

EMAIL UTILIZATION BY UNIVERSITY EMPLOYEES
AND ITS RELATIONSHIP TO JOB SATISFACTION

by

ANTHONY RECASCINO
B.A. University of Central Florida, 1997
M.P.A. University of Central Florida, 2000

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the Department of Educational, Research, Technology, and Leadership
in the College of Education
at the University of Central Florida
Orlando, Florida

Major Professor: William C. Bozeman

© 2005 Anthony Recascino

ABSTRACT

The use of technology, such as electronic mail and the Internet, is becoming the norm in many workplaces. This is especially true in academic workplaces. The present study examined several issues related to electronic mail use and job satisfaction for employees within a higher education workplace. Results of the study found that administrative level employees both sent and received more email than non-administrative level staff. Job satisfaction was not found to be related to the amount of email sent or received. No difference in job satisfaction was found between employees at the main campus versus regional locations, nor was there a difference in job satisfaction between those employees who were supervised primarily via email and those who had in-person supervision.

Results of this study help to clarify the role electronic mail plays in the workplace behavior and attitudes of higher education employees. This study also updates older research that found lower levels of job satisfaction in employees receiving e-supervision. The present study found no such differences, perhaps indicating a change in how employees experience e-supervision. Future researchers are urged to continue study examining how electronic technologies influence workplace attitudes and behaviors. While this study focused on email usage, other studies could examine Internet usage or focus on the integration of new technologies into the academic workplace.

ACKNOWLEDGMENTS

In reflecting on how I have gotten to this point in my life, I would like to express my gratitude and thanks to the following people for their support and assistance in my academic endeavor. To my grandparents, mother and father who have instilled in me throughout my life the idea that the path to a better life could be obtained by the friends one chooses and by a good education. To my loving wife and son, who, because of their patience and understanding, will have their husband and father back to share time together as a family again.

This research project would not have been possible without the assistance and support of my advisor, Dr. William Bozeman, for his guidance throughout the dissertation process. To my doctoral committee members, Dr. Hahs-Vaugh, Dr. Douglas Magann, and Dr. Alvin Wong, sincere thanks for your support and patience.

To Steven Marks, who unexpectedly passed away this year. Thank you for friendship and support throughout my life; you will be missed greatly.

What I have also learned is the importance of the lasting friendships I have developed within my cohort group, and that the real value of one's degree is not the degree itself, but what you give up to attain it.

TABLE OF CONTENTS

LIST OF FIGURES	vii
LIST OF TABLES	viii
CHAPTER 1 INTRODUCTION	1
Statement of Problem	5
Purpose of the Study.....	5
The Setting.....	5
Hypotheses.....	6
Definition of Terms	7
Significance of the Study.....	8
Assumptions	9
Delimitations	9
CHAPTER 2 REVIEW OF THE LITERATURE	10
Introduction	10
Technology in the Workplace	13
Email Usage: Gender, Cultural and Individual Differences	22
Job Satisfaction.....	28
Correlates of Job Satisfaction.....	30
Job Satisfaction, Stress and Physical Health.....	38
Higher Education and Job Satisfaction	40
Leadership and Job Satisfaction.....	42
Job Satisfaction and Use of Technology in the Workplace.....	43
Telecommuting, Technology and Job Satisfaction	44
Communication Medium and Job Satisfaction	47
Organizational and Job Specific Aspects of Job Satisfaction and Technology Usage.....	51
Email Communication and Job Satisfaction	52
Conclusions	54
CHAPTER 3 METHODOLOGY	56
Introduction	56
Statement of the Problem	56
The Setting.....	57
Population and Sample	58
Instrumentation.....	59
Data Collection.....	65
Overall Return Rates	66
Procedures and Methodology	67

Summary.....	69
CHAPTER 4 ANALYSIS OF DATA	70
Introduction	70
Research Hypothesis 1.....	71
Research Hypothesis 2.....	78
Research Hypothesis 3.....	87
Research Hypothesis 4.....	89
Summary of Data Analysis.....	91
CHAPTER 5 DISCUSSION.....	94
Introduction	94
Importance of the Present Study.....	101
Limitations of the Present Study	102
Future Research	103
APPENDIX A EMAIL USAGE AND JOB SATISFACTION QUESTIONNAIRE	107
APPENDIX B JOB SATISFACTION SURVEY.....	112
APPENDIX C FIRST CONTACT NOTICE.....	115
APPENDIX D SECOND CONTACT NOTICE	117
APPENDIX E THIRD CONTACT NOTICE.....	119
APPENDIX F FOURTH CONTACT NOTICE	121
APPENDIX G FIFTH CONTACT NOTICE	123
APPENDIX H NON-RESPONDERS CONTACT NOTICE.....	125
APPENDIX I IRB APPROVAL NOTICE.....	127
APPENDIX J SPECTOR EMAIL	129
APPENDIX K JSS SCALE SHARING AND USAGE CONDITIONS	131
APPENDIX L ORLANDO & REGIONAL CAMPUSES A&P (NON-BARGAINING) STAFF: ADDITIONAL COMMENTS	133
APPENDIX M ORLANDO & REGIONAL CAMPUSES USPS STAFF: ADDITIONAL COMMENTS	138
LIST OF REFERENCES	144

LIST OF FIGURES

Figure 1. Box plot for Work Location and Job Classification as Related to Number of Emails Sent Over a 2 Day Period.....	73
Figure 2. Box plot for Work Location and Job Classification as Related to Number of Emails Received Over a 2 Day Period.....	75
Figure 3. Scatter plot for Relationship Between Emails Sent Over a 2 Day Period and Job Satisfaction (Outliers Excluded)	82
Figure 4. Scatter plot for Relationship Between Emails Received Over a 2 Day Period and Job Satisfaction (Outliers Excluded).....	84
Figure 5. Box plot for Total Job Satisfaction as a Function of Primary Communication	88
Figure 6. Box plot for Job Satisfaction as a Function of Campus Location	90

LIST OF TABLES

Table 1 Frequency Counts and Percentages Associated with Respondent Demographics Variables for Each Campus	62
Table 2 Email Survey Demographics: Mean Scores with Standard Deviations, Frequency Counts and Percentages for Each Location.....	63
Table 3 ANOVA Summary Table for Number of Emails Sent Over a 2 Day Period as a Function of Work Location and Job Classification.....	72
Table 4 Descriptive Statistics of Emails Sent Over a 2 Day Period as a Function of Work Location and Job Classification	74
Table 5 ANOVA Summary Table for Number of Emails Received Over a 2 Day Period as a Function of Work Location and Job Classification.....	75
Table 6 Descriptive Statistics of Emails Sent Over a 2 Day Period as a Function of Work Location and Job Satisfaction	76
Table 7 Correlation Matrix for Job Satisfaction as Related to Email Usage	81
Table 8 Regressions Analysis of Relationship Between Emails Sent and Job Satisfaction	81
Table 9 Regression Analysis of Relationship Between Emails Received and Job Satisfaction	83
Table 10 Descriptive Statistics of Total Job Satisfaction as a Function of Primary Communication	88
Table 11 Descriptive Statistics of Total Satisfaction as a Function of Employee Campus Location.....	90

CHAPTER 1

INTRODUCTION

The use of computers and technology is ubiquitous in higher education today (Blake, 2000). Much of the paperwork that was done to advise students, announce meetings or communicate information among faculty, students, staff and administration has been transferred to electronic formats. However, despite the proliferation of electronic communication, such as email, in educational settings, little research has been conducted to examine the effect that electronic communication, particularly email, has on the interaction among members of the campus community or on how email usage affects job satisfaction for campus faculty and staff.

Much of the focus of current research related to electronic communication on college campuses has explored email communication only from a student-student, or student-teacher perspective. For example, Gigliotti (2001) examined the effects of email on the academic relationship between first-year students and their faculty advisors. Sipe (2000) examined how the incorporation of electronic communication into a writing class influenced faculty-student relations.

Other studies on the student-student or student-teacher relationship shed light on the nature of email communication. Gueguen (2003) explored factors that affect whether or not students at a university were likely to respond to an email request. In this study, Guerguen found that if the first name of the individual requesting help via email (the solicitor) was the same as the receptor, that compliance to the emailed request was

higher. The importance of this research was that it supported the idea that subtle differences in email communication, of which the receptor may not even be explicitly aware, could change the outcome of the communication.

In an earlier study comparing face to face and computer-mediated communication, Straus and McGrath (1994) found that in a task related to passing judgment on another student (a disciplinary action), students in the computer-mediated groups were less productive and rated their satisfaction level in the group as lower than the face to face groups. However, when Straus (1997) followed up on the 1994 work, she found that computer-mediated (CM) groups exhibited a higher level of communications across members than did face-to-face groups. Overall, the CM groups also showed greater equality in their levels of participation across members than did face to face groups. It certainly could be proposed that as email communication became more widespread and accepted, norms regarding computer-mediated communication rapidly evolved.

Flowers and Zhang in (2003) completed a study examining information technology use by college students. This study used data from the National Postsecondary Student Aid Study to examine how information technology usage varied by race of the student. This large-scale study involved over 45,000 undergraduate students across the U.S. The researchers found that most students, regardless of race, had never used an electronic chat room as part of their educational experience. In addition, Asian American students were more likely to use email to communicate with students or

faculty than other racial groups.

Nearly all of the research related to electronic communication and its effect in academe has involved the college student population. However, another important area that needs to be examined involves how email communication may influence the relationship among staff members. Email communication could potentially relate to staff perceptions of the leadership qualities of their direct supervisors, as well as influencing the levels of satisfaction between these two parties.

Research related to potential staff-to-staff issues in electronic communication must be gleaned from more general studies done using adult populations. One line of research that has been explored is the use of electronic brainstorming, or using email and web technology to generate multiple solutions to a problem versus more traditional face-to-face groups (Pinsonneault & Barki, 1999). The researchers found no differences in brainstorming based on the communication mode utilized. Lind (2001) studied a group of office workers and found that female employees used email communication to a greater degree than their male counterparts. Walsh and Maloney (2002) examined the relationship between computer use and productivity in scientists across a variety of fields. They found that computer network use facilitated research partnerships between geographically distant scientists and that these collaborative efforts were highly productive.

Perhaps of the most interest to the present study is the work of Lantz (1998) who created a survey for use in assessing the affect email usage has on worker behavior. In

this study, she first surveyed 58 employees of the same organization who used email. She found that heavy email users did not typically have problems handling email. In addition, she found that managers had more problems with email handling than their subordinates. In a second, smaller study, Lantz interviewed 10 people within the same organization about their email usage for a more comprehensive examination of the topic. A number of email users entered their email program frequently, thus interrupting their daily work. However, in the interviews, these users did not see frequent email usage as disruptive to work. The employees interviewed did report that they did not have sufficient time to process their email messages. Lantz' findings call into question the general assumption (e.g., Walsh & Maloney, 2002) that electronic communication and use of technology enhances worker task completion.

A brief review of the literature related to electronic communication and its effects in a college community revealed undergraduate students as the most common subjects. Only a small number of research projects have utilized adult employees or scientists, and topics studied in these groups mostly examined how email was used as opposed to examining job satisfaction or how email can influence inter-office relationships. Overall, it is clear that more work needs to be done to examine how email and electronic communication usage impact work-related variables in an adult sample of college employees.

Statement of Problem

The study attempts to answer the question: “What is the relationship of email usage to job satisfaction in a university environment?”

The incorporation of technology into the workplace is no longer the exception, but is now the norm. At universities across the United States, faculty, staff, and students rely on computer technology and especially email to accomplish their daily work tasks. To date, few studies have examined the impact of email usage on work-related outcomes such as job satisfaction in any job setting, including universities and colleges. The present study will attempt to understand employee email usage within a university campus population. In addition to presenting descriptive information about email usage, the study will also examine how level of email usage varies across staff members and supervisors, and how it may impact job satisfaction.

Purpose of the Study

The proposed study examines the patterns of email usage by University of Central Florida main campus and regional campus employees. In addition, the study will address how email usage patterns vary across staff and supervisory groups, as well as how email usage relates to employee job satisfaction.

The Setting

The setting for the research study was the University of Central Florida (UCF). The university, which is located near the city of Orlando, offers an extensive array of

both undergraduate and graduate degree programs. As a major metropolitan institution, the university plays a primary role in central Florida's economic and social development. As of Fall 2004, the University of Central Florida posted enrollments of 42,500 students. The University during this same period employed approximately 4,800 employees.

The University of Central Florida currently designates 12 Regional Campus sites. These sites are located throughout the 11 counties of the University of Central Florida's service area. The Regional Campuses offer limited undergraduate and graduate programs. Some of the Regional campuses are located as far as 50 miles from the main Orlando campus. Many of the regional campus sites have limited A&P and USPS staffing. In many cases, supervisors and subordinates are located at different campus locations. Thus the use of technology, specifically email, to communicate is vital to the day-to-day operation of the University.

Hypotheses

The present study will provide a descriptive overview of university campus employees' email usage. In addition, the study will examine communication behaviors between staff members without supervisory duties and those staff with supervisory duties as well as job satisfaction experienced by these groups. Although the descriptive information will provide data about employee perceptions and behaviors as they relate to email usage, the following specific hypotheses will also be examined:

1. H_0 : There is no statistically significant difference in self-reported levels of email usage between staff members at regional campuses of UCF compared to staff

members in the same job classification working at the UCF Orlando campus.

2. H₀: Job satisfaction is not predicted by email usage.
3. H₀: There is no statistically significant difference in UCF staff member job satisfaction between those workers whose primary communication with their supervisors is via email versus those workers whose primary communication with their supervisors is face to face.
4. H₀: There is no statistically significant difference in job satisfaction between those UCF staff members working at the regional campuses versus those employees working at the Orlando campus.

Definition of Terms

The following definitions of terms used in this study are specific to the state of Florida:

Administrative & Professional (A&P) Employees: University of Central Florida classification for Administration and Professional university staff (e.g., Coordinator, Academic Support, Assistant Director, Director of Admissions).

Computer- Mediated Communication (CMC): Communication or the exchange of information through the use of a computer network or telecommunications system.

Email Usage: The mode or act of using email or electronic mail for sending and receiving messages over a computer network.

e-Supervision: The use of email in supervising or managing employees.

Job Satisfaction: The varying degree that a person is either satisfied or

dissatisfied with a variety of elements related ones work environment.

Out of Unit Employees: Employees outside union-negotiated contracts. This excludes faculty from participation in the study since they are in unit.

University of Central Florida (UCF): Major metropolitan institution, offers an extensive array of both undergraduate and graduate degree programs. The university designates 12 regional campus sites, which are located as far as 50 miles from the main Orlando campus.

University Support Personnel System (USPS) Employees: University of Central Florida classification for salaried staff personnel (e.g., Locksmith, Office Manager, Computer Support Specialist).

Significance of the Study

Studies like this are crucially important as universities move to electronic communication across all levels of constituents as well as in classroom settings. Email is ubiquitous in university environments and yet there is not a clear understanding of how email usage affects critical employment issues such as employee job satisfaction. The present study is important in that it focuses on a better understanding of today's complex workplace. Organizations such as universities utilize technology to communicate with employees located across wide geographical regions. Understanding email usage and its correlates across a diverse set of employees is crucial in providing institutional support and leadership to employees working in geographically distributed organizations.

Assumptions

1. Survey participants will provide honest and candid responses to survey items.
2. Information collected through survey and interview questions will be a valid measure of the participants' opinions and perceptions.
3. Survey and interviewee participants' will be honest when giving opinions and perceptions regarding impact of email usage on job satisfaction.
4. Accurate data regarding individual attitudes can be obtained from directly surveying individuals in this study.

Delimitations

1. Only University of Central Florida USPS and A&P non-bargaining unit employees will be included in the study.
2. The study will include only data directly obtained from the employee survey and additional comments data.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

The United States is in a post-industrial age where information, and its use, production and dissemination have supplanted traditional manufacturing as the linchpins supporting the economy (Reese, 1988). Even as far back as 1977, Porat identified knowledge and information-based activities as contributing nearly 50% of the gross national product and employing 47% of the American workforce. Given the age of these statistics, it can be hypothesized that the numbers reported have increased rather than decreased. With information and the technology that supports it becoming a key element of many workplaces, including educational institutions, it is important to examine patterns and levels of information technology use in the workplace. One area of information technology that has become more prevalent in today's workplace is email.

The number of emails that are sent out each year is astounding. Crowther (2001) estimated that worldwide more than 4 trillion email messages are sent per year from more than half a trillion mailboxes. Furthermore, he noted that between 1995 and 2001 email usage in organizations increased six-fold. A more recent estimate of daily email usage indicated that 68 million messages and another 42 million spam-based messages are sent via email each day (Anderson, 2004). Another example of the widespread acceptance of email as a viable means of communicating important information is the belief that it was pivotal in giving the Republican party the edge in the 2004 presidential election (Ivry,

2004).

It is clear that email has become an omnipresent and essential component of the workplace. Kleeman even reported in 1982 that workers were then growing increasingly concerned with aspects of their office environment, especially in the positioning, and set-up of their technological systems. With the increase in the technological sophistication of today's office, one can only imagine these concerns have increased exponentially. The use of the Internet and other electronic means to communicate with employees and organizational staff has increased dramatically in recent years. Most organizations view the use of this type of communication as both efficient and cost-effective. The utilization of electronic communications, specifically email communication, is useful in the management of remote or isolated staff (Morgan & Symon, 2002).

Surprisingly little research has been conducted that examines technology usage and competency issues in the educational environment, given that education has embraced a technologically sophisticated workplace. One exception to this dearth of research is a study done by Blake (2000) that focused on the assessment of technological competence of elementary and secondary education school administrators. Blake assessed usage and technology variables such as knowledge of fundamental computer operations, competence in email usage, Internet usage and file management in a survey of 342 high school principals and administrators. Blake's survey assessed three general components of technology use, as they applied to specific technology tasks or products. For example, part 1 of the survey assessed self-rated levels of perceived competence in

areas such as word processing, Internet use and graphics. Part 2 of the survey asked administrators to rate the perceived importance of specific skills areas, such as word processing or spreadsheet applications. Part 3 of the survey assessed how frequently the participants used eight different types of technology applications including the Internet, spreadsheets, graphics programs, and word processing applications.

Blake (2000) found that administrators perceived themselves as competent in using email and using word processing applications, however competence levels decreased for areas such as Internet searching and knowledge of spreadsheet, database and graphical applications. Secondly, Blake found that both principals and other administrators placed a high level of importance on technology skills, such as being able to use word processing or Internet applications. Lastly, Blake found that levels of usage of technology varied across the principals and their peer administrators, although overall, principals reported less frequent use of technology applications than their administrative colleagues. There were two exceptions to this last finding. Principals and administrators reported equal frequency of use of email programs and presentation software.

The current study focuses on how email usage varies across employees, and how it relates to job satisfaction. Unfortunately, no other literature to date has examined this particular issue. In order to provide a background for the present study, related areas of research will be reviewed. The following section will review literature and research studies related to the use of technology in the workplace. Many of these studies focus on comparing different types of technology used in the workplace and how the technology

used relates to different workplace outcomes. After discussing the use of technology in the workplace, a review of individual and cultural differences in email usage will be presented.

Technology in the Workplace

Email is but one technology that has been incorporated into the modern workplace. Prior to email was the introduction of computers and office software, telephone voice mail and communications technologies such as teleconferencing. Each of these technologies has been studied to examine how they are introduced into a work environment as well as how they are accepted and then utilized by employees.

