for the six months following the implementation of telecommuting as measured by the following aspects of work assignment completion and quality:

1. Percentage of assignments completed
2. Number of customer complaints
3. Number of quality control findings
4. Percentage of incorrect eligibility decisions
5. Number of expired renewals
6. Number of procedural closures
7. Number of hours of unplanned sick and annual leave
8. Number of hours of outreach worked per month.

Productivity data were collected for seventeen of the twenty-one participants in the telecommuting program during the first six months that participants spent telecommuting. This six-month period begins at the fourth month for which data were collected because data collected to fulfill objective three comprises months one through three. Table 5 describes the results of objective four. Overall, productivity scores ranged from 100.0% to 49.6%. The application type with the highest productivity rating over the six months is Long-Term Aid Applications, with a mean productivity of 100.0% for months four, six, eight, and nine; a mean productivity of 87.5% for month five; and a mean productivity of 90.0% for month seven. The lowest productivity score reported was 49.6%, and it was for Illness Aid Applications during the fifth and sixth months. Over the six months, renewal productivity was highest during the ninth month, with a productivity score of 91.0%. No customer complaints, quality control findings, or incorrect eligibility decisions were recorded during the six months. Final scores represent overall measurements of productivity and range from 77.3% to 94.0%.

Table 5: Productivity Measurements while Participating in a Telecommuting Arrangement among Employees of a Publicly Funded Organization in Louisiana

	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9
Task Measure	<u>Mean</u> Standard Deviation	<u>Mean</u> Standard Deviation	<u>Mean</u> Standard Deviation	<u>Mean</u> Standard Deviation	<u>Mean</u> Standard Deviation	<u>Mean</u> Standard Deviation
Productivity						
Pregnancy Aid Applications	<u>86.0</u> 14.7	<u>84.6</u> 20.2	<u>73.5</u> 29.3	<u>85.3</u> 28.2	<u>96.3</u> 7.2	<u>94.0</u> 7.7
Temporary Family Aid Applications	<u>79.8</u> 22.2	<u>83.6</u> 23.8	<u>78.7</u> 23.8	<u>92.4</u> 14.1	<u>98.5</u> 4.1	<u>94.1</u> 9.3
Financial Aid Applications	<u>89.8</u> 22.7	<u>100.0</u> 0.0	<u>85.7</u> 26.2	<u>100.0</u> 0.0	<u>96.6</u> 9.6	<u>94.3</u> 11.0
Long-Term Aid Applications	<u>100.0</u> 0.0	<u>87.5</u> 17.7	<u>100.0</u> 0.0	<u>90.0</u> 14.1	<u>100.0</u> 0.0	<u>100.0</u> 0.0
Children's Aid Applications (Type A)	<u>87.1</u> 28.1	<u>83.6</u> 29.6	<u>88.8</u> 14	<u>88.3</u> 14.2	<u>96.7</u> 5.6	<u>100.0</u> 0.0
Children's Aid Applications (Type B)	<u>93.5</u> 18.1	<u>99.4</u> 1.7	<u>72.2</u> 36.5	<u>82.9</u> 31.7	<u>91.0</u> 28.8	<u>92.0</u> 27.7
Illness Aid Applications	<u>51.1</u> 38.2	<u>49.6</u> 41.6	<u>49.6</u> 41.7	<u>74.4</u> 39	<u>95.2</u> 10.5	<u>96.4</u> 9.4
Renewals	<u>69.7</u> 27.5	<u>84.3</u> 13.1	<u>77.7</u> 26.9	<u>87.3</u> 9.7	<u>91.7</u> 8.0	<u>92.1</u> 8.3
Quality						
Customer Complaints	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0
Quality Control Findings	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0

Incorrect Eligibility Decisions	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0	<u>0.0</u> 0.0
Expired Renewals	<u>0.2</u> 0.8	<u>0.4</u> 1.5	<u>0.9</u> 2.7	<u>0.3</u> 1.2	<u>0.2</u> 0.7	<u>0.1</u> 0.2
Procedural Closures	<u>0.2</u> 0.8	<u>0.1</u> 0.2	<u>0.3</u> 1.2	<u>0</u> 0	<u>0.1</u> 0.5	<u>0.1</u> 0.2
Leave						
Unplanned Sick Leave	<u>0.5</u> 1.9	<u>0.5</u> 1.5	<u>0.9</u> 2.7	<u>1.2</u> 4.8	<u>1.2</u> 2.8	<u>0.6</u> 2.4
Unplanned Annual Leave	<u>0.9</u> 2.8	<u>0.8</u> 2.3	<u>0.5</u> 1.9	<u>0.3</u> 0.1	<u>0.0</u> 0.0	<u>0.0</u> 0.0
Hours of Outreach	<u>1.5</u> 2.2	<u>1.0</u> 2.2	<u>0.2</u> 0.5	<u>0.3</u> 0.8	<u>0.5</u> 1.0	<u>0.5</u> 2.4
Final Score						
Final Score	<u>78.8</u> 18.9	<u>84.6</u> 11.4	<u>77.3</u> 14.3	<u>87.5</u> 9.1	<u>94.0</u> 7.7	<u>93.5</u> 8.1

^a“Final Score” represents an overall measurement of all variables included in the table.

Objective Five

The fifth objective was to compare the productivity, as measured by the following aspects of work assignment completion and quality, for the three months prior to initiation of telecommuting to the fourth, fifth, and sixth month of telecommuting:

1. Work assignment completion score
2. Leave score
3. Outreach score

Work Assignment Completion Score

Productivity data collected while fulfilling objectives three and four were used to compare the productivity of participants during the first three months when data were collected (before participation in a telecommuting arrangement) to their productivity during their fourth, fifth, and sixth months of telecommuting (which are the seventh, eighth, and ninth months for which data were collected). Each of the monthly final scores was averaged to derive a single pre-telecommuting and a single telecommuting measure. The productivity data were compared using a dependent t-test. See Table 6 for the results.

With a 95.0% confidence interval, productivity scores significantly increased from the pre-telecommuting measurements to those recorded during the fourth through sixth months while participants were telecommuting. The mean productivity score for the three months prior to telecommuting was 82.4, and the mean productivity score for the fourth, fifth, and sixth months of telecommuting was 91.7. The t-test comparing these measurements was significant ($t=4.26$, $p=0.001$), indicating that the study subjects were more productive in their fourth through sixth months than they were before telecommuting.

Leave Score and Outreach Score

Leave scores did not significantly change between the two periods, but the mean amount of leave taken did decrease from 2.1 hours per person per month to 1.0 hour per person per month. Hours of outreach, on the other hand, did significantly

decrease from the pre-telecommuting to telecommuting periods, from an average of 1.6 hours per person per month to 0.4 hours per person per month with a p-value of 0.5.

Table 6: Comparison of Productivity Scores for Months 1-3 Prior to Telecommuting to Productivity Scores for Months 4-6 of Telecommuting among Employees of a Publicly Funded Organization in Louisiana

Variable	Group	N	M	SD	t	df	p
Productivity Score	Prior to Telecommuting	17	82.4	12.8	4.26	15	0.001
	4-6 Months of Telecommuting	17	91.7	6.8			
Leave Score	Prior to Telecommuting	17	2.1	2.4	1.2	16	0.3
	4-6 Months of Telecommuting	17	1.0	3.2			
Outreach Score	Prior to Telecommuting	17	1.6	2.2	2.2	16	0.046
	4-6 Months of Telecommuting	17	0.4	0.9			

CHAPTER 5: SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary of Purpose and Specific Objectives

The primary purpose of this study is to determine the influence of participating in a telecommuting work program on the productivity among employees of a large public sector organization.

Objectives

Specific objectives established by the researcher to guide the study include the following:

- I. Describe telecommuting employees of a large public sector organization on the following professional demographic characteristics:
 1. Tenure with agency
 2. Job title
 3. Distance between home and office
 4. Number of days designated for telecommuting per week
 5. Cost reduction
 6. Separation of work and home life
 7. How often employee contacts and is contacted by the office when telecommuting
 8. Whether or not local manager telecommutes

II. Determine the impact of the telecommuting program on the following factors as perceived by telecommuting employees of a large public sector organization:

1. Time management
2. Ability to work at personal peak time
3. Ability to meet work objectives
4. Planning and organization
5. Productivity
6. Changes to working style
7. Distraction while working
8. Perceived support of immediate family/roommates
9. Relationship with immediate family/roommates
10. Relationship with coworkers
11. Perceived support of coworkers
12. Resentment from coworkers
13. Trust issues with coworkers
14. Coworker interest in telecommuting
15. Guilt
16. Missing the social interaction of the office
17. Relationship with supervisor
18. Relationship with local manager

19. Confidence of local manager in employee
20. Trust issues with local manager
21. Attitude toward telecommuting
22. Attitude toward job
23. Promotion of telecommuting
24. Expectations of telecommuting compared to reality
25. Opinion on number of days designated for telecommuting
26. Use of unplanned leave
27. Opinion on amount of time spent telecommuting
28. Future career choices
29. Recommendation on expansion of telecommuting program