In a philosophical examination of the supervisor-worker relationship in technologically situated work environments, Neuhaus (1997) studied whether or not devaluation of workers occurs as tasks are routinized via technology incorporation. For instance, a routinized use of technology might be data input or responding in a standard manner to many similar email messages. Non-routinized tasks might include utilizing email communication to deal with a variety of different problems or to engage in a varied set of tasks. Neuhaus studied 88 supervisors and their employees across a six-month period. According to Neuhaus, he found evidence that for employees in low routinization environments, supervisor devaluation was unlikely to occur, even if worker productivity was low. On the other hand, if worker productivity was low in routinized environments, devaluation of employees by their supervisors commonly occurred.

An important element of the introduction of technology into the workplace is facilitating its acceptance and use by employees. Roberts and Henderson (2000) discussed a model derived from the Theory of Reasoned Action (Fishbein & Ajzen, 1985) that could be tested to determine the extent of technology acceptance in the work environment. The Roberts and Henderson framework, called the technology acceptance model, posits that two cognitive variables underlie technology acceptance: perceived usefulness of the technology and perceived ease of use. These two cognitive variables are then predictive of a user's emotional acceptance of the technology, which directly predicts user behavior. Although the model as presented appears intuitively appealing, Roberts and Henderson have found only moderate support for its tenets. As this theory relates to email usage, one finds it useful in explaining why email is so widely accepted in today's workplace. Email is useful in communicating with individuals at remote locations, or in other time zones, and it can be used 24 hours a day, 7 days per week. Not only is email technology likely to be considered highly useful, it is very easy to use with most email systems utilizing a fairly standardized menu-driven interface. Although Roberts and Henderson may have found little empirical support for their theory of technology acceptance, it does appear to be potentially useful in explaining the growth of email use in the workplace.

A number of researchers have studied the actual use of email and computer technologies in the workplace in a variety of different ways. A series of studies looked at task performance and how it varied based on communication medium, either face-to-face

(FTF) communication or computer mediated communication (CMC). Computer-mediated communication involves a variety of related technologies, including email, bulletin boards, and on-line chat software. Some studies refer to synchronous CMC (e.g., live chats), while other studies utilize non-synchronous modes (e.g., email and bulletin boards). Although different types of CMC exist, one can see that they all involve use of the computer to communicate in either real or delayed time. In fact, although email is considered an asynchronous communication, lines are blurred when one considers that many office workers set their computers to alert them when email arrives, so that they may respond to any and all messages immediately.

Hollingshead, McGrath and O'Connor (1993) compared the fit of two different theoretical models in predicting how task type and computer-mediated communication relate to group performance. In one model, they tested whether task-type was a moderator of group performance of traditional and computer mediated groups. In the second model, it was hypothesized that time moderates task performance in computer-mediated and traditional groups, such that over time the initial performance decrements of a computer-mediated group would lessen and eventually end entirely. The researchers found that the second model seemed to be a more accurate representation of task performance in computer-mediated groups than the first model. In addition, they found that while task performance was equal in traditional and computer-mediated groups for tasks involving idea generation and decision-making, for tasks that involve negotiation, a traditional group structure better facilitated task performance. These findings partially

support the theoretical perspective of Roberts and Henderson discussed previously. In contrast, however, Kiesler and Sproull (1992) found that computer mediated discussion groups experienced more delays and users were more likely to make more controversial statements than those in face-to-face groups (FTF). In addition, computer mediation allowed more equal participation for all group members and users came to more risky decisions. Likewise, Kiesler, Siegel and McGuire (1984) found that individuals in CMC groups experienced greater feelings of depersonalization and had more trouble coordinating their tasks than individuals in FTF groups.

Scott and Fontenot (1999) continued work that compared FTF to CMC and how these types of communications affect workplace behaviors. In particular, this study focused on whether worker feelings of group identification, characterized by feelings of belonging or membership in a group, were affected by FTF versus CMC-based meetings. Scott and Fontenot studied 11 intact teams at 2 different universities that included 122 different individuals. During meetings, which utilized either FTF or CMC styles, the authors found that team members reported less identification with the team when the meeting was held in a CMC style versus a FTF style.

Likewise in 1999, Sussman and Sproull examined FTF versus CMC styles and how they impact the delivery of bad news to employees. Results of their study of 117 undergraduate students who received personal bad news in either a FTF, CMC or telephone manner, showed a mixed set of outcomes. First, it appears that cognitive distortion of the information being presented occurred less when receiving the

information in a CMC style, rather than FTF or by telephone. Furthermore, in FTF communication, students were more likely to enact a politeness norm, such that they were less likely to act rudely to the messenger in the encounter. Lastly, when receiving bad news, students reported that they preferred to hear the bad news FTF, followed by the CMC mode and then by telephone.

Purdy and Nye (2000) studied various communication modes to determine how they influenced negotiation outcomes that included variables such as amount of time spent in the negotiation, the terms settled on in the negotiation and how much profit the negotiator was able to achieve. The researchers used four different types of communication modes, which are listed in order of media richness (i.e., how much information relevant to the encounter can be conveyed via the mode): FTF, Video conferencing, telephone and CMC. In the study, 150 students were randomly assigned to 1 of the 4 communication modes, with each person having a partner within that same mode. They were asked to negotiate purchases for a men's clothing line using only their assigned communication mode. Results of the study found that negotiators in FTF and videoconferencing conditions were more likely to collaborate to reach mutually satisfying outcomes than participants in the other two conditions. Second, CMC mode negotiations took significantly longer than FTF negotiations. Third, communication mode did not relate to the profit obtained in the exchange. Last, participants in the richer communication mediums were more satisfied in the outcomes of their negotiations and more willing to engage in further negotiations with the same partner than were

participants in the other two conditions (e.g., telephone and CMC). This study would seem to indicate that one must examine the desired outcome of the negotiation and then choose a communication mode that best fits the outcome. For example, if profit is the primary focus of the encounter, then any communication mode, or the one most available, should suffice. However, if cooperative behaviors are critical to a negotiation, one may be better served through a FTF encounter.

The results of the set of studies just reviewed lead to a number of tentative conclusions that could be drawn about face to face versus computer enhanced communications (such as email) used in the workplace. First, it appears that computer mediated communications result in lower levels of group identification than FTF groups. In addition, politeness norms may be present in FTF groups that do not exist in CMC groups. Computer-mediated communications sometimes lack the politeness one would use with workplace peers; this phenomenon has even been given a name in on-line discussion boards: flaming. One turns one's "flame on," vents anger or frustration, and then turns the "flame off."

In addition to a lessening of group identification and politeness norms, it can also be concluded from the literature reviewed that CMC groups may take more time to complete communications and finish assignments. This could be expected, especially with use of asynchronous technologies such as email, where group members may wait several hours or days to get critical information or input needed to complete work. Again, this element of CMC may relate to lower levels of workplace satisfaction.

Although the literature comparing FTF and CMC is important for the present study, there is a limited amount of literature that directly examines workplace issues relating to use of email technology. For example, Siegel and Topel (2000) coined the term “e-supervision” to describe the use of email in managing employees. Early e-supervision was conducted via technology such as fax machines, while newer e-supervision primarily utilizes email. The benefit of email-based supervision is the quickness of communication time over earlier technologies. Siegal and Topel note that e-supervision can be difficult due to the lack of face-to-face non-verbal cues that normally assist managers in interpreting interactions. This lack of non-verbal cues that normally provide some level of validation for spoken words are not able to be overcome in the email supervision environment as it exists today. Morgan and Symon (2002) reported that the use of email to manage remote staff has continued to increase in recent years. This trend is likely to persist because it is viewed as cost effective to organizations. Morgan and Symon interviewed 40 information technology employees who worked remotely from a main site and who used technology to communicate with their managers and peers. The interviews brought to light four main areas of concern employees reported as a result of their remote locations. The first was that employees reported receiving too much information via email, so much so that after a time some of what was sent was ignored. The employees also reported experiencing frustration with technical difficulties that were periodically experienced. Additionally, the employees reported that their managers sometimes lacked appropriate email communication skills, such that the

tone of the messages sent sometimes seemed angry or unfeeling. Lastly, Morgan and Symon (2002) note one of the problems of remote management is a sense of isolation that can be felt by remote employees, especially when information is acknowledged and accepted from the employees, but never acted upon. In order to counter problems such as those reported by Morgan and Symon, Helms and Raiszadeh (2002) advocate for organizational changes that facilitate educating and informing workers in remote locations about the challenges they may face.

One study that is of particular importance for the present project is Lantz's (1998) work that examined how electronic mail is used to communicate in organizations. Lantz was particularly interested in the group she referred to as heavy users, or those who use email on a daily basis to facilitate their work. In her study, Lantz surveyed 58 employees, 53 men and 5 women, who used email on a daily basis. Thirty-seven of Lantz's participants reported having their email program open continually, 18 reported entering the program several times per day and only 3 reported that they entered the program only once per day. All participants completed a 24-item questionnaire that surveyed the participants on their email usage and problems they encountered using email.

Lantz also had her respondents describe their email usage by asking them to estimate how many emails they received and sent on a daily basis. A majority of the respondents (85%) received 30 or fewer email messages each day. Likewise, 75% of respondents sent 10 or fewer emails each day. Given that a large proportion of Lantz's

sample used email nearly continuously, only 18% reported having trouble processing email messages. In a second part of the study, Lantz chose 10 participants and did in-depth interviews with them about their email usage. Of importance to the present study were Lantz's findings about how email may interfere with employee work flow. Nine of the 10 employees interviewed would stop work to enter their email program if they received a message; only 7 of those 9 felt that this practice disrupted their work. Lantz also found from her interview that 7 of the 10 interviewees reported spending 30 minutes or more each day answering email and a majority of those seven reported that they felt they needed even more time for responding to email. As a result, those heavy users experienced some pressure to respond to emails in the time they had available to do so. Lantz concludes from her study that although email may fill a portion of an employee's time, it is an invisible activity. Thus, employees are expected to respond to email messages and they may not be allocated sufficient time in the work day to do so, resulting in feelings of frustration or pressure. Lantz called for more studies to describe and clarify how email influences the modern work environment.

The literature on email and e-supervision relates directly to issues of importance in the present study. One aspect of the study examines the differences in email usage and job satisfaction in employees at remote campus locations whose supervisors may not be physically present versus email usage at a more residential type of campus.

In summary, this review of the literature has examined how incorporation of technology in the workplace, including email, can influence workplace dynamics.

Computer-mediated communications, while they may not change actual production-based outcomes of work groups, do appear to lower group identification and lead to a lessening of politeness norms in the workplace. In addition, CMC groups often take longer to complete tasks. It is also speculated that in order for technology to be truly valuable in the workplace, tasks must not be too routinized as workers must see the value of the technology and the technology must be fairly user-friendly. Although many existing studies do not exclusively examine email usage, most incorporate email or related technology products into empirical examination of workplace dynamics.

Email Usage: Gender, Cultural and Individual Differences

There is a set of literature that related directly to email use in the workplace. To date, most studies of email use have focused on how this use varies across types of groups or individuals as they naturally exist within organizations. For instance, in an ethnographic research project studying email usage, researchers indicated that greater email usage reduces face-to-face worker interactions (Brotsis, 1999). However, when the data were further analyzed, it appeared that interactions related to administrative issues decreased, while interactions that involved transference of knowledge actually increased (Brotsis, 1999).

Pendharkar and Young (2004) surveyed 95 employees in technology organizations about their perceptions related to email use and then subjected their responses to factor analytic techniques. They found that individuals' perceptions about

email in the workplace fell into two dimensions: an individual dimension and an organizational dimension. The individual dimension indicated that employees' attitudes toward email can be positively or negatively impacted by their beliefs about the effect of email on teamwork and productivity. For example, if an individual perceived that email impeded team building or hindered productive work, then his/her attitude about email was negative. This finding was referred to as the individual dimension because email influenced interpersonal relations and work outcomes through its affect on individually based interactions (e.g., peer to peer communication or teaming). On the organizational level, an employee's attitude toward email is comprised of how he or she is influenced by exposure to computer viruses, non-professionalism or disclosure of confidential information. This influence is referred to as organizational because it involves either technological or workplace culture issues that are seen as organization-specific. For instance, complaints that the Information Technology Department has not secured the server against viruses negatively impacts one's perception of the value of email and its usage. Likewise, an organizational culture that condones system "flaming" in emails or the sending of rude jokes will also negatively impact employees' perceptions of email.

Allen (1995) studied gender as it related to patterns of email communication. In a study of Public Broadcasting System (PBS) employees, Allen found that men were less satisfied with email technology than women. Men perceived the system as less efficient, less easy to use, and less effective than their female peers. In addition, there also appeared to be gender differences in how learning an email system operates. Women to a

greater extent than men relied upon their co-workers to teach them how to use the email system.

Lind (2001) studied not only gender, but also age issues related to email usage. In her study of a group of office workers, she found that women used email significantly more than their male counterparts. Women also expressed higher levels of satisfaction with all forms of communication that they sent to other individuals. Likewise, those office workers over the age of 40 years were more satisfied with the information they received from others, across all communication channels including email.

A study examining college students' email usage noted that between 1997 and 2000, self-reported email usage had increased (Sherman, End, Kraan, Cole, Campbell, Birchmeier & Klausner, 2000). In this study, the authors did note that male students tended to have higher rates of usage than female students, although rates for both groups had increased. Sherman et al. also found that males still held somewhat more positive attitudes about their experiences interacting with technology than did female students. Odell, Korgen, Schumacher and Delucchi (2000) also examined email usage in college students and variations in usage by gender. Unlike Sherman et al., Odell and her colleagues found that no gender differences existed in the amount of time female and male college students spent online or accessing email. What was different for male and female students were their self-reported uses of the technology. Female students reported using the computer more often for class work and assignments. Male students used the email more often for entertainment and gaming purposes.

An interesting and not widely studied phenomenon has been the relationship between personality and email usage. Scealy, Phillips and Stevenson (2002) studied the relationship between shyness and anxiety and use of the Internet, including email. Contrary to expected findings, shyness and anxiety do not correlate with email usage in an adult population. The authors concluded that certain personality variables that may impede regular face-to-face communication might not be a factor in online types of communications.

In a similar line of inquiry, Sheehan (2002) explored user motivation for online activities and the type of activities users engaged in while online. This project studied the weekly Internet usage of 31 individuals ranging in age from 18 years to 67 years. Participants reported a variety of gratifications that supported their Internet and online usage behaviors including the need to complete a task, the desire to complete a school or work project, to collect information, for fun or entertainment or to alleviate loneliness or boredom. Of interest for the present study was the cluster analysis finding that certain online sessions utilized only a single online capability or function during that session. Specifically, email sessions tended to be single activity sessions, as were sessions in which individuals read news articles or engaged in entertainment activity. The email sessions averaged 33 minutes per session and accounted for nearly one-third of all online sessions.

Lee (2002) presented a theoretical argument that linked email usage to international cultural differences. Using theoretical and factual knowledge of differences

in communication and social behaviors across cultures, Lee posited that email usage would vary by culture. For example, he theorized that in Japanese and Korean cultures, so much time is spent in critical reflection about team member actions and potential courses of action that email is not going to be a useful or accepted means in which to convey specific, concise information to a direct supervisor. In cultures where such thoughtful deliberation about peer behavior is not primary, email may be a more useful workplace tool. Lee's work at this time is theoretical, so no actual cross-cultural differences in email usage patterns in the workplace can be confirmed.

Thus far, the literature as it relates to email has primarily focused on gender and culture. However, a study by Morse (1999) examined three individual variables related to email usage: perceived usefulness, intention to use email, and level of usage, and then related these to job category. Morse surveyed 203 employees of a technology organization about their email usage. Results indicated that email usefulness and level of use varied based on one's job category and how often one uses the system. More specifically, those employees whose job required more email use found email more useful and reported higher intent to use the system. In addition, higher levels of technology use were found in areas of the organization where the quality of and access to technology were high. Morse's study provides preliminary support for an investigation of how email use differs across employees at different levels or in different job categories within an organization.

Although many of the studies reviewed examined issues of communication and

worker behavior related to email usage and found benefits to email usage, one article examined a negative aspect of email usage. This study, by Sipior and Ward (1999), found that email is being increasingly used to engage in sexual harassment in the workplace. Examples of sexual harassment using email are the sending of explicit pictures, stories, or propositions between supervisors and employees or between fellow employees.

In conclusion, a variety of studies have empirically found that email usage may differ between men and women. In studies of college-aged individuals, male and female email usage varies little. However, workplace-based studies seem to support the finding that women use email more than their male counterparts, are more satisfied with email and find it to be a more effective communication tool. Evidence is inconclusive reporting the existence of cultural differences in perception of the value of email technology, although this is an intriguing area for future study. Another interesting element of this literature is the finding that email can be used to harass and devalue workplace peers. As this type of email behavior increases, it is likely to negatively impact workplace satisfaction in those experiencing the harassment. Finally, in a study important to the current one, Morse (1999) found that email behavior differed across job category as well as being influenced by the quality of the email system and level of access to the system. While the previous section examined a variety of general issues related to email usage in the workplace, the following sections will explore literature related specifically to employee job satisfaction, and the relationship between technology usage and employee satisfaction.

Job Satisfaction

Spector (1997, 1985), an expert in the measurement of job satisfaction, defined this concept as the attitude and evaluative feelings one has about one's job. More specifically, an employee is more likely to remain employed if he or she has a positive attitude toward his/her job. However, if one's attitude toward the job is poor or if the employee dislikes the job, then the likelihood of remaining at that job is lessened and job satisfaction is low. Hom, Katerberg and Hulin (1979) added support to this observation when they found that turnover and absenteeism correlated with lower levels of job satisfaction.

Spector (1997) believed that it is possible to obtain an overall measure of global job satisfaction. However, in addition to this overall perception of job satisfaction, he has also examined individual facets that comprise global satisfaction. In Spector's Job Satisfaction Survey (1997), he validated nine different components of overall job satisfaction. These components, all measured through employees' perceptions of their work environments, are as follows:

1. Perceptions of salary fairness and equity
2. Opportunities for fairness in promotions
3. Competence of managerial staff
4. Levels of benefits (vacation, sick leave, insurance, other fringe benefits)
5. Non-monetary rewards (recognition, respect, appreciation)
6. Existence of clear policies and procedures

7. Relationship with co-workers
8. Work task enjoyment
9. Organizational communication

Each of the dimensions of job satisfaction can be examined separately or combined into a global measure of satisfaction. In contrast to the assumption of Spector and others that job satisfaction is critical to workplace dynamics, Murray (1999) raised the question of whether or not job satisfaction is important in today's work environment. He concluded that although job satisfaction does not always correlate positively with productivity, that from a psychological sense, job satisfaction is indeed important. He argued that, for today's workers, psychological investment in a career is much higher than for previous generations and, as such, employees expect to be happy in their jobs. If they do not experience a reasonably high level of satisfaction, then even competent employees are likely to search for other employment opportunities.

In contrast to Spector's static view of job satisfaction, Jepsen and Sheu (2003) proposed that job satisfaction should be viewed using a developmental perspective. Jepsen and Sheu believed that job satisfaction could mean different things to people depending upon the individual's work-life stage. In the developmental view of job satisfaction, workers try to match self-concepts to employment situations in a manner that culminates in a positive sense of self. Given that those workers' life situations change as they encounter different social situations across the lifespan (e.g., marriage, child rearing, divorce, illness), their self-concepts also change, and this can influence how workers

experience satisfaction in their work environments. Quite simply, the job that makes one happy at 18 may not be satisfying at age 40. On a positive note, Jepsen and Sheu found that as people age they tend to be more satisfied with their work, indicating perhaps a better fit between self-concepts and the choice of work environment.

Correlates of Job Satisfaction

A key assumption made by many researchers is that increases in job satisfaction will positively contribute to job performance. A number of studies have supported this premise; however, the relationship between the two variables is not as simple as perhaps originally believed. For instance, Coffman and Buckingham (1999), in their Gallup poll research conducted during the 1990's, stated that employee satisfaction was associated with organizations with high levels of corporate performance. They reached these conclusions after studying 24 organizations in 2500 business units, recording the responses from approximately 100,000 employees. During these interviews Coffman and Buckingham asked participants to respond to 12 questions. These questions were as follows:

1. Do I know what is expected of me at work?
2. Do I have the materials and equipment I need to do my work right?
3. At work, do I have the opportunity to do what I do best every day?
4. In the last seven days, have I received recognition or praise for doing good work?

5. Does my supervisor, or someone at work, seem to care about me as a person?
6. Is there someone at work who encourages my development?
7. At work, do my opinions seem to count?
8. Does the mission/purpose of my company make me feel my job is important?
9. Are my co-workers committed to doing quality work?
10. Do I have a best friend at work?
11. In last six months, has someone at work talked to me about my progress?
12. This last year, have I had opportunities at work to learn and grow? (p.26)

Higher levels of job satisfaction, employee retention and productivity were found in organizations whose managers and employees responded positively to Coffman and Buckingham's survey items. What was also gleaned from the Coffman and Buckingham research was that managers and their behaviors have a direct relationship to an employee's levels of satisfaction and job performance.

Tafeo-Helsham (2002) examined the relationship between work performance and satisfaction in a group of community college employees. Using a survey methodology, she collected information from 70 of 190 employees. Tafeo-Helsham's survey was comprised of four parts: how the employees felt about their positions, how employees felt about their managers, how the employees felt about their organization and general demographic information. Results of the survey suggested that when communication was open, and when employees were allowed to participate in decision-making and strategic planning, job satisfaction and work performance were positively correlated. If

employees were not part of the governing process, work was still achieved, and satisfaction and performance were not correlated. Tafeo-Helsham also suggested that providing employees with professional development and social opportunities will result in increased employee morale.

Delvecchio (2000) also found that moderators exist in the relationship between job satisfaction and job performance. She emphasized the concept of career momentum (the belief one has that current and future opportunities within one's career are obtainable). Delvecchio found that for individuals in the high career momentum group, job satisfaction and performance are positively correlated when one is satisfied with his/her job supervision and perceived opportunities for advancement. In a medium momentum group, job satisfaction is contingent on receiving adequate monetary compensation and only if this condition is met does satisfaction correlate with performance. In the low momentum group, satisfaction is based on one's relationships with colleagues and, if these are positive, they also contribute to better job performance. Delvecchio's analysis further reinforced the premise that job satisfaction may vary based on individual perceptions and work environments.

A study by Shikdar (2003) examined how job satisfaction and performance could be manipulated in the performance of a boring, industrial task. Interestingly, higher compensation did impact performance in a positive manner, but did not contribute to job satisfaction at all. When workers were given clear performance standards and feedback, both job satisfaction and performance increased. Shikdar concluded that a combined

approach using clear outcomes expectations, supervisor feedback and adequate compensation would make for more productive and satisfied industrial workers.

Although performance and job satisfaction are important issues to examine, other researchers have focused on different potential correlates of job satisfaction. Huang and Vliert (2004) studied how job level and culture may influence levels of job satisfaction. In a large scale study of over 100,000 employees in of a multinational corporation located in 39 countries, they found that in individualistic countries, such as the United States, the higher the job level of the individual, the greater his/her job satisfaction. No correlation between job level and satisfaction was found in more collectivist countries, such as China. However, a common finding across types of culture was that job satisfaction decreases if individuals are not allowed to use their skills and abilities in their position, regardless of the status of that position.

In more recent literature related to job satisfaction, a number of interesting relationships between job satisfaction, personal dispositions, and organizational behaviors have been examined. Vernick (2003) examined how job satisfaction is affected by the fit between the employee and his/her job environment, as well as how the employee's understanding of organizational culture influenced job satisfaction. Vernick found that, if one reported satisfaction with (a) employee supervision, (b) peers, and (c) the ability to move up in the organization, then one also reported higher levels of job satisfaction. In terms of organizational culture, Vernick also found that employees who reported that they understood the rules and goals of the organization and who perceived those facets of

organizational culture to be clear, were more satisfied with their jobs overall.

Carless (2004) examined how worker empowerment may contribute to organizational climate and job satisfaction. Using a sample of 174 customer service employees, she found that, when workers felt empowered to make decisions in their daily work environments, the organizational climate was regarded more positively and job satisfaction was higher.

In a study that investigated job satisfaction in elementary education teachers, Martino (2003) analyzed the relationships between leadership, teacher empowerment and self-reported job satisfaction. Martina surveyed 500 elementary educators and their principals on the variables of perceived empowerment, leadership style and job satisfaction. Results of this correlational study indicated that job satisfaction was higher when the leader (principal) scored higher on transformational leadership. In addition, the more the teachers felt empowered (a) in their abilities to impact outcomes, (b) to act autonomously, and (c) to act in a self-efficacious manner, the higher their reported job satisfaction levels. This study would support the conclusion that leadership style and employee empowerment are elements workplaces can use to affect levels of job satisfaction. Results reported by Maree (2000) support the importance of empowerment in maintaining job satisfaction in employees. Maree studied workers in a fish processing plant and found that job satisfaction increased when workers were empowered to participate in the organization's decision-making processes. These increases occurred for about two-thirds of the employees in the plant.

Freed (2004) examined psychological attitude as related to job satisfaction. In his recent work, he measured three types of work orientations. Freed theorized that individuals perceive themselves as having either a job, a career or a calling, each of which relates to how individuals view the fulfillment they experience and need in their work lives. For example, individuals who have a work orientation associated with work as a calling will be more likely to allow work to influence their psychological well-being and will report that job satisfaction is important. In addition, if the person is in a position that fulfills his/her “calling” orientation, job satisfaction will be high. When work is perceived as a job, there is a less clear relationship between job satisfaction, and employee performance.

Spitzmuller (2004) studied how core self-evaluations were related to job satisfaction, as mediated by variables such as education, job level, and job complexity. Core self-evaluations are defined as fundamental feelings about one’s worth and competencies. Self-esteem and self-efficacy are two types of core self-evaluations. Spitzmuller found that core evaluations do indeed relate to job satisfaction and that this relationship is mediated by only two variables: education and job level. The inference from the results of the study is that positive self-evaluation would lead to increased education and job level, which was reflected in higher levels of job satisfaction.

Schleicher, Watt and Greguras (2004) studied how job attitudes influenced job satisfaction and performance. In their first study with a sample of 65 employees from a variety of occupations, they found that when individuals’ affective (feelings about the

job) and cognitive (thoughts or beliefs about the job) attitudes were consistent, job satisfaction was highly and positively correlated with job performance. There was no relationship between satisfaction and performance for those with a low affective-cognitive attitude match. In a second study of urban firefighters, the authors attempted to replicate the findings from the earlier study. Although the correlations between satisfaction and performance were similar in the second study, they failed to reach significance. This indicated that further study is required to ascertain the nature of affective-cognitive attitude match on worker performance or job satisfaction.

Bailey (2000) examined how both internal and external elements relate to job satisfaction. In this study, work teams in high technology manufacturing environments were studied. Bailey found that, while external variables such as conflicts with engineers and others outside one's work group are more correlated with lower levels of productivity, job satisfaction is more negatively impacted when the conflict occurs internally, or within one's work group. Bailey concluded that fostering both internal and external interpersonal relationship serves to enhance productivity and satisfaction, two elements crucial for corporate success.

Two studies were found whose results call into question the relationship between individual variables and job satisfaction. Lemmon (2004) found no relationship between police officers' personality characteristics using the 16 Personality Factors Questionnaire and job satisfaction at two different times of measurement. Lemmon administered the 16 Personality Factors Questionnaire to 200 Midwestern corrections officers shortly after

they were hired, and then surveyed them about their job satisfaction after 3 months and 6 months on the job. Canonical correlations found no relationship between personality variables and job satisfaction at either the 3 month or 6 month testing session. Similarly, Pate, Martin and McGoldrick (2003) studied violations of the psychological contract and how this relates to employee attitudes and behaviors. The authors define the psychological contract as those expectations and beliefs one assumes about his/her position that are also felt to contain a binding element. Pate et al. interviewed 50 workers in a textile factory. During the time the survey data were collected, the factory was being downsized with lay-offs of 160 of the 660 total employees. Pate et al. chose this time period to study the workers due to the high likelihood that they might perceive themselves to be experiencing violations of the psychological contract. Pate et al. found through a set of correlational analyses that while violations of the psychological contract related to work did not relate to employee behaviors on the job, they did negatively contribute to attitudes, such as job satisfaction.

In summary, it is apparent that there are many factors that influence job satisfaction. Some of these factors are external to the self and include (a) type of position one is in, (b) the level of the position in the organization, (c) compensation, and (d) future mobility within the organization. On the other hand, internal factors also influence job satisfaction. These factors include (a) relationships with peers, (b) relationship with one's supervisor, (c) feelings of self-worth and, to perhaps a lesser extent, (d) specific personality issues. In the present study, of interest is the relationship between job

location, and level of position with job satisfaction. The previous literature review has shown support for examination of such variables as they relate to level of job satisfaction.

Job Satisfaction, Stress and Physical Health

A number of studies have examined the relationships between job satisfaction and work-related stress. For example, Muhonen and Torkelson (2004) examined the relationships between work locus of control, physical health and job satisfaction. Data were collected from 281 male and female employees at a Swedish telecommunications company. Overall work locus of control did not differ by gender. Muhonen and Torkelson also utilized both internal and external locus of control variables. Internal locus of control refers to the tendency for one to assume personal responsibility for one's behaviors, while an external locus of control is associated with attributing the results of one's actions to other people or factors outside one's personal control. Using a regression analysis, Muhonen and Torkelson found that an internal locus of control was positively correlated with higher job satisfaction. In contrast, an external locus of control about work was associated with lower levels of job satisfaction and ill health for the female employees only.

Two studies that were done with samples of education professionals examined how the stressors of role and goal conflicts related to job satisfaction. Keizer (2002) studied goal conflict and its repercussions in a sample of university employees. He found that the employees he sampled felt stress over the conflicting goals of educating students

within the university and generating revenue for the system. When the levels of conflict were high in employees, job satisfaction was negatively impacted. Violanti (2003) in a similar study surveyed school counselors about their levels of role conflict and related that to job satisfaction. She found that as job satisfaction increased, role ambiguity and role conflicts in these counselors decreased. This study indicates the importance of clearly defined job roles in enhancing job satisfaction.

More general studies have also examined overall job stress levels and how this stress is related to job satisfaction. In a study of 109 beginning teachers in California, Kwiatkowski (1996) found that many teachers experienced both high levels of stress and high job satisfaction. In this study, it appeared that stress could be controlled through social support from friends, family and colleagues, such that job satisfaction could be maintained. In another study focused on stress and job satisfaction, Innstrand, Espnes and Mykletun (2004) carried out a longitudinal study that tested the effectiveness of a stress intervention program. Results of the intervention indicated that in comparison to a control group (N=35) who did not receive the intervention, employees in the experimental group (N=78) showed reduced levels of stress and exhaustion and increased levels of job satisfaction. These results are promising in that they support the belief that the problematic effects of workplace stress can be treated, and as a result job satisfaction may be able to be enhanced.

Higher Education and Job Satisfaction

Faculty and staff at institutions of higher education face many challenges in their daily work environments. They interact with a wide array of ages, educational levels and personalities on a daily basis. It is no wonder a significant amount of research has focused on issues related to higher education and job satisfaction.

Wimsatt (2002) examined job satisfaction in faculty using a National study of Postsecondary Faculty that provided survey data from nearly 7,500 faculty members. The survey participants were drawn from all different types of educational institutions, from liberal arts colleges to research universities. Wimsatt focused on a set of research questions related to faculty job satisfaction. Specifically, she wanted to assess faculty levels of work satisfaction, and how satisfaction varies by characteristics such as faculty gender, race, family status, institution, and academic discipline. The results of this study indicated that many variables correlate with job satisfaction for faculty members. Overall, results indicated that men and non-minority faculty expressed greater satisfaction with their jobs than did female and minority faculty. When gender alone was examined, women expressed lower levels of job satisfaction than their male counterparts. Faculty who were married expressed greater satisfaction with their benefits than non-married faculty, but non-married faculty were more satisfied with their pay and degree of workplace control than married faculty. Other variables that correlated with job satisfaction included the following: support for research, technology support, availability of funding for development activities, academic rank, and pressure for external funding.

The author also focused particular attention on that cluster of variables related to organizational climate. Within this cluster, they found the perception that the institutional climate is supportive of women and minorities is the primary determinant of job satisfaction.

A second study further supports the finding that the perceived organizational climate within higher education significantly relates to job satisfaction. Zhang, DeMichele and Connaughton (2004) surveyed 285 campus recreation program administrators about their job satisfaction levels, and other variables related to their perceptions of their institutions. Results of the survey showed that, when the administrators perceived their organizational work environment and their individual work environment to be supportive, their job satisfaction levels were high.

Within higher education, there are faculty members who are vital to their institution, but who largely go unrecognized for their contributions. These faculty members are the part-time instructors, or adjuncts. Mcneil-Hueitt (2003) examined job satisfaction in adjunct community college instructors. This project surveyed a large sample of adjunct instructors in three community colleges in North Carolina. Results of the survey were somewhat surprising. Despite a wide variety of demands made on these professionals, in this study the adjuncts surveyed were generally satisfied with their positions. Mcneil-Hueitt reports that her findings run counter to previous surveys of adjunct college instructors.

In a study of Ohio State University cooperative extension agents, Schmiesing

(2002) examined how job satisfaction relates to perception of organizational justice.

Organizational justice is comprised of many elements including perceptions that rewards and evaluations are done fairly and that established procedures have been followed.

Schmiesing reported that job satisfaction was higher when respondents had positive perceptions related to organizational justice, as it impacted their work environment.

As this literature indicates, many aspects of the educational environment can be stressful and may influence job satisfaction. Of interest in the present study is the potential relationship between assignment at a branch campus versus working at a larger primary campus location and job satisfaction. Those working at a remote location may be faced with stressors in their work environment that those at the larger campus may not experience. These stressors can include feelings of remoteness, less opportunity for advancement or recognition for one's work, more travel to meetings, and fewer resources. The present study will determine if there is an empirical relationship between campus location and job satisfaction.

Leadership and Job Satisfaction

In a study examining the correlates of job satisfaction, leadership and perceptions of leadership have been linked to worker satisfaction. Lok and Crawford (2004) found that in organizations where leadership was perceived to be supportive and innovative, job satisfaction levels were higher. In environments where leadership was perceived to be highly structured, job satisfaction was lower. These findings held true for both Japanese

and Australian workers.

As a whole, the studies reviewed indicated that many aspects of the work environment relate to perceived job satisfaction. These correlates include individual, personality-type variables, stress and perceived stress, social support and perceptions of justice. Furthermore, these relationships seem to be found across employment venues including higher education.

Job Satisfaction and Use of Technology in the Workplace

Of particular importance to the present study is research addressing how use of technology in the workplace may influence job satisfaction. The previous section discussed a variety of personal and organizational correlates of job satisfaction. This section will address how technology implementation can affect job satisfaction with particular attention paid to those studies that address email implementation.

In a comprehensive study of employee attitudes related to technology implementation, Marquie, Thon and Baracat (1994) examined how younger versus older workers responded when technology (e.g., a computer) was introduced into their work environments. Specifically, the researchers found that in general, older workers responded more negatively to the introduction of technology into the workplace, however, this attitude was also prevalent in workers who had little knowledge of computers. The younger workers tended to be more positive about the introduction of technology into the workplace and were more willing to acquire the needed skills to use the technology in their work tasks. The results of the Marquie et al. study supported an

earlier study done by Huuhtanen and Leino (1992). In that study, the researchers examined the impact of technology introduction on a group of 803 bank and insurance company employees. They also found that positive job attitudes of older adults were more negatively affected by the introduction of technology in the work environment than were the attitudes of younger workers. Younger workers were more likely to embrace the introduction of technology and felt it increased the positive work environment.

Telecommuting, Technology and Job Satisfaction

Of particular interest in the present study is the literature on telecommuting and satisfaction. The present study includes a group of employees based at remote campus locations of a large regional university. Although workers at regional campuses are not telecommuters in the strictest sense of the word, many have supervisors and co-workers at other locations, and their work is done via email and telephone.

Raghuram, Wiesenfeld, and Garud (2003) studied the employee satisfaction of telecommuters. In a survey of 723 employees within an organization that had an extensive telecommuter population, Raghuram et al. found that job satisfaction was related to employee self-efficacy about their telecommuting abilities and also to employees' ability to structure their work environment to attain desired work outcomes.

In another study with telecommuters, Sturgill (1998) found that telecommuters who felt that the organization supported their work arrangements, and who actually spent some face-to-face time in the office to supplement the telecommuting, were satisfied in

their positions. An interesting finding in Sturgill's work was that the quality of the technology used in telecommuting did not seem to impact satisfaction. This finding contrasts with a later study done by Belanger, Collins and Cheney (2001) who found that telecommuters are more satisfied with their work environments when there is a higher level of communication technology available. Belanger et al. attribute this finding to the fact that quality communication across employees in remote settings is contingent upon having good technology. Poor technology can limit communication and create feelings of isolation in the telecommuter.

Golden (2002) studied 351 telecommuting workers and found results similar to Sturgill's earlier work. Golden found what was described as a curvilinear relationship between telecommuting and satisfaction. Those who engaged in low levels of telecommuting expressed high levels of satisfaction with those levels decreasing as telecommuting increased. One factor that Golden found to be influential in mediating the negative impact of higher levels of telecommuting was the employee-supervisor relationship. When the employee-supervisor relationship was perceived to be high in quality of communication, satisfaction was not negatively influenced by large amounts of telecommuting. Furthermore, Golden found that high levels of telecommuting created higher levels of work-family conflicts, and that those individuals with high levels of personal autonomy were more satisfied with the telecommuting environment. Hill, Miller, Weiner and Colihan (1998) supported Golden's findings related to work-family conflicts resulting from telecommuting. In the Hill et al. study, 157 IBM employees were

studied and the results were that although telecommuters were satisfied with their employment location, they worked longer hours and had less of a balance between work and family life.

Mann, Varey and Button (2000) conducted 14 in-depth telephone interviews with telecommuters in England. They concluded that telecommuting has both advantages and disadvantages for the employee. Advantages of telecommuting reported by their participants were as follows: more work flexibility, less travel, better office environment with fewer distractions, lower cost, freedom from dress codes, ability to avoid office politics and more flexibility to manage work/home responsibilities. On the other hand, disadvantages of telecommuting such as feeling isolated from work, longer work hours, lack of support from the corporate office, less recognition of sick leave, and little ability to move ahead in one's career also existed. It would seem from this study that the pros and the cons of telecommuting would have to be considered on a case-by-case basis for each employee considering this move.

Overall, it appears that the experiences of telecommuters can be both positive and negative. It does appear that in a supportive work environment, telecommuting can offer more work flexibility and a relief from workplace policies such as dress codes and formal office hours. On the other hand, telecommuting can have disadvantages including feelings of isolation from one's peers and the inability to move forward in the organization quickly. It is apparent that more studies are needed to determine when and what types of workers are most likely to assimilate positively into a telecommuting

environment.