III. Determine the productivity of employees of a large public sector organization for the three months prior to implementation of telecommuting as measured by the following aspects of work assignment completion and quality:

1. Percentage of assignments completed
2. Number of customer complaints
3. Number of quality control findings
4. Percentage of incorrect eligibility decisions
5. Number of expired renewals
6. Number of procedural closures

7. Number of hours of unplanned sick and annual leave
 8. Number of hours of outreach worked per month.
- IV. Determine the productivity of employees of a large public sector organization for the six months following the implementation of telecommuting as measured by the following aspects of work assignment completion and quality:
1. Percentage of assignments completed
 2. Number of customer complaints
 3. Number of quality control findings
 4. Percentage of incorrect eligibility decisions
 5. Number of expired renewals
 6. Number of procedural closures
 7. Number of hours of unplanned sick and annual leave
 8. Number of hours of outreach worked per month.
- V. Compare the productivity, as measured by the following aspects of work assignment completion and quality, for the three months prior to initiation of telecommuting to the fourth, fifth, and sixth month of telecommuting:
1. Work assignment completion score
 2. Leave score
 3. Outreach score

Summary of Methodology

The target population of this study, which took place within a large public sector agency within the state of Louisiana that recently implemented a small-scale pilot of a telecommuting program, consists of all employees of publicly funded agencies in Louisiana. The accessible population was defined as the twenty-one participants in the pilot telecommuting program. This group also represented the research sample of the study. Because one hundred percent of the members of the accessible population participated in the study, the sample was a census of the accessible population. The members of the sample are the first employees within the agency to enter into a telecommuting work arrangement.

The instruments used to collect data included a questionnaire that was distributed to all participants in the program and a worksheet that was given to the supervisors of the participants in order to report their performance for the three months immediately preceding and the six months following the inception of the telecommuting program. The instruments were distributed after obtaining permission to do so from the project liaison within the agency. The questionnaire was used to gather demographic information and information about participants' perceptions of the impact of telecommuting on selected aspects of their work experience. Participants received the questionnaire after they began to telecommute, completed it, and returned it to the project liaison, who provided the completed copies of the instrument to the researcher. The performance reporting worksheet was used to

assess productivity for each employee, as defined by the total number of each type of application processed per month and the total number processed within a certain number of days. Supervisors rated employee productivity scores each month, for a total of nine months, and then returned the completed forms to the project liaison within the agency, from whom they were obtained by the researcher. The data sets that the researcher received were stripped of all participants' names, which were replaced with numeric and alphabetical identifiers to protect the anonymity of the subjects, before they entered the researcher's possession.

The first two objectives of the study were descriptive. Data collected to fulfill these objectives were analyzed by calculating the mean, standard deviation, frequencies, and percent of agreement on responses to selected items that were included in the survey completed by participants.

Data collected for the third and fourth objectives were analyzed by developing productivity scores for the pre-telecommuting and telecommuting periods. Productivity scores were determined by calculating the ratio of all application types processed by each participant within the number of days deemed appropriate for each type to the total completed; adding the ratio of renewals completed within the predetermined number of days to the number assigned; subtracting from the term the number of expired renewals and procedural closures; subtracting from the sum of the ratios of applications and renewals the number of customer complaints, number of incorrect eligibility decisions, and number of quality control findings; and dividing

the calculated term by the ratio of work time in the month minus the number of hours of unplanned sick leave, number of hours of unplanned annual leave, and number of hours of outreach worked to total work time in the month. Final productivity scores for each period were calculated by finding the mean of all participants' totals for the two periods.

The fifth objective of the study was accomplished by comparing the productivity scores from the pre-telecommuting period to the telecommuting period using a dependent t-test.

Summary of Major Findings

The major findings are described by objective.

Objective One

The first objective of this study was to describe telecommuting employees of a large public sector organization on selected professional demographic characteristics.

Tenure with agency ranged from one to twenty-seven years, with a mean of 6.24 years and a standard deviation of 5.36 years. The majority of participants (seventeen, or 81.0%) were analysts; one (4.8%) was an administrative coordinator; one was a program manager; one was a program monitor; and one was a program specialist. Distance in miles between participants' homes and offices ranged from seventy to two miles. The mean distance of participants' commutes was 15.05 miles, and the standard deviation was 15.06. The number of days per week designated for telecommuting ranged from two to four, with 47.6% of participants telecommuting

four days a week, 38.1% telecommuting three days a week, and 14.3% telecommuting two days a week. The average number of days per week designated for telecommuting was 3.33 and the standard deviation was 0.73. All twenty-one participants (100.0%) reported experiencing a reduction in costs resulting from their telecommuting arrangements. The average cost reduction reported was \$136.43, and the standard deviation for this variable was 111.68.

Twenty participants (95.2%) reported that they were successful at keeping their work and home lives separate while telecommuting, and one (4.8%) reported being somewhat successful at the task. Seventeen participants (81.0%) reported that they call the office an average of once a day when telecommuting, three participants (14.3%) reported that they call twice a day, and one participant (4.8%) reported calling three or more times a day. Nineteen participants (90.5%) reported that they receive calls from the office an average of once a day when telecommuting, one (4.8%) reported receiving calls twice a day, and one (4.8%) reported receiving calls three or more times a day. Nineteen participants (90.5%) reported that their local managers do not telecommute, and two (9.5%) reported that their local managers do telecommute.

Objective Two

The third objective of this study was to determine the impact of the telecommuting program on selected factors as perceived by telecommuting employees of a large public sector organization.

Work Habits

All twenty-one participants (100.0%) reported that telecommuting has improved their time management; additionally, all twenty-one participants (100.0%) reported that telecommuting has enabled them to work at their personal peak times. All twenty-one participants (100.0%) reported that telecommuting has favorably affected the way they meet work objectives, and all twenty-one participants (100.0%) reported that telecommuting has given them the opportunity to plan better and to be more organized. Twenty participants (95.2%) reported that telecommuting has helped them to become more productive, and one (4.8%) reported no change in productivity due to telecommuting. Thirteen participants (61.9%) reported that telecommuting helped them to make beneficial changes to their working styles, and eight (38.1%) reported no change. Nineteen participants (90.5%) reported that they experience fewer distractions while working at home, while two (9.5%) report no change in distractions at home.

Relationships

Twenty participants (95.2%) reported that their immediate family and/or roommates support their telecommuting, and one (4.8%) reported that the question was not applicable because the participant lives alone. Eleven participants (52.4%) reported a positive impact on their relationships with their immediate family and/or roommates, and ten (47.6%) reported that telecommuting did not impact their relationships with their immediate family and/or roommates. Seventeen participants

(81.0%) reported that telecommuting has not impacted their relationships with their coworkers, three (14.3%) reported that telecommuting has somewhat negatively impacted their relationships with their coworkers, and one (4.8%) reported that telecommuting has positively impacted his or her relationship with his or her coworkers. Sixteen participants (76.2%) reported that their coworkers support their telecommuting, four (19.0%) reported that they are somewhat supportive, and one (4.8%) reported that his or her coworkers are not supportive of his or her telecommuting. Thirteen participants (61.9%) reported that coworker resentment was not a problem at all. Seven participants (33.3%) reported that a minority of coworkers resented their telecommuting. One participant (4.8%) reported that coworker resentment was a widespread problem. Twenty participants (95.2%) reported that no trust issues had resulted, and one participant (4.8%) reported that they had. All twenty-one participants (100.0%) reported that their coworkers have expressed interest in telecommuting. Eleven participants (52.4%) reported feeling a little guilty about having the opportunity, and ten (47.6%) reported no guilt. Thirteen participants (61.9%) reported missing the social interaction of the office a little, and eight (38.1%) reported never missing the social interaction. Twelve participants (57.1%) reported that telecommuting has not affected their relationships with their supervisors, and nine (42.9%) reported that it has improved their relationships with their supervisors. Nineteen participants (90.5%) reported that telecommuting has not affected the relationships, and two (9.5%) reported that it has increased their

communication with their local managers. Seventeen participants (81.0%) report no change in the confidence exhibited by local managers in them, and four (19.0%) report that their local managers exhibit more confidence in them since they began telecommuting. All twenty-one participants (100.0%) reported no trust issues as a result of their telecommuting.