Communication Medium and Job Satisfaction

Scott (1999) compared occupational identification (one facet of job satisfaction) when employees engaged in either face-to-face or computer-mediated meetings. He studied 11 work groups at 2 universities, a total of 122 individuals, who needed to meet with one another. Both groups met in either conventional or computer-assisted formats. Directly before the meetings, each participant completed a questionnaire that surveyed his/her level of team identification and organizational identification. After these different types of meetings, the participants were once again asked to complete the questionnaire. Overall, results of paired t-test analyses showed that team and organizational identity increased from pre to post meeting. When identification levels of participants in computer-mediated groups were compared to the same levels of those in conventional meeting groups, Scott found that levels of team and organizational identification were significantly higher in the traditional than the computer-mediated meeting group.

Straus (1997) also compared the effect that type of communication medium had on employee satisfaction. Straus' study compared face-to-face communication groups versus computer-mediated groups as they completed a number of different types of tasks. For this comparison, Straus observed and then surveyed 243 college students who worked in groups of three in one of the two media conditions. Her results indicated that computer mediated (CM) groups showed less cohesiveness, were less productive and showed less satisfaction on specific tasks than the face-to-face (FTF) groups. On the

other hand, the CM groups displayed more supportive communication and had greater equality of participation across members. Straus' findings present a complex set of outcomes produced when comparing FTF to CM communication in groups.

In contrast to Scott's and Straus' findings, Deluca (2003) found that electronic communication in organizations actually increased job satisfaction and aided in work improvement. Furthermore, Deluca reported the results of his extensive surveys of work teams using electronic communication were that team processes were of higher quality and that electronic communication fostered cooperation, knowledge sharing and cognitive effort.

According to Thompson and Covert's (2003) study on Computer-Mediated-Communication (CMC), teamwork is a crucial element of workplace functioning. This study examined how CMC affected teamwork in 40 teams. The teams were equally divided into FTF or CMC conditions and were asked to work in teams on a decision-making task. The task was based on a team-building scenario and involved solving a problem related to survival in desert conditions. Not only did the CMC teams in this study have slower processing times, but the participants in this condition also had lower satisfaction levels with the outcome of their deliberations than did the FTF teams.

Perhaps the conflicting results of these studies can be explained using the results of studies by Rosenfeld, Richmond and Ray (2004) and Staples, Hulland and Higgins (1999). Rosenfeld et al. studied information adequacy as it related to job satisfaction in an organization that utilized both fixed base office employees and field workers.

Interestingly, job satisfaction for the office employees was highly correlated with having sufficient information about organizational policies and procedures and performance standards. In contrast, field workers were more satisfied when they received sufficient information about their personal performance and were not as concerned about organizational issues. This study supports the argument that remote-based workers have somewhat different needs than fixed based employees and that meeting the specific needs of each type of employee is crucial for job satisfaction to remain high.

Staples et al., (1999) examined another personal characteristic thought be important to job satisfaction in remote-based workers. This study used the variable of self-efficacy as a crucial correlate with job satisfaction. Staples et al., theorized that those workers who have high levels of self-efficacy will be better able to cope in a remote work environment and that their levels of productivity and satisfaction will not be negatively impacted. This hypothesis was supported in a survey of 376 remote-based workers across 18 different organizations. Based on this study, one may conclude that individual personality characteristics can impact employee perception and performance in a remote work location. This conclusion is also supported by Morris (1999), who found that job satisfaction in remote environment employees was directly related to their ability to use the technology they were given and to their levels of trust, another interpersonal variable, toward their fellow remote employees.

Information overload may also be a factor that can influence job satisfaction across employees. Carey and Kacmar (1997) studied 55 MBA students with a mean age

of 33 years. Their results showed that, when using certain technologies such as teleconferencing to complete tasks that were highly complex, users experienced information overload. This overload compromised the quality of communication and negatively impacted job satisfaction. Carey et al. suggested that when determining the best way for groups to complete tasks in environments that utilize advanced communication technologies, the level of complexity of the task must be taken into consideration prior to choosing a technology to assist the group. Not every technology is good for all types of tasks.

Of interest in the present study is how email usage may influence job satisfaction. From the review of the literature, it can be concluded that computer mediated communication use (including email communication) may slow work groups, hinder productivity, create information overload, and the lessen job satisfaction. On the other hand, a select few studies did find that CMC groups functioned well in the workplace with no seeming influence on job satisfaction. As Carey et al. suggested, perhaps the key to utilizing email in the workplace is to examine the type of task one is engaged in and match the technology used to optimize outcomes. The present study will examine a variant of this supposition. Levels of email usage will be examined in relationship to job satisfaction.

Organizational and Job Specific Aspects of Job Satisfaction and Technology Usage

Another area of research has examined technology and job satisfaction in specific groups of employees who are required to utilize technology everyday in their jobs.

Sujdak (2002) studied IT professionals and found that job satisfaction and intent to leave an organization varied by age of the employee. Baby boomer IT professionals were as likely to be dissatisfied as were Generation X employees, but they hid their dissatisfaction more and were less overt in their job seeking behaviors. Generation X'ers were open about the causes of their job dissatisfaction and they were less secretive about their intent to look for other employment.

Two studies have examined job satisfaction in call center employees who are also required to use a large degree of technology in their daily work environments. Not surprisingly, Yuek-Mui (2001) found that when call center workers had technology that complimented their work efforts, and when they had reliable co-workers and supervisors, they had high satisfaction levels. In an intervention study with call center workers, Workman and Bommer (2004) focused on changing three variables, organizational structure, employee involvement and worker autonomy, and examined how these changes impacted job satisfaction. Their results indicated that in this technology-based work environment, higher levels of employee work involvement and higher levels of autonomy resulted in higher job satisfaction levels, but only for employees who reported a preference for working in a team environment.

In a different area, Kahn and Robertson (1992) studied the job satisfaction of

computer workers as it varied as a function of training and experience. Interestingly, the results of this study indicated that individual characteristics, such as job autonomy, variety of tasks and skills, and perceptions of task significance were stronger correlates of job satisfaction in computer workers than was training or experience in the computer field.

Similar to the previous study, Barber and Lucas (1983) studied computer system operators and how their job satisfaction varied based on the online response time of the computer system on which they worked. The authors felt that as response time decreased, operators would be frustrated by their inability to maintain a steady work pace. Barber and Lucas felt declines in productivity would be clearly evident, followed by an overall decline in job satisfaction. Although no long term effects of slow response times were found, short term decreases in job satisfaction did occur with slowed system responses.

Email Communication and Job Satisfaction

Of critical importance to the present study is literature directly examining the relationship between email usage and job satisfaction. Watanabe (2000) examined the effect workplace communication and email had on employee adjustment. Watanabe assessed attitudes toward email usage in a large sample of employees and their managers. The researcher indicated that a significant minority of workers (44%) recognized that the introduction of an email system changed the manner in which they worked. Sixty percent

of those surveyed also reported that they had adjusted to this change in their work environment. Interestingly, although a majority of workers reported they had adjusted to having email implemented in their workplace, over 60% also reported they experienced physical and/or mental stress as a result of this change. In many cases, nothing was done by the employee's organization to alleviate the stress caused by adoption of an email system.

Stevens, Williams and Smith (2000) studied how employee attitudes about their jobs and satisfaction with their work environment changed after the introduction of email and Internet services. Within two years after the introduction of the new technology, workers expressed positive attitudes about the system. In addition, a significant number of the individuals studied had begun to use email as their preferred communication medium in the workplace. This was an interesting finding considering that reported use of all Internet services averaged only 10 minutes per day. The authors discuss how the interactivity users experience with Internet services contributes to ease of transitioning to a more technologically sophisticated workplace. Although this study found very positive results of technology introduction, Vietez, Garcia and Rodriguez (2001) caution that often it takes sufficient training and strong organizational communication to affect positive feelings in workers during new technology implementation.

Amaeshi (2002) also studied how the use of email in the workplace related to job satisfaction. He surveyed 300 employees of 5 organizations in which half of the workforce did not use email and half did. Amaeshi also directly measured job

satisfaction in his participants. The results of this study indicated that users of email had significantly higher levels of job satisfaction than those not using email. Although this study is correlational in nature and did not control for potential confounding variables in this relationship, such as job level or salary, the results are still intriguing.

For the present study, a critical issue is how email usage and email communication across individuals within an organization may relate to job satisfaction. If past literature is an indication, email usage should be viewed as positive and would positively relate to job satisfaction. The present study will build on the past literature to examine how the amount and type of email processed in the work environment influences job satisfaction. In addition, the present study will attend to how email communication between supervisors and their subordinates influences job satisfaction in those subordinates.

Conclusions

One aspect of the present study investigated how email usage varies across regional campus versus residential campus employees in a large metropolitan university, and how usage varies across professional versus support staff. Literature has shown that email usage varies on a variety of dimensions including job category (Morse, 1999). Therefore, the current project extends the knowledge in the domain by adding the dimension of campus type or location to the mix. As many regional universities strive to provide a diverse range of degree programs across a large geographical region, the use of

branch or remote campuses will increase. These campuses are physically removed from the primary or residential location and may rely on email and other technologies more heavily to maintain connection with the primary location. No study has been identified to date that has examined this phenomenon.

A second focal interest of the present study was to examine how email usage relates to job satisfaction. The existing literature implies that a greater amount of email usage would relate positively to satisfaction (Amaeshi, 2002). Caution should be used though when drawing conclusions from the existing literature. No study has been identified to date that has examined how email usage, as measured by number of emails sent and received relates to job satisfaction. However, email usage levels have risen in the past few years and the sheer amount of email one receives today is expected to be higher than it was in 2002 (Anderson, 2004). With more email messages being received every day (including junk mail), it is certainly plausible that some users may perceive themselves as receiving too many work-related emails and that could influence their attitudes about their work position. The present study attempted to provide clarification about the relationship between amounts of email sent and received and job satisfaction.

CHAPTER 3

METHODOLOGY

Introduction

This study examined patterns of email usage by University of Central Florida employees. The study also addressed how email usage patterns varied across staff and supervisory groups, as well as how email usage related to employee job satisfaction. The methodology that was used to guide the research is described in Chapter 3. The chapter includes a statement of the problem, how the population for the study was selected, sampling procedure, a description of the survey instrument, data collection procedures, discussion of the data analysis, and summary.

Statement of the Problem

The incorporation of technology into the workplace is no longer the exception, but is now the norm. At universities across the United States, faculty, staff, and students rely on computer technology and especially email to accomplish their daily work tasks. This study attempted to answer the primary question: “What is the relationship between email usage on job satisfaction in a university environment?” Secondly, the study also examined the relationship between email usage and job satisfaction. Last, the study investigated how job satisfaction varied between employees who are supervised on-location as compared to employees whose primary supervision occurs remotely using email.

To date, few studies have examined the impact of email usage on work-related outcomes such as job satisfaction in any job setting, including colleges and universities. The present study attempted to understand employee email usage within a university's regional campus population. In addition to presenting descriptive information about email usage, the study examined how level of email usage varied across staff members and supervisors, and how it related to job satisfaction.

The Setting

The setting for the research study was the University of Central Florida. The University, which is located near the city of Orlando, offers an extensive array of both undergraduate and graduate degree programs. As a major metropolitan institution, the university plays a primary role in central Florida's economic and social development. The institution has grown significantly over the last few years to meet the requirements of both the workforce, and needs of the surrounding communities. The growth of Orlando-area communities also mirrors that of the university. In order to further meet the educational needs of the local communities, the University, with funding from the Florida Legislature, instituted the University of Central Florida's Regional Campuses.

The University of Central Florida currently designates 12 Regional Campus sites. These sites are located throughout the 11 counties of the University of Central Florida's service area. The Regional Campuses offer limited undergraduate and graduate programs. Some of the Regional campuses are located as far as 50 miles from the main Orlando

campus. Many of the regional campus sites have limited A&P and USPS staffing. In many cases, supervisors and subordinates are located at different campus locations. Thus the use of technology, specifically email, to communicate is vital to the day-to-day operation of the University.

Population and Sample

The population identified in the study was the set of full-time, out of unit, University of Central Florida USPS and A&P classification employees at the regional campuses and the Orlando campus. This population consisted of 2207 University of Central Florida A&P and USPS non-bargaining unit employees from Orlando (N=1981) and Regional Campuses (N=226). In order to obtain the membership of that population, the researcher requested and obtained an employee list from the UCF Human Resource Department that provided employee names, classification, job title, location, and email address. From the total population, 175 employees were randomly sampled from the Regional Campuses and 350 from the Orlando campus. A sequential number was assigned to each employee. Random sampling was accomplished using an online random sampling program (<http://www.randomizer.org>). The total sample (n=525) therefore, was composed of 350 members from the Orlando campus and 175 members from Regional Campuses.

In the fall of 2004, the 525 members of the sample were emailed a pre-notice notice announcing the research study (Appendix C). The pre-notice announced that they

would be receiving an online questionnaire within a few days and that their response would be greatly appreciated. From the sample (n=525) a total of 227 usable responses were obtained (144 or 41% from the Orlando campus and 83 or 47% from the Regional Campuses). A detailed description of how the researcher procured the responses is presented later in this chapter. The demographic characteristics of the two respondent sets including gender, age, employment status, and employment classification are presented in Table 1.

Instrumentation

Email Usage Survey. The email usage survey was a 15-item instrument that included Likert-scale questions related to email usage, email communication across subordinates and managers, and open-ended demographic items such as employment status, position classification (e.g., USPS, or A&P), gender, and age. The email usage survey was created for the present study. Previous work by Lantz (1998) and Gigliotti (2002) influenced the thematic development of the survey questions, although no specific questions from Lantz or Gigliotti were used in the survey created for the present study. For example, while Lantz (1998) used an open-ended question to assess the level of non-relevant email received, the present study utilized a Likert-scale question to measure the same construct. In addition, Lantz assessed the level of email usage using a Likert-scaled question, while the present study requested that respondent keep count of and report their email usage for a two day period. The key component of this survey was an assessment

of email usage patterns by UCF main campus and regional campus employees. The survey measured the type of communication between staff and supervisors (email versus face-to-face), as well as job satisfaction in the academic workplace. Differences in email usage and the effect of email usage on job satisfaction were also examined based on the level of the employee position: staff versus supervisory level. This survey is included in Appendix A.

In the current study, individuals in more than 100 different job positions were surveyed, ranging from admissions counselors to campus directors to locksmiths. Descriptive information for items in the survey, with the exception of demographic items presented in Table 1, is presented in Table 2. Respondents were also asked to provide additional comments about email usage and job satisfaction. Sixty-one participants (27%) provided additional comments about the survey. These comments presented by campus and position classification are presented in Appendices L and M.

Job Satisfaction Survey. The Job Satisfaction Survey (JSS) is a 36-item measure of job satisfaction (Spector, 1985). The JSS provides a total job satisfaction score, as well as measuring 9 separate aspects of job satisfaction. The 9 aspects of job satisfaction reflect the following dimensions: pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, coworkers, nature of work and communication. All items utilize a 6-point Likert response scale ranging from 1=strongest disagreement to 6=strongest agreement. For purposes of the present study, the total job satisfaction scale of the JSS was used. In order to create the total job satisfaction score, 19 negatively

worded items in the scale were reverse scored; then all 36 items were summed to produce the total score. Total job satisfaction scores can range from 36 to 216 with a higher score indicating a great degree of job satisfaction. In the current sample, the mean job satisfaction score was 146.11 ($SD=24.4$) for the Orlando sample and 142.24 ($SD=28.1$) for the Regional Campuses sample. Inter-item reliability of the total job satisfaction score for the present sample, using the Cronbach alpha coefficient, was .91, a high internal reliability score. Spector (1985) reported that for his validation sample the internal reliability of the overall satisfaction scale of the JSS was also .91. The JSS is included in Appendix B.

Table 1

Frequency Counts and Percentages Associated with Respondent Demographic Variables for Each Campus Location

Campus	Orlando (<i>n</i> = 144)	Regional (<i>n</i> = 83)
Employment Status		
Part-time	0	0
Full-time	144 (100%)	83 (100%)
Gender		
Male	37 (26%)	20 (24%)
Female	107 (74%)	63 (76%)
Not-reported	1 (<1%)	0 (0%)
Age		
19 or less	0 (0%)	0 (0%)
20 – 29	35 (24%)	7 (8%)
30 – 39	35 (24%)	28 (34%)
40 – 49	25 (17%)	20 (24%)
50 or older	47 (33%)	28 (34%)
Not-reported	2 (1%)	0 (0%)
Employment Classification		
USPS	69 (48%)	51 (61%)
A&P	75 (52%)	32 (39%)

Table 2

Email Survey Demographics: Mean Scores with Standard Deviations, or Frequency Counts and Percentages for Each Campus Location

Campus	Orlando (<i>n</i> =144)	Regional (<i>n</i> = 83)
Avg. Number of subordinates	2.57 (5.9)	1.46 (4.0)
Avg. emails sent – Day 1	17.29 (23.1)	14.31 (20.5)
Avg. emails sent – Day 2	28.56 (26.5)	18.19 (24.8)
Avg. emails received – Day 1	19.27 (17.9)	17.61 (14.5)
Avg. emails received – Day 2	31.56 (28.6)	20.80 (20.6)
Is email traffic typical? (Reported as frequency counts)		
Yes	104 (72%)	59 (71%)
No, lighter than normal	26 (18%)	19 (23%)
No heavier than normal	5 (4%)	4 (5%)
Emails not work relevant (Reported as frequency counts)		
10% or less	59 (41%)	37 (45%)
11-25%	45 (31%)	24 (29%)
26-50%	22 (15%)	9 (11%)
51-75%	9 (6%)	7 (8%)
More than 75 %	7 (5%)	6 (7%)
Percent of work requiring email (Reported as frequency counts)		
10% or less	16 (11%)	14 (17%)
11-25%	37 (26%)	17 (21%)
26-50%	44 (31%)	24 (29%)
51-75%	29 (20%)	22 (27%)
More than 75 %	16 (11%)	5 (6%)

Campus	Orlando (<i>n</i> = 144)	Regional (<i>n</i> = 83)
Type of primary supervision (Reported as frequency counts)		
Via email	45 (31%)	40 (48%)
Face-to-face	97 (67%)	43 (52%)
For e-supervision, number of contacts (Reported as frequency counts)		
More than once a day	41 (49%)	12 (22%)
Once per day	19 (23%)	8 (15%)
1-2 times per week	13 (16%)	18 (33%)
Less than once a week	7 (8%)	13 (24%)
Never	3 (4%)	3 (6%)
Avg. number of emails per day for e-supervision	4.44 (3.0)	5.15 (3.3)
Effectiveness of email communication (Reported as frequency counts)		
Almost never effective	1 (1%)	0 (0%)
Rarely effective	0 (0%)	1 (1%)
Sometimes effective	15 (10%)	9 (11%)
Frequently effective	50 (35%)	20 (24%)
Almost always effective	76 (53%)	52 (63%)

Data Collection

An initial pre-notice was sent; the respondents were contacted using Dillman's Tailored Design Method (Dillman, 2000) with one variation. In the present study, all initial contacts and mailings were done via the University's electronic mail system. The surveys were designed using specific software that allowed the surveys to be completed and returned electronically. In Dillman's method, five potential participant contacts are possible, including the pre-notice. After the pre-notice, an initial survey and informational cover letter are sent and, if returned, then no further participant contact is required. If the participant does not respond to the initial survey within 5 days, then a second cover letter and survey are sent. Once again returns are logged. For the fourth participant contact, an email prompt is sent thanking the participant if he/she has completed the survey and politely requesting completion if the surveyed has not been returned. During final contact, the participant is sent the survey and instructions one last time. For this study, the last survey contact was sent as a high priority email, denoted by a red icon in the recipient's email inbox. The five-step process has been shown to maximize survey return rates (Dillman, 2000). For the present study, the five-step process began in the October of 2004 and concluded in December 2004.