Attitude, Opinion, and Recommendations

Nineteen participants (90.5%) reported positive attitudes toward telecommuting, and two (9.5%) reported neutral attitudes. Sixteen participants (76.2%) reported that telecommuting has greatly improved their attitudes towards their jobs, three (14.3%) reported that it has slightly improved their attitudes towards their jobs, and two (9.5%) reported that it has made no change in their attitudes toward their jobs. Nineteen participants (90.5%) reported promoting telecommuting to family, friends, and coworkers, and two (9.5%) reported that they do not promote telecommuting. All twenty-one participants (100.0%) reported that their expectations did match the reality. Nineteen participants (90.5%) reported that the number was just right, and two (9.5%) reported that not enough days were designated for telecommuting. Sixteen participants (76.2%) reported using less unplanned leave, and five (23.8%) reported no change. Sixteen participants (76.2%) responded that they would spend the same amount of time working at home, four (19.0%) responded that they would spend more time working at home, and one (4.8%) responded that he or she would spend less time working at home. Twelve participants (57.1%) reported

that it would very much affect their future career decisions, seven (33.3%) reported that it would somewhat affect future career decisions, and two (9.5%) reported that it would not affect future career decisions at all. All twenty-one participants (100.0%) reported that they would recommend expanding it to include additional employees.

Objective Three

The third objective of this study was to determine the productivity of employees of a large public sector organization for the three months prior to implementation of telecommuting as measured by selected aspects of work assignment completion and quality.

Overall, productivity scores ranged from 100.0% to 51.5%. For the three-month period, renewal productivity was highest during the second month, with a productivity score of 88.0%. No customer complaints or incorrect eligibility decisions were recorded during the three months, and the only month in the period during which quality control findings were reported was the third month (see Table 4), which had an average quality control score of 0.1. Final scores representing overall measurements of productivity for the period ranged from 80.9 to 86.2.

Objective Four

The fourth objective of the study was to determine the productivity of employees of a large public sector organization for the six months following the implementation of telecommuting as measured by selected aspects of work assignment completion and quality.

Overall, productivity scores ranged from 100.0% to 49.6%. Over the six months, renewal productivity was highest during the ninth month, with a productivity score of 91.0%. No customer complaints, quality control findings, or incorrect eligibility decisions were recorded during the six months. Final scores represent overall measurements of productivity and range from 77.3% to 94.0%.

Objective Five

The fifth objective was to compare the productivity, as measured by the following aspects of work assignment completion and quality, for the three months prior to initiation of telecommuting to the fourth, fifth, and sixth month of telecommuting:

1. Work assignment completion score
2. Leave score
3. Outreach score

With a 95% confidence interval, productivity scores significantly increased from the pre-telecommuting measurements to those recorded during the fourth through sixth months while participants were telecommuting. The mean productivity score for the three months prior to telecommuting was 82.4, and the mean productivity score for the fourth, fifth, and sixth months of telecommuting was 91.7. The t-test comparing these measurements was significant ($t=4.26$, $p=0.001$), indicating that the study subjects were more productive in their fourth through sixth months than they were before telecommuting.

Leave scores did not significantly change between the two periods, but the mean amount of leave taken did decrease from 2.1 hours per person per month to 1.0 hour per person per month. Hours of outreach, on the other hand, did significantly decrease from the pre-telecommuting to telecommuting periods, from an average of 1.6 hours per person per month to 0.4 hours per person per month with a p-value of 0.5.

Conclusions, Implications, and Recommendations

Based on the findings of the study, the researcher has derived the following conclusions, implications, and recommendations

Conclusion One

- I. The productivity of employees increased when they participated in a telecommuting relationship.

This conclusion is based on the finding that with a 95% confidence interval, productivity scores significantly increased from the pre-telecommuting measurements to those recorded during the fourth through sixth months during which participants engaged in telecommuting. The mean productivity score for the three months prior to telecommuting was 82.4, and the mean productivity score for the fourth, fifth, and sixth months of telecommuting was 91.7. The t-test comparing these measurements was significant ($t_{16}=4.26$, $p=0.001$), indicating that the subjects of the study were more productive in their fourth through sixth months than they were during the three months before telecommuting. Therefore, participants in the program demonstrated

higher productivity when telecommuting than they did before the implementation of the program.

This conclusion is consistent with findings within the literature. Lister et al (2009) and AT&T (2004) noted the existence of a positive correlation between the occurrence of employee telecommuting programs and employee productivity. Additionally, Gajendran and Harrison (2007) found no evidence suggesting a negative relationship between telecommuting and employee productivity. Coleman (2004) also concluded that productivity increases typically accompany the implementation of telecommuting programs.

Because the majority of the literature that focuses on the effects of telecommuting on productivity is based on short-term studies with durations of several months to a year at most, the researcher recommends additional research examining the long-term effects of telecommuting on productivity. It is important to ascertain whether the short-term productivity increases that result from telecommuting are sustained over a longer time period or whether they are more temporary in nature. Despite the lack of available information about the long-term impacts of telecommuting programs on productivity, the existence of short-term gains seem clear to the researcher. Therefore, the researcher recommends that management of the publicly funded agency in which the study took place expands the telecommuting program within the agency and also recommends that management of

other publicly funded agencies within the state of Louisiana develop similar telecommuting programs.