Unfortunately, as a result of the initial five-step sampling process that utilized email-based surveys, the response rate for the entire sample was only 22% and that of the Orlando campus employees alone was even lower. During the spring of 2005, non-responders were contacted by a sixth contact email. This final email garnered 94 more

responses leading to the current overall return rate of 43% for the present study. A comparison was done between early respondents to the email survey and later respondents. Simple independent t-tests were used to compare the two groups on three variables: total emails sent, total emails received and job satisfaction. Results of the analysis indicated that while early and later responders did not statistically differ on job satisfaction ($t(222) = -.10, p=.992$) or total email received ($t(219)=-1.57, p=.118$), they did differ in total number of emails sent on average. In this case, the later respondents reported statistically more emails sent on average than the early respondents, ($t(221)=3.73, p=.00$). Specifically, later respondents reported sending an average of 26.92 ($SD=25.9$) emails per day compared to only 15.7 ($SD=15.4$) sent by the early respondent group. Early responders and late responders did not statistically differ in gender, age or class of employment (USPS versus A&P).

Overall Return Rates

For the regional campus sample, 7 respondents could not be reached via email due to a non-functional email address, or changes in status, leaving an actual sample of 169 individuals. For the Orlando campus sample, 4 email surveys were returned due to non-functional email addresses leaving an overall sample size of 346 individuals. The overall return rate for the present study was 227 individuals or 43%. For Orlando campus employees, the return rate was 144 individuals or 41% and for Regional Campus employees, the return rate was 83 individuals or 47%. This return rate is deemed

acceptable for a email-based, non-incentive survey. Solomon (2001) reports that web-based surveys often garner lower response rates than traditional paper-based surveys. In addition, Baumgartner and Rathbun (1996) report a 10% drop in response rates for non-incentive-based surveys. Frazee, Hardin, Brashears, Smith and Lockaby (2003) studied the effects of delivery mode on survey response rates. Frazee et al. used an adult sample of science teachers in the state of Texas. This study found that traditional paper surveys generated the highest response rates (60%), followed by a 43% response rate for web surveys and a 27% response rate for email surveys.

Procedures and Methodology

Four Hypotheses were tested in the present study. The Hypotheses were as follows:

Hypothesis 1:

There is no statistically significant difference in self-reported levels of email usage between staff members at regional campuses of UCF compared to staff members in the same job classification (USPS vs. A&P) working at the UCF Orlando campus.

This hypothesis was tested using 2 (campus location) by 2 (USPS vs. A&P) factorial ANOVAs. The analyses were able to test two main effects, the effect of campus location and the effect of job classification on mean differences in email sent and received. In addition, the interaction term in each ANOVA was tested to determine if mean differences existed across campus locations and job classifications in email usage.

Survey items 2 and 3 were used to provide the independent variables for the analyses and item 6 was used to provide the dependent variable. To calculate the variable

“email sent,” the two numbers provided by each participant logging two days worth of emails sent were averaged. The same strategy was used to create the variable “emails received”. The two average email usage variables were then used in this and subsequent analyses. Because the survey collected two measures of email usage, average emails sent and average emails received, two separate factorial ANOVAs were calculated using each email usage indicator as a dependent variable. Alpha levels were set at $p=.025$ applying a Bonferroni adjustment to the analysis in order to decrease Type I error.

Hypothesis 2:

Job satisfaction is not predicted by email usage.

This hypothesis was tested using two simple linear regressions. The two email usage variables, average number of emails sent and average number of emails received, were regressed onto the total job satisfaction score as calculated using Spector’s (Spector, 1995) Job Satisfaction Scale. Alpha levels were set at $p=.025$, using a Bonferroni adjustment, which was needed to compensate for the number of regression analyses performed in this study.

Hypothesis 3:

There is no statistically significant difference in UCF staff member job satisfaction between those workers whose primary communication with their supervisor is via email versus those workers whose primary communication with their supervisors is face to face.

This hypothesis was tested using an independent *t*-test. The independent variable

used in this analysis was item 10, which asked participants to identify whether their primary supervision was via email or face-to-face. The dependent variable for the analysis was the overall job satisfaction score. Alpha level were set at $p=.05$ applying a Bonferroni adjustment to the analysis in order to decrease type I error.

Hypothesis 4:

There is no statistically significant difference in job satisfaction between those UCF staff members working at the regional campuses versus those employees working at the Orlando campus.

This hypothesis was tested using an independent t -test with survey item 3, campus location, as the grouping variable and the total job satisfaction score as the dependent variable. Alpha level were set at $p=.05$ applying a Bonferroni adjustment to the analysis in order to decrease type I error.

Summary

Chapter 3 provided information regarding the methods and procedures used in the data collection process. The study used a survey methodology to assess University of Central Florida employees about their levels of email usage and their job satisfaction. Hypotheses focused on comparing email usage in regional versus residential campus employees, as well as examining the relationship between employee classification and email usage. Job satisfaction was also hypothesized to relate to email usage. Data analyses were done using ANOVA, t -test and regression techniques.

CHAPTER 4
ANALYSIS OF DATA

Introduction

The purposes of this research study were to (a) address how email usage patterns vary among staff and supervisory groups, and to (b) examine the relationships between email usage, electronic supervision, and employee job satisfaction at the University of Central Florida.

Chapter 4 contains the analyses for this research study organized around four research hypotheses. Each hypothesis is discussed and related to the survey data. This chapter concludes with a summary of the study's results and inferences of the data as addressed by each of the four hypotheses.

The data analyses were based on responses to an online questionnaire that was emailed to a randomly selected sample of UCF A&P (out of unit) and USPS employees. Employee lists were provided by the Human Resource Department of the University of Central Florida. The population consisted of 2207 University of Central Florida A&P and USPS non-bargaining unit employees from Orlando main campus ($n=1981$) and the Regional campuses ($n=226$). From the total population, 175 employees were randomly sampled from the Regional Campuses and 350 employees were randomly sampled from the Orlando main campus. Two hundred twenty-seven surveys were completed and returned for an overall return rate of 43%. For Orlando main campus employees, the return rate was 41% and for the Regional Campus employees, the return rate was 47%. It

should be noted that for certain analyses the number of subjects may vary slightly due to incomplete data being excluded in the analyses.

Research Hypothesis 1

H₀: There is no statistically significant difference in self-reported levels of email usage between staff members at regional campuses of UCF compared to staff members in the same job classification working at the UCF Orlando campus.

This analysis used two, 2x2 analyses of variance in order to test the hypothesis. The survey items used in this analysis were drawn from four questions on the survey. These were as follows: (a) work location of the employee (e.g., Orlando campus or regional campuses), (b) classification of the employee (USPS vs. A&P), (c) average number of emails sent during 2 days, and (d) average number of emails received during 2 days. These last two variables are composite variables created by averaging the data provided to questions on the survey that asked participants to provide information about the number of emails they sent and received across a 2-day work period. It is acknowledged that the cell sizes in the analysis were not of equal size. However, Levene's Test for Equality of Variances was calculated for both analyses and equal variances were present in each. In addition, the p-value was set at .025 using the Bonferroni adjustment to minimize Type I error.

In the first 2x2 analysis of variance, the independent variables of work location and job classification were statistically related to the dependent variable of average number of emails sent. The overall model for this analysis was significant, $F(3, 223) =$

10.55, $p = .00$, eta-squared = .13, observed power=.99. There was a statistically significant main effect for job classification but no statistically significant effect for work location, there was no statistically significant interaction. Job classification was statistically significantly related to emails sent, $F(1,223)=16.99$, $p=.00$, eta-squared = .07, observed power =.98. In this case, A&P level employees send significantly more emails than USPS employees. The ANOVA table and the mean table for this analysis are provided in Tables 3 and 4. A boxplot graph for this analysis is provided in Figure 1 for work location and job satisfaction as related to number of emails sent.

Table 3

ANOVA Summary Table for Number of Emails Sent Over a 2 Day Period as a Function of Work Location and Job Classification

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>Partial eta-squared</i>
Corrected Model	12595.98	3	4198.66	10.55	.000	.13
Intercept	78945.63	1	78945.63	198.32	.000	.48
Class	6761.51	1	6761.51	16.99	.000	.07
Location	1545.53	1	1545.53	3.88	.05	.02
Class*Locations	1150.39	1	1150.39	2.89	.09	.01

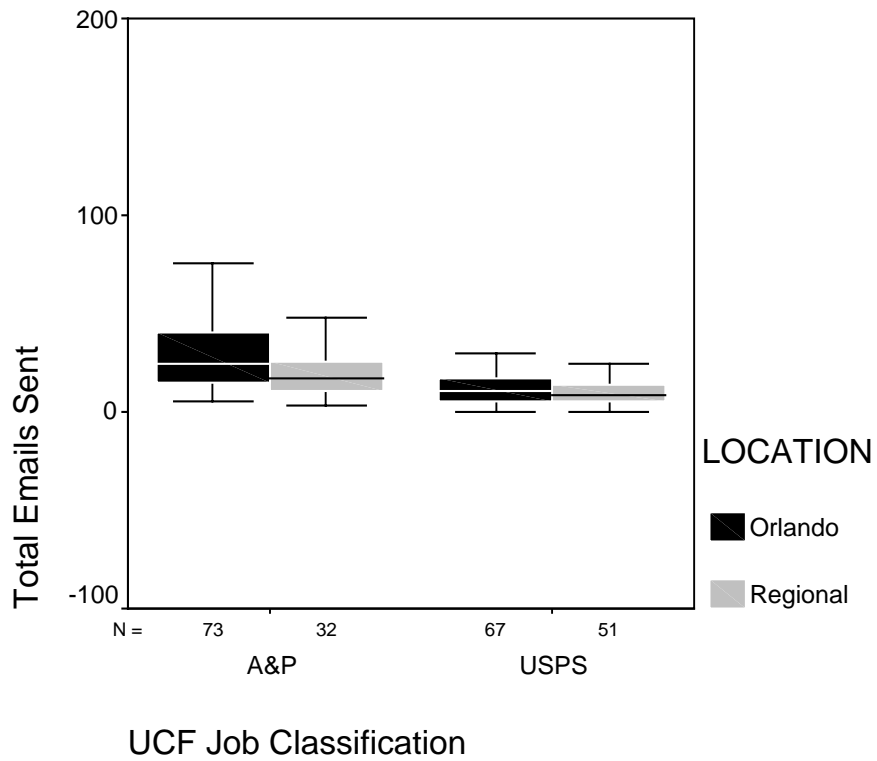


Figure 1. Box plot for Work Location and Job Classification in Relationship to Number of Emails Sent Over a 2 Day Period

Table 4

Descriptive Statistics of Emails Sent Over a 2 Day Period as a Function of Work Location and Job Classification

CLASS	LOCATION	<i>M</i>	<i>SD</i>	<i>N</i>
A&P	Orlando	30.76	22.4	73
	Regional	20.44	13.9	32
	Total	27.61	20.7	105
USPS	Orlando	14.39	14.4	67
	Regional	13.63	25.1	51
	Total	14.06	19.6	118
	Orlando	22.93	20.6	140
	Regional	16.25	21.6	83
A&P		27.61	20.7	105
USPS		14.06	19.6	118
	Total	20.44	21.2	223

In the second 2x2 analysis of variance, the independent variables of work location and job classification were statistically related to the dependent variable of average number of emails received. The overall model for this analysis was significant, $F(3, 221) = 16.35, p = .00$, eta-squared = .18, observed power=1.0. When examining the influence of each independent variable separately, it was found that only job classification was statistically significantly related to emails received, $F(1,221)=33.15, p = .00$, eta-squared = .13, observed power =1.0. These results indicate that A&P level employees receive significantly more emails than USPS level employees, on average. The ANOVA table and the means table for this analysis is provided in Tables 5 and 6. A boxplot graph for this analysis is provided in Figure 2.

Table 5

ANOVA Summary Table for Number of Emails Received Over a 2 Day Period as a Function of Work Location and Job Classification

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>Partial eta squared</i>
Corrected Model	14301.40	3	4767.13	16.35	.000	.18
Intercept	102832.36	1	102832.36	352.73	.000	.62
Class	9664.22	1	9664.22	33.15	.000	.13
Location	1052.90	1	1052.90	3.61	.06	.02
Class*Locations	481.29	1	481.29	1.65	.20	.01

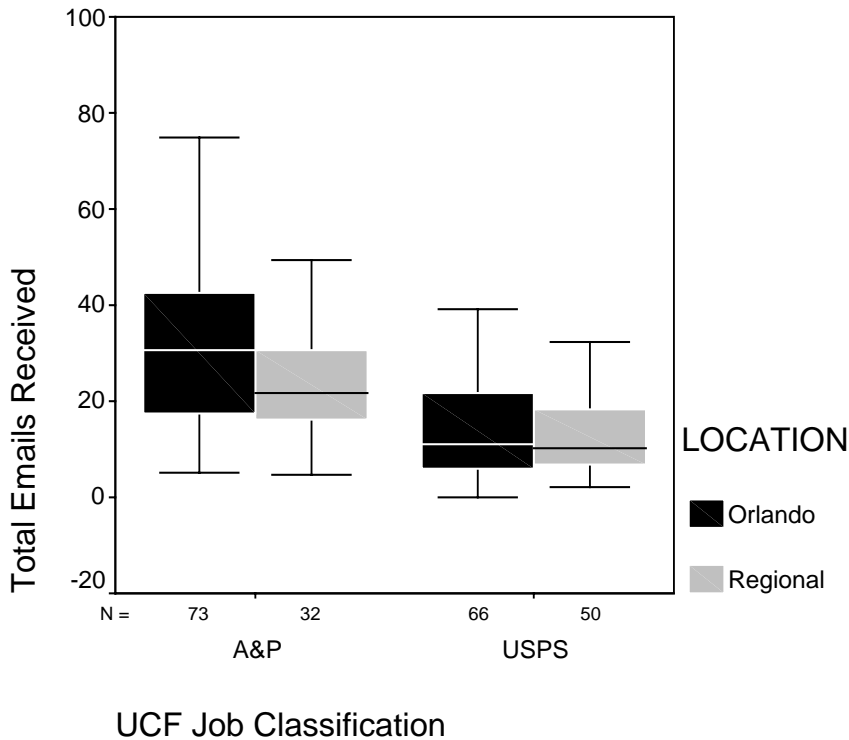


Figure 2. Box plot for Work Location and Job Classification in Relationship to Number of Emails Received Over a 2 Day Period

Table 6

Descriptive Statistics of Email Received Over a 2 Day Period as Function of Work Location and Job Classification

CLASS	LOCATION	<i>M</i>	<i>SD</i>	<i>N</i>
A&P	Orlando	33.49	19.7	73
	Regional	25.80	17.3	32
	Total	31.15	19.3	105
USPS	Orlando	16.48	16.9	66
	Regional	14.99	12.4	50
	Total	15.84	15.0	116
	Orlando	25.41	20.2	139
	Regional	19.21	15.3	82
A&P		31.15	19.3	105
USPS		15.84	15.0	116
	Total	23.11	18.8	221

Comments related to the first hypothesis reflect the importance of email, as well as other forms of communication, to assist in sharing information across groups. For example:

From an UCF Orlando A&P employee: “ I love my job and I rely heavily on e-mail. E-mail communication makes my work much easy and more manageable. I do however get a lot of junk mail, which is a terrible nuisance.”

From a Regional Campus A&P employee: “A supervisor is only as good as the people around him/her. At times, the decisions made at the upper senior level indicate the level of work environment 'comfort zone' for each employee. No matter what a supervisor does to improve work conditions the employee may

never be satisfied due to upper senior level decisions. Higher Education will always be a different type of work environment than 500 fortune companies. E-mail is an effective tool of communication in today's world of business and non-business environments. However, it should never replace the human element of contact for work appreciation and acknowledgements. Work environments sometimes forget that phones are also an effective means of communication. A 'thank you' in person will always be more effective than an e-mail or phone contact. However, depending on the sender or situation e-mail is just as effective. People and communication will always be the foundation of any organization in order to be effective or non-effective.”

From an UCF Orlando Campus USPS Employee: “Since I am the Webmaster, my email address along with webmaster @ gets a lot inappropriate email each day which accounts for the large amount received (question #6) and the high percentage not relevant (question #8).”

From Regional Campus USPS Employees: “E-mail is not the primary communication method between used between my supervisor and myself. But I do receive quite a bit of daily E-mail of pertinent information or I am cc: which keeps me in the loop of ever-changing information. I'd rather be in the know than in the dark, so most communication to me is better than none at all. I can filter out what's useful at the time and disregard all the rest.”

“Email is very important to our record keeping in our department. We use it

for back up on work we have done and to keep track of our appointments and meetings.”

“I use email and instant message to do my job. This is a large office and instant messaging is useful to contact someone quickly, communicate, and continue working without leaving my office. This office uses groupwise shared folders to make information available to the entire staff in a way that is efficient and easy to keep updated. The biggest complaint - mine and with the office staff is the amount of SPAM that we have to weed through daily.”

In summary, based on the analyses testing the first hypothesis, the null hypothesis can be rejected. There are statistically significant differences in email usage by employees based on their job classification. Specifically, UCF A&P level employees reporting sending and receiving more emails on average than did their USPS counterparts.

Research Hypothesis 2

H₀: Job satisfaction is not predicted by email usage.

The rationale for this hypothesis exists in earlier work by researchers such as Amaeshi (2000), Stevens et al. (2000) and Watanabe (2000). All of these studies examined how job satisfaction was affected by the absence or presence of an employee email system. While these studies are valuable in increasing public understanding of how

the introduction of email into a company can influence employee job satisfaction, the studies are nearly obsolete, as email usage in corporations has increased substantially in the past 5 years (Anderson, 2004).

The question that must be examined is not how the introduction of email influences job satisfaction, but how job satisfaction is influenced by amount of email an employee processes on a daily basis. As early as 1998, Lantz reported that in a study of 58 heavy email users, more than half had their email program opened continually at work. In interviews with a subset of her sample, Lantz further found that most users who were interviewed would interrupt their work if they received new email messages, although few recognized that this constant email checking may be disruptive or non-productive to their work. On the other hand, the majority of those interviewed did acknowledge that they felt they did not have enough time to read and respond to emails, even though in 1998 few of these individuals received more than 30 emails per day and most sent 10 or fewer emails per day. Given the rapid increase in email use reported over the past 5 years by Anderson (2004), the present study extends the work of Lantz to examine the question of how level of email usage in today's workplace influences job satisfaction. The underlying premise driving this question, based on Lantz' 1998 findings, is that individuals processing greater numbers of email may feel more time constraints and pressures in the workplace as they try to complete both work tasks and respond to electronic communications. These frustrations may spillover into general negative feelings about the workplace, resulting in lower levels of job satisfaction.

Two simple linear regressions were calculated to test hypothesis 2. In the first regression, total emails sent were entered as the independent variable and job satisfaction was entered as the dependent variable. Regression was chosen as the preferred data analytic technique for this hypothesis because it allows for the determination of prediction of one variable by another. The assumption that all variables in the model are ratio-level was met for this analysis. In addition, a scatterplot (Figure 3) was run and examined to determine that the assumption of linearity required for this analysis was met. The overall regression was not statistically significant, $F(1,220)=.003$, $p=.95$, R -square=.000. The correlation matrix for the variables of total job satisfaction, total emails sent and total emails received is presented in Table 7. The regression table for this analysis is provided in Table 8.