Conclusion Two

II. Employee satisfaction increased as a result of their telecommuting.

This conclusion is based on the following findings resulting from participant responses to questionnaire items that relate to satisfaction. All twenty-one participants (100.0%) reported that telecommuting has helped them to better manage their time; enabled them to work at their personal peak times; favorably affected the way they meet work objectives; and given them the opportunity to plan better and be more organized. Nineteen participants (90.5%) reported positive attitudes toward telecommuting, and two (9.5%) reported neutral attitudes. Sixteen participants (76.2%) reported that telecommuting has greatly improved their attitudes towards their jobs, three (14.3%) reported that it has slightly improved their attitudes towards their jobs, and two (9.5%) reported that it has made no change in their attitudes toward their jobs. Nineteen participants (90.5%) reported promoting telecommuting to family, friends, and coworkers. All twenty-one participants (100.0%) reported that their expectations of telecommuting did match the reality of the arrangement. Twelve participants (57.1%) reported that telecommuting would very much affect their future career decisions, and seven (33.3%) reported that it would somewhat affect future career decisions. All twenty-one participants (100.0%) reported that they would recommend expanding the telecommuting program to include additional employees.

This conclusion is consistent with the literature regarding the impact of telecommuting on employee satisfaction. A study conducted by The Society for Human Resource Management (2009) found that ninety-seven percent of organizations that offer some form of flexible work arrangements to employees claim that the programs have positively impacted the lives of participating employees. It also found that ninety-one percent of these organizations report improvements in employee satisfaction, morale, and engagement from flexible work arrangements, and eighty-nine percent report greater employee retention as a result of the programs. Telecommuting programs necessarily increase employee autonomy, which, in turn, increases employee satisfaction (Standen et al., 1999). Telecommuting programs also increase employees' boundary flexibility, enabling them to balance their work and personal commitments. This flexibility has been shown to increase employee satisfaction as well (Ashforth et al., 2000). Studies conducted by AT&T (2004), Grzywacz (2007), and Nickson (2004) likewise demonstrated that telecommuting programs increase employee commitment and loyalty, along with employee satisfaction.

The researcher recommends research to determine which elements of telecommuting most significantly impact employee satisfaction. This research could take the form of surveys in which employees are asked to rate specific aspects of telecommuting in terms of their impact on the employees' satisfaction. The researcher additionally recommends further research focusing on the correlation

between various personality traits and satisfaction with work, home, and personal lives. Personality traits that may strongly relate to satisfaction might include extraversion, locus of control, conscientiousness, self-directedness, and openness. Satisfaction may be assessed through surveys asking participants to rate their satisfaction with various aspects of their lives, and the presence of absence of designated personality traits could be assessed through reputable personality tests. Data collected for both satisfaction and personality could then be compared to determine whether relationships exist between these traits. Finally, the researcher also recommends research on the aspects of work that most clearly relate to job satisfaction and whether intrinsic or extrinsic factors are more influential.

Conclusion Three

III. Telecommuting reduces employees' monthly expenditures.

This conclusion is based on the following finding from participant responses to a questionnaire item that asked employees whether they experienced a reduction in their monthly expenses resulting from their telecommuting arrangements, and if they responded affirmatively, to estimate the dollar amount of their savings. All twenty-one participants (100%) reported a reduction in costs resulting from their telecommuting arrangement. The average monthly cost reduction reported was \$136.43, and the standard deviation for this variable was 111.68. Nickson et al. (2004) substantiates this conclusion in his research, in which he describes tangible benefits that arise as a direct result of telecommuting. He found that the average

telecommuter saves the equivalent of five workweeks per year due to the reduction in commuting time. Moreover, he found that telecommuting for one day a week would save an employee twenty percent of his or her current expenditures in fuel consumption and that doing so for two days a week would save forty percent. He also reports that telecommuters spend less on vehicular maintenance because the decrease in their commutes results in less wear on the vehicles. Finally, he affirms that telecommuters save significantly on wardrobe costs and on the cost of meals purchased during the work day.

Based on this conclusion, the researcher recommends further research on the amount and types of savings incurred by telecommuters and on the relationship between the distance of their commutes and the amount saved. If the amount of cost savings resulting from telecommuting could be accurately quantified by an organization, the amount could be communicated to employees as a portion of their total compensation packages, and they may consider the option to be more valuable if they fully understand the savings that accompany telecommuting. Accordingly, the researcher additionally recommends further research to determine the impact of cost reductions on employee satisfaction.