In examining this analysis, it was determined that two cases met the criteria for statistical outliers. These cases were then eliminated from the data set and the regression was redone. In this modified analysis, the overall regression remained statistically not significant, $F(1, 218)=.131$, $p=.718$, R -squared=.001. Thus, number of emails sent does not predict job satisfaction in the present study and the results failed to reject the null hypothesis.

Table 7

Correlation Matrix for Job Satisfaction as Related to Email Usage

		<i>Total Job Satisfaction</i>	<i>Total Emails Sent</i>	<i>Total Emails Received</i>
Total Job Satisfaction	Correlation	1	-.004	-.004
	Sig.	.	.953	.950
	N	224	221	219
Total Emails Sent	Correlation	-.004	1	.664
	Sig.	.953	.	.000
	N	221	223	221
Total Emails Received	Correlation	-.004	.664	1
	Sig.	.950	.000	.
	N.	219	221	221

Table 8

Regression Analysis of Relationship Between Emails Sent and Job Satisfaction

Model	<i>Sum of Squares</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Regression	2.30	1	2.30	.003	.95
Residual	147424.59	219	673.17		
Total	147426.89	220			

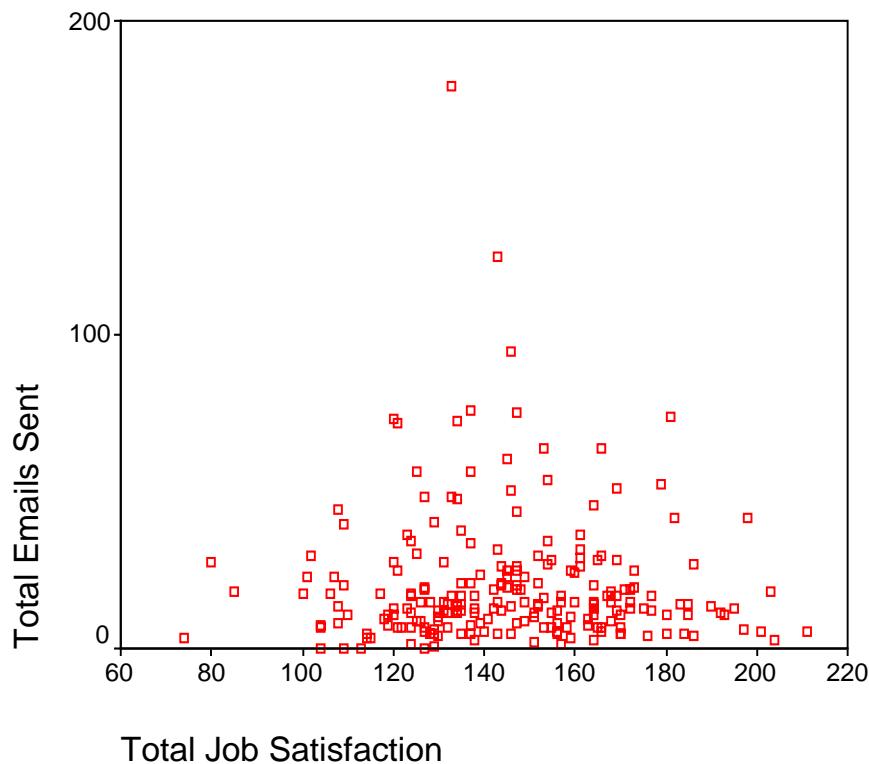


Figure 3. Scatter plot for Relationship Between Emails Sent Over a 2 Day Period and Job Satisfaction (Outliers Excluded)

In the second regression, total emails received were entered as the independent variable and total job satisfaction was entered as the dependent variable. Standard assumptions for linearity were met for this analysis, and the scatterplot (Figure 4) of the two variables was examined and found to conform to linearity requirements. The overall regression was not significant, $F(1,218)=.004$, $p=.95$, $R\text{-squared}=.000$. The regression table for this analysis is provided in Table 9.

As was the case with the previous regression analysis, two outliers were statistically identified that could have influenced the results of the present analysis. The

two outliers were removed from the data set and the analysis rerun. The regression analysis with the outliers removed was also not statistically significant, $F(1, 218)=.138$, $p=.718$, $R\text{-squared}=.001$. These results indicate that number of emails received does not predict total job satisfaction. Thus, in the analysis we failed to reject the null hypothesis.

Table 9

Regression Analysis of Relationship Between Emails Received Over a 2 Day Period and Job Satisfaction

Model	<i>Sum of Squares</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Regression	2.63	1	2.63	.004	.95
Residual	146795.02	217	676.48		
Total	146797.65	218			

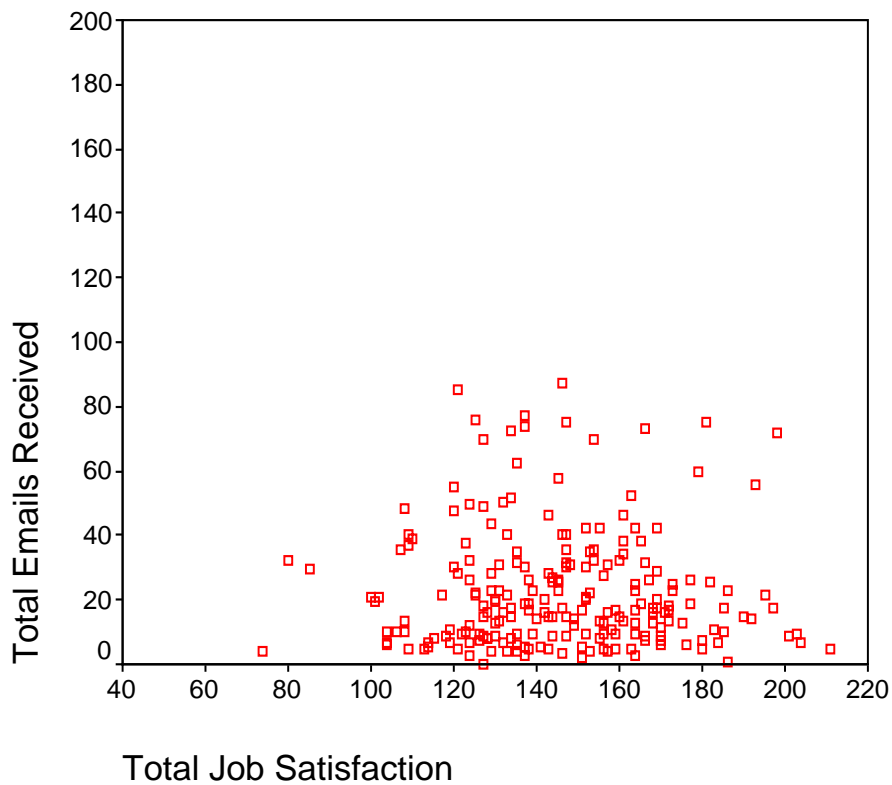


Figure 4. Scatter plot for Relationship Between Emails Received Over a 2 Day Period and Job Satisfaction (Outliers Excluded)

Interestingly, comments from respondents frequently related to job satisfaction issues, and primarily provided information about sources of dissatisfaction with respondents' employment. Few of these comments tied email usage to job satisfaction and the comments were consistent across job classifications and campus locations. A sampling of comments includes the following:

“Communication is imperative in this job but there seems to always be something that Directors and Deans, etc. feel that only they should be privy to when in reality, it affects the entire university community. I don't feel there is enough

reciprocity of respect in this college.”

“We work for a state institution. When we sign on, we know the pay scale will be restrictive. There's no point in complaining about that. I work in an office where the supervisor recognizes he cannot use pay increases as incentive. Instead, he uses respect and appreciation. I am paid what I agreed upon. I am treated well by my boss and my colleagues. We have a culture of mutual respect. How much email I deal with has nothing to do with my job satisfaction. When the University email system strips the attachments I need to do my job, I am exceedingly frustrated though!”

“The lack of professionalism in the environment is unbelievable and incomprehensible at all levels. No one knows policies and procedures. You can call five people in the same department and get five different answers. Students consistently complain about the lack of organization in the financial aid department. Some employees lack initiative, desire and willingness to get the job done or even do the job in the first place.”

“Recognition can come as salary increases and bonuses. There lots of things I do and others do that is done because it needs to be done. I do not expect my supervisor to see everything good that I do or that I have the time to tell him all

the good that I have done. I am satisfied knowing, myself, that I have done my best or gone out of my way to help someone. It is often difficult to be promoted at a regional campus only because jobs are scarce at regional campuses. I am sure that most of us could be promoted if we applied for jobs at the Orlando campus. The benefits of a small campus and closer group can outweigh the benefits of a higher paying position elsewhere.”

“For the most part, I find my job to be enjoyable and extremely satisfying as far as my interaction with the students! Salary increases and bonuses could be more frequent, but I'm sure people in most occupations feel the same way. Overall on a scale of 1-10, all aspects considered, I would rate my job an 8. I love what I do and consider my greatest rewards to be the thanks and appreciation students convey to me on a daily basis. That's what motivates me!”

“If you want fairness to exist, stop lying to us! Pay increases need to be received. I am tired of hearing, "look at the bright side," when you do get your raise it will be retroactive. Let me tell that to the grocery store, parking services, my children, my mortgage agency, most of all the electric company, collection agencies and etc. You want fairness, than be fair.”

“I feel the people who screw-up all the time are the ones who are getting SPI, raises and promotion. While us who do a good job cleaning up their mistakes get nothing (sic).”

“It would be appreciative to receive the year-end statements with the W2's. The statements are very resourceful.”

“I strongly disagree with no merit-based raises.”

Research Hypothesis 3

H₀: There is no statistically significant difference in UCF staff member job satisfaction between those workers whose primary communication with their supervisors is via email versus those workers whose primary communication with their supervisors is face to face.

A *t*-test was used to test this hypothesis. The *t*-test was chosen for this analysis because the comparison to be made was between two groups and because the *t*-test analysis is robust even when cell sizes are unequal. Since hypothesis 3 used a *t*-test with job satisfaction as the dependent variable, the Bonferroni adjustment was applied to decrease the chance of type I error. Thus an alpha level of .05 was used. Levene's test for equality of variances indicated that equal variances existed between groups for this analysis. The *t*-test examining the relationships between primary communication mode with supervisors and total job satisfaction was not significant, $t(1,223)=-.002, p=.998$.

Table 10 provides the means table for this analysis. A boxplot graph for this analysis is provided in Figure 5.

Thus, we failed to reject the null hypothesis in this analysis. This study found no statistically significant mean difference in total job satisfaction between workers whose primary communication mode with their supervisor was email versus face-to-face.

Table 10

Descriptive Statistics of Total Satisfaction as a Function of Primary Communication

	PRIMECOMM	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SEM</i>
Total	Via Email	85	144.78	27.6	2.99
Satisfaction	Face-to-face	138	144.77	24.8	2.11

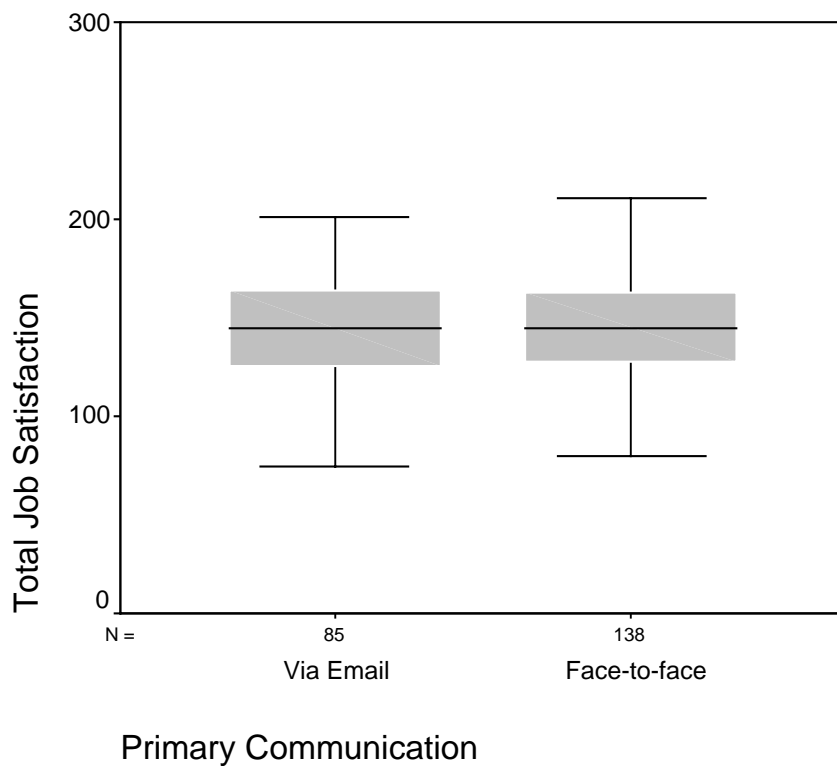


Figure 5. Box plot for Job Satisfaction as a Function of Primary Communication

Only one comment spoke directly to the variable of face-to-face versus email communication between supervisors and employees. The comment is as follows:

“Although E-mail is not the primary communication method between my boss and I, I do receive quite a bit of daily E-mail of pertinent information or I am cc: (carbon copied) which keeps me in the loop of ever-changing information. I'd rather be in the know than in the dark, so most communication to me is better than none at all. I can filter out what's useful at the time and disregard all the rest.”

Research Hypothesis 4

H₀: There is no statistically significant difference in job satisfaction between those UCF staff members working at the regional campuses versus those employees working at the Orlando campus.

An independent samples *t*-test was also used to test this hypothesis. The *t*-test was again chosen for this analysis because the comparison to be made was between two groups and because the *t*-test analysis is robust even when cell sizes are unequal. Since hypothesis 4 used a *t*-test with job satisfaction as the dependent variable, the Bonferroni adjustment was applied to decrease the chance of a type I error. Thus an alpha level of .05 was used. Levene's test for equality of variances indicated that equal variances existed between groups for this analysis. The *t*-test examining the relationships between campus location (Regional versus Orlando) and total job satisfaction was not significant, $t(1,224)=-1.08, p=.28$. Table 11 provides the means table for this analysis. A boxplot graph for this analysis is provided in Figure 6. We failed to reject the null hypothesis in

this analysis. There was no relationship found between employee campus location and job satisfaction.

Table 11

Descriptive Statistics of Total Satisfaction as a Function of Employee Campus Location

	LOCATION	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SEM</i>
Total Satisfaction	Orlando	142	146.11	24.4	2.05
	Regional	82	142.24	28.1	3.10

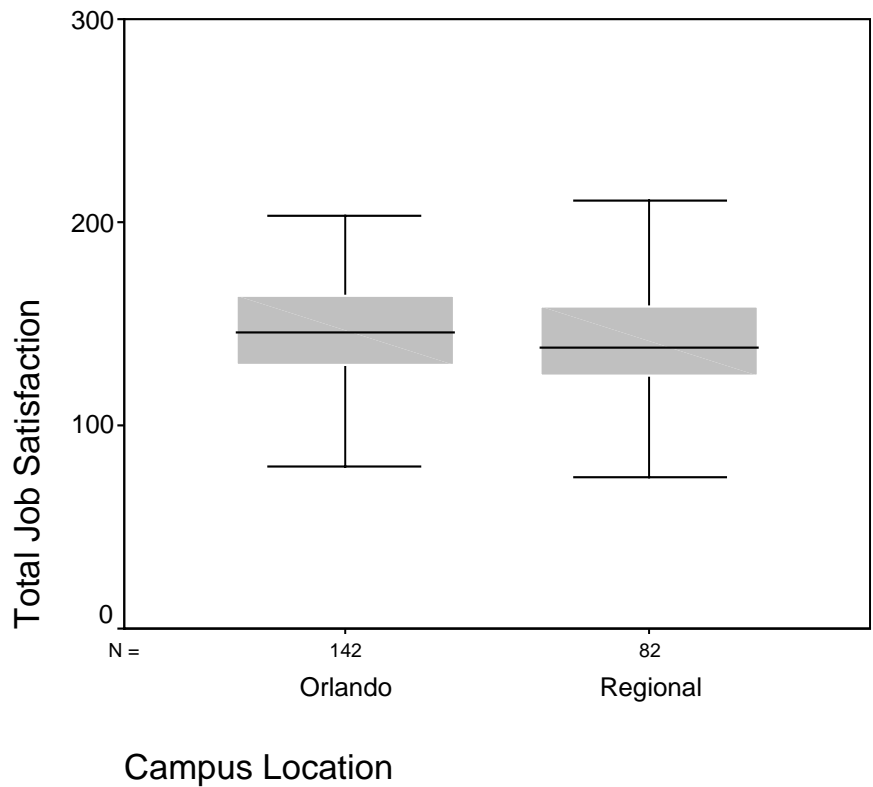


Figure 6. Box plot for Job Satisfaction as Function of Campus Location

Comments related to job satisfaction were prevalent, as shared in the presentation of results for Hypothesis 4 above. Comments from UCF Orlando and UCF Regional Campus employees contain both positive and negative elements as might be expected at any large institution. The complete set of comments is presented in Appendices L and M.

Summary of Data Analysis

Of the four null hypotheses in the present study, one was rejected (Hypothesis 1) and we failed to reject three of the hypotheses. There was a difference in number of emails sent, on average, as a result of job classification. University of Central Florida A&P level employees sent more emails than USPS level employees. Although this relationship was statistically significant, the effect size was small, only .07 for job classification. Overall, less than 10% of the variance in number of emails sent was accounted for by job classification.

Additional analysis indicated that there was a mean difference in number of email received as a result of job classification. Specifically, A&P employees received more emails than their USPS counterparts. The effect size for this relationship was small at only .13, indicating that only 13% of the variance in emails received is accounted for by job classification.

In addition, the interaction between location and job classification did not significantly relate to number of emails sent or received. Specifically, A&P employees at Orlando did not send or receive more or fewer emails than their USPS counterparts in

Orlando, or their USPS or A&P peers at regional campuses.

The present study also addressed how job satisfaction varied by level of emails sent and received, as well as by other employee-supervisor issues. Using regression analyses, no relationship was found between total job satisfaction and number of emails sent or received. An examination of the scatterplots (Figure 3 and Figure 4) associated with both regression analyses, showed two statistically significant outliers that may have influenced the results. Therefore, the regression analyses were rerun after the outliers were removed from the dataset. Even without these outliers included, the regression analyses failed to reach statistical significance.

Job satisfaction also did not vary based on campus location of the employee or the type of primary communication that existed between employee and supervisor (email versus face to face). Observed power and effects sizes for both of these tests were very low, indicating that even with a large sample size, there was no relationship between job satisfaction and campus location or type of supervision in the population studied.

Although a number of analyses failed to reach significance and those that did indicated low effect sizes. The results presented by this study do provide insight into the patterns of email usage of regional campus versus Orlando campus employees at two crucial levels of the job classification system. In addition, it was shown that the use of technology to conduct interactions between supervisors and their subordinates does not appear to contribute to changes in job satisfaction. In support of the consistency of organizational dynamics across the campuses, the study also found that job satisfaction

remains constant regardless of campus location. These findings contribute to the knowledge of technology usage and its effects on university employees.

CHAPTER 5

DISCUSSION

Introduction

Every day, at universities all over the world, millions of email messages are sent and received (Anderson, 2004). Although universities are populated with students and professors who routinely communicate through email exchanges, universities are also home to support staff who use email to provide support to the academic community. The present study examined the role email technology plays in the work lives of university staff. In the study, regional campus employees were compared with their counterparts working at a larger residential campus. The goal of the study was to test four specific hypotheses. Each of these hypotheses and the conclusions of the study related to each hypothesis will be discussed in turn.