Conclusion Four

IV. Telecommuting resulted in a decrease in hours of outreach worked.

This conclusion is based on the finding that hours of outreach did significantly decrease from the pre-telecommuting to telecommuting periods, from an average of

1.6 hours per person per month to 0.4 hours per person per month. It is reasonable that this could have occurred because hours of outreach refer to hours that employees spend visiting customers at off-site locations. Since telecommuters spend less time in the office and, on days spent telecommuting, do not have to leave their homes (or other designated locations) to work, it is conceivable that they may be less motivated to drive to alternative locations to meet with customers. Research conducted by Dawis et al. (1968) and Davis et al. (2001) corroborates this conclusion, as both state that telecommuting is not feasible for every employee or position and that organizations must identify employees for whom telecommuting would be a viable option. It further asserts that when organizations offer the option only to the appropriate employees who hold positions suited to telecommuting, the advantages inherent in telecommuting greatly outweigh the disadvantages for employers and employees alike.

The researcher therefore recommends further examination on the importance of outreach (or other comparable activities) by organizations whose management is considering implementing telecommuting programs. Management of organizations in which outreach is considered an important function need to weigh its importance against the benefits that will accrue from telecommuting programs. It also needs to carefully determine which jobs and employees are best-suited for telecommuting and those for which telecommuting is not a viable alternative. The researcher additionally recommends research on tactics that organizations may employ to increase the

amount of outreach performed by telecommuters. Some possible options for addressing the decrease in outreach that seems to accompany telecommuting may include offering incentives; creating flexible schedules for the days that part-time telecommuters spend in the workplace; and assigning outreach functions only to employees who work in traditional arrangements (and not to those who telecommute). Finally, the researcher recommends examination of whether the amount of outreach performed by telecommuters within the publicly funded agency in the state of Louisiana remains diminished in the long-term or whether the amount of outreach may increase after telecommuters experience an adjustment period.

Conclusion Five

- V. Telecommuting resulted in a downward trend in the amount of unplanned leave taken by employees.

This conclusion is based on the finding that leave scores did not significantly change between the two periods, but the mean amount of leave taken was 2.1 hours per person per month before telecommuting, and it was 1.0 hour per person per month during telecommuting. This conclusion is consistent with the relevant literature, as Lister et al. (2009) notes that telecommuting typically results in a decrease in the rate of absenteeism experienced by an organization because telecommuters are allowed the flexibility to schedule their work around necessary personal tasks (such as dental appointments or the renewal of drivers' licenses) for which they would otherwise have to take time off of work and because telecommuters have the ability to work

from home when they are sick with contagious illnesses that are not so severe that they prevent working but would potentially infect coworkers. Ashforth et al (2000) likewise reports that telecommuting decreases the rate of absenteeism within organizations because it allows more freedom in balancing their personal and professional demands.

One may argue that the reduction in leave is a logical extension of a telecommuting program because it simply results from the increased flexibility in scheduling, not from actual decreases in absences from work. A less favorable possibility is that because telecommuters experience less direct supervision, they are not being held as accountable for their actions and therefore take advantage of the situation by failing to take an appropriate amount of leave. The researcher, therefore, recommends further research to determine the cause of the downward trend in unplanned leave. It is imperative to determine whether the trend results from reductions in the amount of time that employees are actually absent from work, from an increase in flexibility, or from inaccurate employee reports of the hours that they work.

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APPENDIX A: QUESTIONNAIRE DISTRIBUTED TO PARTICIPANTS IN
PILOT TELECOMMUTING PROGRAM

Telecommuting Pilot Survey for Participants

Name

Job Title

Office/Unit

Telephone Number

How long have you worked for the agency?

How far (distance) is it from your home to work (one way)?

Please indicate below the class of vehicle you normally use on the days you drive to work.

Compact

Intermediate

Full Size

SUV

Is telecommuting reducing your commuting costs? If so, by how much per month?

What day(s) do you normally telecommute?

In addition to telecommuting, do you work an alternative schedule?

If you do work an alternative schedule and telecommute, have you experienced any problems doing both? If “Yes,” please explain.

Where in your home do you usually work?

Bedroom

Dining room

Home office

Living room

Spare room

Other location

Do you feel that you have been successful to keeping work and some separate?

Successful

Somewhat successful

Unsuccessful

Did you need technical support while working at home? If so, then with what?