The first hypothesis tested in the present study examined email usage differences across UCF regional and residential campus locations. In recent years, many public universities have begun to develop regional campus systems. These regional campuses offer a limited number of degree programs that are also offered at the larger or main campus. However, they also afford students the convenience of taking classes in their own communities. The University of Central Florida is an example of a state university that has developed an extensive regional campus system. Each regional campus location is assigned to an east, west, central or south regional area. The regional areas provide students with a nearly full set of academic services, including registration offices, bursar

offices, computer services, and academic advising. At the University of Central Florida, a Vice-Provost housed in the Orlando campus regional center has administrative responsibilities for the regional campus system. Employees at the regional centers may report directly to supervisors also housed at their regional centers, though others may report to the Vice Provost at a different center, or to a supervisor at the Orlando campus. This is of interest to the present study because one research question examined differences in the number of emails sent and received by regional campus versus Orlando campus employees.

It could logically be hypothesized that regional campus employees might send and receive more emails based solely on their lack of proximity to the Orlando campus. Morse (1999) found that individuals' email use varies with the type of position they hold in an organization and how necessary email is to their position. Regional campus employees working at remote locations could be argued to have a higher need and find email more useful than their residential campus counterparts. More emails might also be sent and received in order to facilitate communication between supervisors and subordinates, each of whom may reside at different locations. Interestingly, the present study found no differences in email usage based on the location of the participants' campus.

A consistent result found in this study was a difference in the number of emails sent and received by UCF Administrative and Professional (A&P) staff in comparison to USPS level workers. The A&P staff both sent and received more email than the USPS

level staff. This was true for all locations surveyed. The study did not collect information to determine why this difference existed, although many explanations could be rendered to explain the difference. It is possible that A&P staff need to communicate with their subordinates more frequently to relay administrative information, changes in practices or to relay basic supervisory information. The A&P staff could also receive more emails because they are likely to have multiple subordinates reporting to them who use email to ask questions and receive information. A simple t-test analysis of the data indicated that A&P staff in this sample do have significantly more individuals reporting to them (mean = 3.43) as compared to USPS staff (mean=1.03). While support is shown for this explanation, this is still only one possible explanation for the differences found. Other explanations, until disproved through empirical observations, could also be valid.

A second focal topic for the present study was to examine if email usage related to job satisfaction. This was a unique contribution to the literature. Only three studies to date had examined the relationship between email use and job satisfaction, though none measured email usage in the same manner as the current study. Watanabe (2000) and Steven et al. (2000) both focused on how introduction of email services into an organization influences satisfaction. Amaeshi (2002) also focused on email and job satisfaction, although he compared those employees who had email with employees who did not have email access. All participants in the present study had access to email in their work environments. For the purpose of the present study, it was hypothesized that either too little email use or too much email use may be problematic for employees.

Since email is a frequently used communication tool in the educational workplace, it was believed that being “out of the loop” (e.g., sending or receiving few work-related emails) may make it difficult to obtain sufficient work-related information. Those low volume employees may lack the necessary information to perform their tasks, may receive lower evaluations and their job satisfaction in turn may suffer. On the other hand, individuals sending and receiving a large number of emails on a daily basis may also be at a disadvantage. Having to read and respond to many emails may be non-productive and boring, conditions that may also result in lowered levels of job satisfaction. However logical these guesses may be about the relationship between email use and job satisfaction, the present study found no relationship to exist between those variables. One possible explanation for this is that the number of emails sent and received, while varying significantly by position classification, still fell within a somewhat tightly clustered grouping of values. Another possible explanation for this finding is that when all workers have email access, the access itself is the important contributor to job satisfaction (as supported by Amaeshi, 2002) and not the level of email usage of these employees. Comments provided by the participants further supported this lack of relationship between email usage and job satisfaction. Comments related to job satisfaction were abundant, however, the content reflected the importance of issues such as salary, raises, equality of treatment, communication, office morale and level of benefits as they relate to job satisfaction. Although several comments alluded to the frustration associated with junk email or high levels of email usage, none were strongly

tied to overall job satisfaction.

Past literature has also examined the effect that computer-mediated communication (CMC) has on various behaviors within the workplace (Scott & Fontenot, 1999; Sussman & Sproull, 1999). Although many CMC issues have been examined, one area that has not been researched is the role CMC plays in job satisfaction when the primary communication medium between employee and supervisor is via the computer. In the present study, 85 staff members reported that their primary communication with their supervisor took place via the computer, primarily through the email system rather than other systems such as instant messaging. The job satisfaction level of these employees was compared with the job satisfaction levels of employees who reported face-to-face supervision with their supervisors. The average number of email contacts between employees and supervisors who communicate primarily via email was reported to average five emails per day. Perhaps surprisingly there was no difference in overall job satisfaction between those employees receiving CMC supervision and face-to-face supervision. While Siegel and Topel (2000) noted that e-supervision can be difficult due to the lack of non-verbal cues present in CMC communications, they also note that e-supervision can be positive due to the unusually quick speed at which information can be communicated via the email system.

Morgan and Symon (2002) reported that one potential shortcoming of email-based supervision is the isolation that remote employees may feel when they are separated from their work group. Given these previous findings, the results from the

present study would support the positive aspects of e-supervision, especially as they relate to job satisfaction. The staff members surveyed in this study did not feel that e-supervision affected their job satisfaction. It could be that in the past 3 years since Morgan and Symon's study was published that e-supervision has become more accepted and workers have adapted to this less traditional form of supervision.

Lastly, the present study utilized the unique structure of the University of Central Florida with its regional campus system to compare the job satisfaction levels of staff members working at regional locations to the satisfaction levels of staff members working at the larger, central campus location. There are many differences between the regional locations and the Orlando campus location. Regional campuses have fewer employees and few services other than those necessary for student support, such as registration, advisement, information technology and a cashier. Although many of the regional campus locations offer multiple degrees, they do not have the amenities the Orlando campus offers and that some students expect (e.g., library facilities, fitness centers, food courts, post offices, banks, and entertainment venues). Although the amenities mentioned are often thought of as student perks, employees on campuses where these services are available also often avail themselves of the services. It is easy for a staff member at the Orlando campus to walk over to the student center for a choice of restaurants for lunch, to go to the gym for a workout, or to do banking right on campus. These conveniences are not typically available for most regional campus employees.

In addition, it is possible that regional campus employees experience other

stressors that could influence their levels of job satisfaction. These stressors can include feelings of isolation, the need to travel more to attend meetings and less opportunity for university-wide recognition of one's work.

Regardless of these potential physical differences across campus locations, the present study found no differences in job satisfaction between regional campus and Orlando campus employees. This finding may suggest, although it is not conclusive, that job satisfaction may be more dependent upon interpersonal factors in the job environment, rather than the physical amenities associated with one's employment location.

Certainly the comments provided by participants in the study spoke strongly to job satisfaction issues that were seemingly university-wide and not related to email usage, the type of supervision one received, or the campus location. For example, A&P level employees expressed dissatisfaction with communication on the job, pay, salary increases, general office morale, poor supervision, lack of professionalism, and the invisibility of one's contribution to the university. Likewise, USPS staff also expressed dissatisfaction over pay, salary increases, communication and poor supervision. USPS employees additionally reported dissatisfaction with benefits and unequal treatment across employees, as well as the promotion process. The comments discussed here and elsewhere in this document are a rich source of elaborative data, and aid in understanding the statistical results of the study.

Importance of the Present Study

This study examined the patterns of email usage in a metropolitan university structure and examined how email might relate to job satisfaction. Although a number of analyses failed to reach statistical significance and effect sizes were small, the results of this study are important in a number of ways.

First, the study calls into question the results of older studies such as Lantz (1999). Lantz found that managers (a) had problems managing emails, (b) that employees have trouble managing and processing email, and (c) that email seemed to be disruptive to work. The present study found that both professional level A&P staff and USPS staff utilized email frequently and found it to be an effective communication tool, as reported in Table 1 and Table 2. This finding is similar to that of Walsh and Mahoney (2002) who reported that email communication may improve work completion. The findings of the present study allude to the importance of email within the today's workplace. Since Lantz's study was published in 1999, many technological improvements in the workplace have been made. In the present study, all staff members surveyed had access to email and used it on a daily basis. A significant number even reported that their primary supervision is through email. This change in workplace communication has occurred in the past five years and allows university structures, such as the one employed at the University of Central Florida with its regional campus system to be viable.

How technology and evolving workplace structures relate to employee job

satisfaction in today's work environments was another important issue examined in this study. It was found that job satisfaction was not related to email usage or the type of primary communication between staff and supervisors. In this study, it appeared that sending and receiving email was standard operating procedure and was not a burden to the employees that negatively or positive impacted their job satisfaction. In addition, whether one receives e-supervision or face-to-face supervision did not relate to job satisfaction. Perhaps the use of electronic communication in the workplace is becoming the norm rather than the exception.

This study did not find that regional campus employees are less satisfied than their residential campus peers. This would indicate that regional campus locations provide a comparable work environment to the primary campus location, even without a large number of physical amenities.

Overall, the present study did offer insight into the new academic workplace with high levels of electronic communication. Given the evolution of this technologically-advanced workplace over the past 5 years, one can only guess at the changes that will continue to be made in the next 5 years. While the study adds to the literature in this field, it is by no means the final answer to the question of how technology use influences workplace behaviors.

Limitations of the Present Study

Although the present study provided an examination of email use within the

academic and technological workplace, the study did have limitations. First, the study focused primarily on two outcome variables: email usage and job satisfaction. The study did not attempt to survey staff members about other aspects of the technological workplace that may be important and influence their work attitudes. While email is the primary technology used in the academic workplace, the conclusions of the present study can only be interpreted as they relate to email usage and not to other forms of technology, such as Internet usage.

Secondly, the present study was situated within a unique academic environment. The University of Central Florida is a large metropolitan university with an extensive regional campus system. The attitudes and behaviors of employees within this system may differ from those reported by employees at smaller and less diffuse colleges and universities. The study may also be limited by the cooperation, honesty and candor of respondents' survey inputs.

Future Research

There is a great need for more research about how technology influences behaviors and attitudes within the workplace. Although the academic workplace is ripe for more study in this area, researchers should also try to investigate technology issues in other types of organizations. For instance, does level of email usage relate to job satisfaction in a large, multi-national corporation versus in a small business setting? Researchers know little about email usage in any workplace settings.

Another avenue that could be explored would be to focus only on those respondents who indicated that their email usage was typical of what they received during the 2-day testing period. Although in the present study, the researcher chose to include the entire set of responses to ensure external validity, focusing on those whose email response was typical may enhance internal validity and be worthy of further examination.

Likewise, the study examined difference in job satisfaction based on campus location and type of supervision. Future research could also focus on how job classification influences job satisfaction as well.

This study also did not examine the myriad of potential individual differences that could exist in email and technology use in academia. For instance, gender differences might be present in how email is used at a university. Lind (2001) and Allen (1995) have already shown gender differences in email usage and attitudes toward technology, however these studies did not utilize a campus environment as an organizational location. There may also be personality-based differences in email usage. For instance, more extraverted individuals could use email either more frequently or in different ways than their introverted peers.

Another possible approach for potential research may be in looking at two different samples groups contrasting electronic surveys as versus conventional paper surveys within a university environment. Would these different approaches generate different or significant response rates?

The current work focused primarily on email usage issues. Especially in academia, new technologies are being developed and implemented at an astonishing rate. Course management systems such as BlackBoard and WebCT are being introduced and used as a primary means to disseminate information to students, faculty, and staff. New search engines such as Google and Google Scholar are supplanting newspapers, journals, and books as a way to find and present factual information. Internet browsers provide users with weather, news, stock quotes, chat rooms, and bulletin boards. These technologies are currently available in most academic work environments and little is known about how they influence the attitudes or behaviors of staff within those workplaces.

Technologies that today may only be considered futuristic or unfathomable for work environments may indeed be on their way to workers. How long will it be until virtual reality is a means to conduct a meeting? When will employees be asked to take an augmented-reality training course in order to learn how to use the latest copier, printer or fax machine? At what point will all paperwork done at colleges and universities require e-signatures and biometrics to confirm identity? The technologies of the future are evolving faster than most individuals can imagine and sooner rather than later they will begin to seep into the workplace. Just like the introduction of email into the work environment, one of these new technologies might be the one to revolutionize work as we currently know it. Researchers should be mindful of the technological advancements being made and study how the advancements brought into the workplace can be used to

facilitate efficiency and productivity, rather than assert negative influences on workers.

In conclusion, the present study examined email usage, its correlates, and how usage varies across a single university. There are many ways in which future researchers can elaborate on the results of this study, as well as focus attention on the influence of other technologies on employees in a wide array of different work environments.

APPENDIX A

EMAIL USAGE AND JOB SATISFACTION QUESTIONNAIRE

Email Usage and Job Satisfaction Questionnaire

Instructions: Indicate answers for the following questions by selecting or providing the appropriate response.



1. What is your employment status?

Full-time

Part-time

2. What is your UCF job classification?

A&P

USPS

3. What is your UCF Campus Location?

Orlando Main Campus

Regional Campuses

4. What is your position at UCF?

5. Please list the number of full-time employees who report to you:

- 6. For the next two days, you are asked to keep a record of the total number of emails that you send each day and the total number of emails that your receive each day. Record these numbers below:**

Day 1 Emails Sent: _____

Day 2 Emails Sent: _____

Day 1 Emails Received: _____

Day 2 Emails Received: _____

- 7. Do the numbers reported above; reflect the typical amount of email that you send or receive on a daily basis?**

- Yes
 No, usually receive/send more
 No, usually receive/send less

- 8. Please estimate the percentage of emails you receive that are not relevant to accomplishing your daily work?**

- 10% or less
 11– 25%
 26 – 50%
 51 –75%
 More than 75%

- 9. What percentage of the work in your position requires you to use email to complete it?**

- 10% or less
 11– 25%
 26 – 50%
 51 –75%
 More than 75%

10. Is the primary means of communication between you and your direct supervisor (primary=most often used means of communicating):

- Via Email
- Fact to face interaction

11. If email is the primary means of communicating with your supervisor, how often does your supervisor communicate with you via email?

- More than once a day
- Once a day
- 1- 2 times a week
- Less than once a week
- Never

12. If on question 11 you indicated “ More than once a day”, please state number of emails received from your supervisor on a typical day, if you did not indicate “More than once a day” please skip this question and move onto question 13.

13. In general, how effective do you find email communication in your work environment?

- Almost Never Effective
- Rarely Effective
- Sometimes Effective
- Frequently Effective
- Almost Always Effective
- Not Applicable

14. What is your Gender?

Male

Female

15. What is your Age?

19 – less

20 – 29

30 – 39

40 – 49

50 – older

** Thank you for your time in completing this questionnaire. **

Contact Information:

Anthony Recascino

University of Central Florida – Daytona Beach

1200 W. International Speedway Blvd.

Daytona Beach, Florida 32114

arecasc@mail.ucf.edu

Please share any additional comments you have in the box provided below.

APPENDIX B
JOB SATISFACTION SURVEY

<p align="center">JOB SATISFACTION SURVEY Paul E. Spector Department of Psychology University of South Florida Copyright Paul E. Spector 1994, All rights reserved.</p>							
<p align="center">PLEASE CIRCLE THE ONE NUMBER FOR EACH QUESTION THAT COMES CLOSEST TO REFLECTING YOUR OPINION ABOUT IT.</p>		Disagree very much	Disagree moderately	Disagree slightly	Agree slightly	Agree moderately	Agree very much
1	I feel I am being paid a fair amount for the work I do.	1	2	3	4	5	6
2	There is really too little chance for promotion on my job.	1	2	3	4	5	6
3	My supervisor is quite competent in doing his/her job.	1	2	3	4	5	6
4	I am not satisfied with the benefits I receive.	1	2	3	4	5	6
5	When I do a good job, I receive the recognition for it that I should receive.	1	2	3	4	5	6
6	Many of our rules and procedures make doing a good job difficult.	1	2	3	4	5	6
7	I like the people I work with.	1	2	3	4	5	6
8	I sometimes feel my job is meaningless.	1	2	3	4	5	6
9	Communications seem good within this organization.	1	2	3	4	5	6
10	Raises are too few and far between.	1	2	3	4	5	6
11	Those who do well on the job stand a fair chance of being promoted.	1	2	3	4	5	6
12	My supervisor is unfair to me.	1	2	3	4	5	6
13	The benefits we receive are as good as most other organizations offer.	1	2	3	4	5	6
14	I do not feel that the work I do is appreciated.	1	2	3	4	5	6
15	My efforts to do a good job are seldom blocked by red tape.	1	2	3	4	5	6
16	I find I have to work harder at my job because of the incompetence of people I work with.	1	2	3	4	5	6
17	I like doing the things I do at work.	1	2	3	4	5	6
18	The goals of this organization are not clear to me.	1	2	3	4	5	6
<p align="center">PLEASE CIRCLE THE ONE NUMBER FOR EACH QUESTION THAT COMES CLOSEST TO REFLECTING YOUR OPINION ABOUT IT.</p> <p align="center">Copyright Paul E. Spector 1994, All rights reserved.</p>		Disagree very much	Disagree moderately	Disagree slightly	Agree slightly	Agree moderately	Agree very much

19	I feel unappreciated by the organization when I think about what they pay me.	1	2	3	4	5	6
20	People get ahead as fast here as they do in other places.	1	2	3	4	5	6
21	My supervisor shows too little interest in the feelings of subordinates.	1	2	3	4	5	6
22	The benefit package we have is equitable.	1	2	3	4	5	6
23	There are few rewards for those who work here.	1	2	3	4	5	6
24	I have too much to do at work.	1	2	3	4	5	6
25	I enjoy my coworkers.	1	2	3	4	5	6
26	I often feel that I do not know what is going on with the organization.	1	2	3	4	5	6
27	I feel a sense of pride in doing my job.	1	2	3	4	5	6
28	I feel satisfied with my chances for salary increases.	1	2	3	4	5	6
29	There are benefits we do not have which we should have.	1	2	3	4	5	6
30	I like my supervisor.	1	2	3	4	5	6
31	I have too much paperwork.	1	2	3	4	5	6
32	I don't feel my efforts are rewarded the way they should be.	1	2	3	4	5	6
33	I am satisfied with my chances for promotion.	1	2	3	4	5	6
34	There is too much bickering and fighting at work.	1	2	3	4	5	6
35	My job is enjoyable.	1	2	3	4	5	6
36	Work assignments are not fully explained.	1	2	3	4	5	6

APPENDIX C
FIRST CONTACT NOTICE

November 6, 2004

Dear xxx

A few days from now you will receive an email request to fill out an online questionnaire for my dissertation research.

The study examines how the patterns of email usage by University employees relate to employee job satisfaction.

I am writing in advance because I have found many people like to know ahead of time that they will be contacted. The study is a potentially important one that will help organizations better understand how email usage impacts job satisfaction.

Thank you for your time and consideration. It's only with the generous help of people like you that my research can be successful.

Sincerely

Anthony Recascino
Director of Web Technology, Regional Campuses
Doctoral Student Educational Leadership

APPENDIX D
SECOND CONTACT NOTICE

November 14, 2004

Anthony Recascino
1200 W. International Speedway Blvd.
Daytona Beach, FL 32176

Dear xxx

I am writing to ask for your help in a study regarding email usage being conducted for my dissertation. This study examines how the patterns of email usage relate to employee job satisfaction.

As an employee of the Regional Campuses, I am contacting a random sample of Regional Campus and Orlando campus staff to ask what their perceptions and experiences about email usage are and they relate to job satisfaction. By understanding how people communicate when using email, organizations may develop norms and procedures to better facilitate understanding of electronic information and communications.