Which type of high speed internet do you use?

Cable

DSL

How satisfied have you been with your Internet Service Provider?

Very satisfied

Satisfied

Neutral

Dissatisfied

While working at home, how do you usually get your messages?

Calling the office

Called by the office

Call forwarding

Alternative method

How well does this method work?

While working at home, how often do you typically call your office in a day?

Once

Twice

Three or more times

While working at home, how often do you typically receive calls from your office in a day?

Once

Twice

Three or more times

Has telecommuting:

helped you better manage your time?

enabled you to work at your personal peak time?

favorably affected the way you meet work objectives?

given you the opportunity to plan better and to be more organized?

Has telecommuting helped you to be more productive?

As a result of working at home, have you made any beneficial changes to your working style (habits, schedules, methods, etc.) at home or in the office?

Have you found that you experience fewer distractions while working at home?

Does your immediate family/roommates support your telecommuting activity?

Has working at home affected the relationship between you and your family/roommates?

Yes, positively

Yes, somewhat positively

No

Yes, somewhat negatively

Yes, negatively

Has working at home affected the relationship between you and your coworkers?

Yes, positively

Yes, somewhat positively

No

Yes, somewhat negatively

Yes, negatively

Do your coworkers support your working at home?

Yes

Somewhat supportive

No

Do any of your coworkers resent the fact that you telecommute?

Yes, it's a widespread problem

Yes, a minority

Not at all

Have trust issues with coworkers resulted from working at home?

Yes

No

Have any of your coworkers expressed an interest in working at home?

No

Yes

Have you felt guilty about having the opportunity to work at home while others may not?

Yes, very

Yes, a little

No

While working at home, do you miss the social interaction of the office?

Yes, very much

A little

Never

Has working at home affected the relationship between you and your supervisor?

Yes, it has improved

Yes, it has deteriorated

No

If your supervisor telecommutes, how has it affected you?

Yes, positively

Yes, somewhat positively

No

Yes, somewhat negatively

Yes, negatively

Has working from home affected the relationship between you and your local manager? If so, how?

Has your local manager shown more or less confidence in you since you've been working at home?

What, if any, types of trust issues with your local manager resulted from working at home?

Does your local manager telecommute?

If your local manager telecommutes, how has it affected you?

What is your present attitude toward working at home?

Has your attitude toward your job changed since you've been given the opportunity to work at home?

Do you find yourself promoting Telecommuting? Check all that apply.

Yes, to family.

Yes, to friends.

Yes, to coworkers.

No

Have your expectations of working at home matched the realities of working at home?

How do you feel about the number of days designated for working at home?

How did telecommuting affect your use of unplanned leave?

Going forward, would you choose to spend more, less, or the same amount of time working at home?

In future career choices, would the option of working at home affect your decision?

Would you recommend expanding the telecommuting program to include additional employees within this agency?

APPENDIX B: PERFORMANCE REPORTING WORKSHEET

	<i>Pre- Pilot</i>		<i>Pilot</i>						
	Mo 1	Mo 2	Mo 3	Mo 4	Mo 5	Mo 6	Mo 7	Mo 8	Mo 9
APPLICATIONS									
Pregnancy Aid Applications									
Total number of Type 1 applications approved and rejected									
Number of Type 1 applications approved and rejected within 5 days									
Temporary Family Aid Applications									
Total number of Type 2 applications approved and rejected									
Number of Type 2 applications approved and rejected within 15 days									
Financial Aid Applications									
Total number of Type 3 applications approved and rejected									
Number of Type 3 applications approved and rejected within 15 days									
Long-Term Aid Applications									
Total number of Type 4 applications approved and rejected									
Number of Type 4 applications approved and rejected within 25 days									
Children's Aid Applications (Type A)									
Total number of Type 5 applications approved and rejected									
Number of Type 5 applications approved and rejected within 15 days									
Children's Aid Applications (Type B)									
Total number of Type 6 applications approved and rejected									

Number of Type 6 applications approved and rejected within 15 days

Illness Aid Applications

Total number of Type 7 applications approved and rejected

Number of Type 7 applications approved and rejected within 25 days

Renewals

Number of renewals assigned

Number of renewals completed by the 15th of the month

Percentage of renewals completed by the 15th of the month

Number of expired renewals

Number of procedural closures

OTHER

Number of hours of unplanned sick leave

Number of hours of unplanned annual leave

Number of customer complaints

Percentage of incorrect eligibility decisions

Number of quality control findings

Number of hours of outreach worked per month