Your answers are completely confidential and will be released only as summaries in which no individual's answers can be identified. This survey is voluntary. However, you can help me very much by taking a few minutes to share experiences and perceptions about your email usage. Click the link below to access the survey.

<http://pegasus.cc.ucf.edu/~arecasci>

If you have any questions or comments about this study, I would be happy to talk with you. You may contact me at 1-386-506-4082, or you can write me at the address on the letterhead, or reply to this email.

Questions about the rights of the research subjects or research-related injuries (where applicable) may best be referred to those not on the research team. These questions can be addressed to the IRB, or by contacting Barbara Ward at bkward@mail.ucf.edu or at (407) 823-2901.

Thank you very much for helping with this important study.

Sincerely

Anthony Recascino
Director of Web Technology, Regional Campuses
Doctoral Student Educational Leadership

APPENDIX E
THIRD CONTACT NOTICE

December 6, 2004

Hello XXX,

Recently, a questionnaire seeking information regarding email usage and job satisfaction was emailed to you. Your name was drawn randomly from a list of all University of Central Florida staff.

If you have already completed and submitted the online questionnaire to me, please accept my sincere thanks. If not, please do so as soon as possible. We are especially grateful for your help because it is only by asking people like you to share your experiences that we can understand how email usage can effect job satisfaction.

You can access the survey at <http://pegasus.cc.ucf.edu/~arecasci>. If you have any questions regarding the survey please call me at 386-506-4082. The information obtained from the survey is strictly confidential. This survey has been reviewed and approved by the University of Central Florida's Internal Review Board.

Thank you for your timely response!

Anthony Recascino
Doctoral Student Educational Technology

APPENDIX F
FOURTH CONTACT NOTICE

December 13, 2004

Hello xxx

About three weeks ago I sent you an email regarding a study about email usage being conducted for my dissertation. To the best of my knowledge, it's not yet been returned.

The comments of people that have already responded include a wide variety of responses of how email usage impacts their job satisfaction. Many have described their experience about email use as both positive and negative as it relates to their job satisfaction. I think the results are going to be very useful to the development of my research topic.

I am writing again because of the importance that your questionnaire has for helping to get accurate results. It's only hearing from nearly everyone in the sample that I can be sure that the results are truly representative.

A few people have written to say that they should not have received the questionnaire because of their part-time status or that they are in unit (bargaining) or faculty. If either of these concerns applies to you, please let us know by return email so that I can delete your name from the mailing list.

A comment on my survey procedures: Please carefully read the questionnaire prior to completing, as you will be asked to maintain a simple log on the amount of email you send and receive over a two-day period. Please note that protecting the confidentiality of people's answers is very important to us, as well as for those UCF employees responding to the questionnaire. Your individual responses will not be shared with anyone in the University and data will only be analyzed and reported at a group level.

I hope that you will fill out the online questionnaire soon, but if for any reason you prefer not to answer it, please let us know by return email so I may remove you from my list.

The survey can be accessed at <http://pegasus.cc.ucf.edu/~arecasci>

If you have any questions, please feel free to contact me by email arecasc@mail.ucf.edu or by phone. My number where I can be reached is 386-506-4082

Sincerely,

Anthony Recascino
Doctoral Student Educational Leadership

APPENDIX G
FIFTH CONTACT NOTICE

January 6, 2004

Anthony Recascino
1200 W. International Speedway Blvd.
Daytona Beach, Florida 32114

During the last two months I have sent you several emails about a research study I have been conducting for my Doctoral Dissertation in Educational Leadership. The purpose of the study is to help organizations better understand how email usage can impact worker job satisfaction.

The study is drawing to a close, and this is the last contact that will be made with the random sample of people who I think should be surveyed, based on University of Central Florida's employee staff listings.

I am sending this final contact as a priority email because of my concern that people who have not responded may have had different experiences than those who have. Hearing from everyone in this small campus-wide sample helps to assure that the survey results are as accurate as possible.

I also want to assure you that your response to this study is voluntary, and if you prefer not to respond that's fine. Please be aware that your responses to this survey are treated as confidential information. The sole purpose for collecting this information is to complete a doctoral dissertation in educational leadership. If you choose not to respond, please let us know by return email with a note indicating so. This would be very helpful.

Finally, I appreciate your willingness to consider our request as we conclude this effort to better understand how email may impact job satisfaction. Click the link below to access the survey.

<http://pegasus.cc.ucf.edu/~arecasci>

Thank you very much.

Sincerely,

Anthony Recascino
Doctoral Student Educational Leadership

APPENDIX H
NON-RESPONDERS CONTACT NOTICE

February 28, 2005

Dear, xxxx

At the end of last semester, I sent you several mailings about a research study I have been conducting for my Doctoral Dissertation in Educational Leadership. The purpose of my project is to help organizations better understand how email usage can relate to job satisfaction.

I am sending you this e-mail because of my concern that people who have not responded may have had different experiences than those who have already responded. Hearing from everyone in this campus-wide sample helps me to assure that my survey results are as accurate as possible. This study has been reviewed and approved by the UCF Institutional Review Board (IRB).

I also want to assure you that your response to this study is voluntary, and if you prefer not to respond that is fine. Please be aware that your responses to this survey are treated as confidential information. The sole purpose for collecting this information is to complete my doctoral dissertation in educational leadership. If you choose not to respond, please let me know by return email with a note indicating so. This would be very helpful.

A comment on my survey procedures: Please carefully read the questionnaire prior to completing, as you will be asked to maintain a simple log on the amount of email you send and receive over a two-day period. Please note that protecting the confidentiality of people's answers is very important to me, as well as to UCF employees like you, who are responding to the questionnaire. Your individual responses will not be shared with anyone in the University and data will only be reported at a group level.

Click link to below to access the survey.

<http://pegasus.cc.ucf.edu/arecasci>

If you have any questions or comments about this study, I would be happy to talk with you. You may contact me at (386) 506-4082, or you may contact me at my email address: arecasc@mail.ucf.edu. Thank you very much.

Sincerely,

Anthony Recascino
Doctoral Student Education Leadership

APPENDIX I
IRB APPROVAL NOTICE



Office of Research

October 5, 2004

Anthony Recascino
Director of Web Technology
University of Central Florida – Daytona Campus
1200 International Speedway Blvd.
Daytona Beach, FL 32120

Dear Mr. Recascino:

With reference to your protocol entitled, "EMAIL Usage by University Employees: Relationship to Productivity and Job Satisfaction" I am enclosing for your records the approved, expedited document of the UCFIRB Form you had submitted to our office

Please be advised that this approval is given for one year. Should there be any addendums or administrative changes to the already approved protocol, they must also be submitted to the Board. Changes should not be initiated until written IRB approval is received. Adverse events should be reported to the IRB as they occur. Further, should there be a need to extend this protocol, a renewal form must be submitted for approval at least one month prior to the anniversary date of the most recent approval and is the responsibility of the investigator (UCF).

Should you have any questions, please do not hesitate to call me at 407-823-2901.

Please accept our best wishes for the success of your endeavors.

Cordially,

A handwritten signature in cursive script that reads 'Barbara Ward'.

Barbara Ward, CIM
IRB Coordinator

Copies: IRB File

APPENDIX J
SPECTOR EMAIL

From: Paul Spector <spector@chuma.cas.usf.edu>
To: Anthony Recascino <arecasc@mail.ucf.edu>
Date: 8/29/2004 8:14:03 AM
Subject: Re: RE JSS Scale

Dear Anthony:

You have my permission to use the JSS in your research, in accordance with conditions noted on my website (link below--go to scales). Best of luck with your research.

Paul E. Spector
Department of Psychology
University of South Florida
Tampa, FL 33620
(813) 974-0357 Voice
(813) 974-4617 Fax
spector@chuma.cas.usf.edu
website <http://chuma.cas.usf.edu/~spector>

On Sat, 28 Aug 2004, Anthony Recascino wrote:

> Hello Porfessor, may I use you scale in a project that I am working
> regarding email and job satisfaction? I will be more than happy to share
> data,
>
> The best,
> Anthony Recascino
>
> Anthony Recascino
> Director of Web Technology
> UCF Regional Campuses
> 1200 International Speedway Blvd.
> Daytona Beach, FL 32120
> (386) 506-4082
>
> "Whenever you are asked if you can do a job, tell em, "Certainly, I
> can!"
> Then get busy and find out how to do it.
>
> T. Roosevelt
>
>

APPENDIX K

JSS SCALE SHARING AND USAGE CONDITIONS

JSS Sharing of Results

The Job Satisfaction Survey, JSS is a copyrighted scale. You are welcome to use the JSS for free under two conditions.

1. The use is for noncommercial educational or research purposes. This means no one is charging anyone a fee.
2. You agree to share results with me. This is how I continue to update the norms and bibliography.

What Results Do I Need?

1. Means per subscale and total score
2. Sample size
3. Brief description of sample, e.g., 220 hospital nurses. I don't need to know the organization name if it is sensitive.
4. Name of country where collected, and if outside of the U.S., the language used. I am especially interested in non American samples.
5. Standard deviations per subscale and total score (optional)
6. Coefficient alpha per subscale and total score (optional)

I would love to see copies of research reports (thesis, dissertation, conference paper, journal article, etc.) in which you used the JSS. Summaries are fine for long documents (e.g., dissertation), and e-mailed documents are preferred if possible (saves copy and mail costs). Be sure to indicate how you want the work cited in the bibliography.

You can send the material to me via e-mail: spector@chuma.cas.usf.edu or via regular mail: Paul Spector, Department of Psychology, University of South Florida, Tampa, FL 33620 USA.

Copyright Paul E. Spector, All rights reserved, Last modified November 2, 1998.

APPENDIX L

ORLANDO & REGIONAL CAMPUSES A&P (NON-BARGAINING) STAFF:

ADDITIONAL COMMENTS

A&P Orlando Campus – Additional Comments

1. Communication is imperative in this job but there seems to always be something that Directors and Deans, etc. feel that only they should be privy to when in reality, it affects the entire university community. I don't feel there is enough reciprocity of respect in this college.
2. I am a full-time employee of the UCF Athletic Association and not a University employee. As such, I am not sure that I have a classification that fits this survey. Further, the uniqueness of Athletics and my role within it makes this survey difficult to complete accurately. I have multiple formal and informal lines of reporting and participate in multiple units with many different conditions. I am probably not the best person to interview for this study.
3. Our office is experiencing rapid growth, and my present position has grown to the point it requires 2 staff to handle workload. Otherwise, the job is enjoyable, and the people I work with, for the most part, are capable and congenial. Employees are generally recognized once annually, and the pay system is lacking a tiered pay scale similar to Federal employees who are paid more each year depending on their years of service. Accordingly, if an employee wants to earn more pay, he/she must apply for a promotional opportunity.
4. Communication between departments seems to be a huge problem especially for the alumni office, which is in Research Park and the rest of the main campus. To truly stay in the loop it seems the best way is through numerous face-to-face interactions at meetings.
5. Good Luck!
6. The questions (16-51) don't appear to have a lot to do with e-mail. More job satisfaction with wages and employee relations.
7. Good luck on your dissertation!
8. We work for a state institution. When we sign on, we know the pay scale will be restrictive. There's no point in complaining about that. I work in an office where the supervisor recognizes he cannot use pay increases as incentive. Instead, he uses respect and appreciation. I am paid what I agreed upon. I am treated well by my boss and my colleagues. We have a culture of mutual respect. How much email I deal with has nothing to do with my job satisfaction. When the University email system strips the attachments I need to do my job, I am exceedingly frustrated though!

9. Not everyone is here to help students. Some are here for just a paycheck and have no concerns for our students. The morale in this office is negative. Promotion is based on who you know or if you kiss someone's. There's no incentive for doing a good job. Only good feeling I have is I know students appreciate my help. That's the most rewarding.
10. Because of the department that I work for - there simply isn't enough money for a pay increase - in fact our operation was almost shut down due to lack of funding. I am, however, very upset that I am required to have three years of management experience and my Master's degree and am only paid \$27,500. I work because I firmly believe in our services and admire our director. I have also never worked with such truly nice and bright people - they keep me motivated.
11. I love my job and I rely heavily on e-mail. E-mail communication makes my work much easy and more manageable. I do however get a lot of junk mail, which is a terrible nuisance.
12. Interesting topic? Are both e-mail and email acceptable when written?
13. In my multiple choice-scale responses for "supervisor," I rated my assistant director, whom I work most closely with. My director is also an excellent leader and communication and would rate higher on question 18 :).
14. My job supervisor is a psychopath - harsh, unfair, dictatorial and unscrupulous, here management partner is a racially biased paranoid who "spies" on everyone here and agitates to cause trouble.
15. The lack of professionalism in the environment is unbelievable and incomprehensible at all levels. No one knows policies and procedures. You can call five people in the same department and get five different answers. Students consistently complain about the lack of organization in the financial aid department. Some employees lack initiative, desire and willingness to get the job done or even do the job in the first place.

A&P Regional Campuses

1. Recognition can come as salary increases and bonuses. There lots of things I do and others do that is done because it needs to be done. I do not expect my supervisor to see everything good that I do or that I have the time to tell him all the good that I have done. I am satisfied knowing, myself, that I have done my best or gone out of my way to help someone. #48. It is often difficult to be promoted at a regional campus only because jobs are scarce at regional campuses. I am sure that most of us could be promoted if we applied for jobs at the Orlando

campus. The benefits of a small campus and closer group can outweigh the benefits of a higher paying position elsewhere.

2. For the most part, I find my job to be enjoyable and extremely satisfying as far as my interaction with the students! Salary increases and bonuses could be more frequent, but I'm sure people in most occupations feel the same way. Overall on a scale of 1-10, all aspects considered, I would rate my job an 8. I love what I do and consider my greatest rewards to be the thanks and appreciation students convey to me on a daily basis. That's what motivates me!
3. A supervisor is only as good as the people around him/her. At times, the decisions made at the upper senior level indicate the level of work environment 'comfort zone' for each employee. No matter what a supervisor does to improve work conditions the employee may never be satisfied due to upper senior level decisions. Higher Education will always be a different type of work environment than 500 fortune companies. E-mail is an effective tool of communication in today's world of business and non-business environments. However, it should never replace the human element of contact for work appreciation and acknowledgements. Work environments sometimes forget that phones are also an effective means of communication. A 'thank you' in person will always be more effective than an e-mail or phone contact. However, depending on the sender or situation e-mail is just as effective. People and communication will always be the foundation of any organization in order to be effective or non-effective.
4. I liked all the questions except the age! Good Job!!
5. I want to make a note that I did not include received emails that are irrelevant to my work PMX##### that I throw directly to the trash. I will get about 12-25 a day. I also want to make a note, I love working at UCF. It is a positive atmosphere, with opportunities to advance in your job to new offices (new adventures), opportunity to better yourself with educational classes, and a place to always meet new people. I am proud to say that I work at UCF!
6. My pride and enjoyment from my work comes primarily from the students I serve - not the administration. In fact, as far as pride, my sense of pride in working at UCF has plummeted in the past 5-6 years. It comes from being "invisible".
7. Because librarians are ranked as faculty my input may not have the relevance you seek. Also, many regional campus faculty and staff report to two supervisors, so I chose one and went with it. I relate to each of them, and they to me, differently.
8. My current department has been very supportive in regards to my growth and development. I cannot say the same in regards to other areas I've worked in at the

University.

9. Re: #8 on avg. day 25% of email non-work related is garbage mass mail type of solicitation. Some days junk mail = 75%

APPENDIX M

ORLANDO & REGIONAL CAMPUSES USPS STAFF: ADDITIONAL COMMENTS

USPS Orlando

1. Recognition can come as salary increases and bonuses. There lots of things I do and others do that is done because it needs to be done. I do not expect my supervisor to see everything good that I do or that I have the time to tell him all the good that I have done. I am satisfied knowing, myself, that I have done my best or gone out of my way to help someone. #48. It is often difficult to be promoted at a regional campus only because jobs are scarce at regional campuses. I am sure that most of us could be promoted if we applied for jobs at the Orlando campus. The benefits of a small campus and closer group can outweigh the benefits of a higher paying position elsewhere.
2. For the most part, I find my job to be enjoyable and extremely satisfying as far as my interaction with the students! Salary increases and bonuses could be more frequent, but I'm sure people in most occupations feel the same way. Overall on a scale of 1-10, all aspects considered, I would rate my job an 8. I love what I do and consider my greatest rewards to be the thanks and appreciation students convey to me on a daily basis. That's what motivates me!
3. A supervisor is only as good as the people around him/her. At times, the decisions made at the upper senior level indicates the level of work environment 'comfort zone' for each employee. No matter what a supervisor does to improve work conditions the employee may never be satisfied due to upper senior level decisions. Higher Education will always be a different type of work environment than 500 fortune companies. E-mail is an effective tool of communication in today's world of business and non-business environments. However, it should never replace the human element of contact for work appreciation and acknowledgements. Work environments sometimes forget that phones are also an effective means of communication. A 'thank you' in person will always be more effective than an e-mail or phone contact. However, depending on the sender or situation an e-mail is just as effective. People and communication will always be the foundation of any organization in order to be effective or non-effective.
4. Email has been very helpful in gathering the information I need - it provides a written record, prevents misspellings of names, and allows the person who receives my email to answer at times convenient to her/him. The phone is still easier at times, however, when clearing up confusing data.
5. There are other forms of showing people they are doing a good job besides pay -- what ever happened to 'thank you'.
6. Hi.... Just one comment and then a question regarding the survey.... after reviewing statements numbered 16-51 (except number 24)they do not appear to

be related to e-mail usage in any way, shape or form. why? Thanx.

7. I only included email sent to my UCF Groupwise. I receive a ton of mail at my Yahoo account. Very little of the Yahoo mail is work related, maybe 1 a week, and very little email to Groupwise is non-work related, not counting spam, about 1 a month. I try and keep it that way.
8. The department I work in is the best on campus I feel.
9. I work at the Rosen College of Hospitality Management--- everything is different here on this campus--- for the good! Getting things done here is not the same struggle as on main campus-- working atmosphere is like a dream.
10. If you want fairness to exist, stop lying to us! Pay increases need to be received. I am tired of hearing, "look at the bright side," when you do get your raise it will be retroactive. Let me tell that to the grocery store, parking services, my children, my mortgage agency, most of all the electric company, collection agencies and etc. You want fairness, than be fair.
11. Since I am the Webmaster, my email address along with webmaster @ gets a lot inappropriate email each day which accounts for the large amount received (question #6) and the high percentage not relevant (question #8).
12. I think some benefits could be added she university as a whole is ok. My dept sucks. It is divided and people are not treated equally.
13. Misleading questions used on agree/disagree statements.
14. Email is very important to our record keeping in our department. We use it for back up on work we have done and to keep track of our appointments and meetings.
15. I use email and instant message to do my job. This is a large office and instant messaging is useful to contact someone quickly, communicate, and continue working without leaving my office. This office uses groupwise shared folders to make information available to the entire staff in a way that is efficient and easy to keep updated. The biggest complaint - mine and with the office staff is the amount of SPAM that we have to weed through daily.
16. I find it very frustrating when raise and promotion requests from my supervisor and his peers are easily rejected and denied by persons who do not know me, my

work ethics, quality of my job performance, or my responsibilities and job dedication. This makes it very difficult to maintain a high standard of work morale and dedication.

17. For some reason I get a lot of junk email that comes in as PMX. (Day 1 had 89 of these, Day 2 117). Luckily I discovered that GroupWise helpdesk could set up a rule whereby all the "PMX" messages go directly in my trash so at least i don't have to deal with them. Interested development - today, which would have been day 3 my GroupWise is crapping out and so isn't able to send anything. So i'm SOL on getting work done.
18. I don't know about the rest of UCF, but in the physical plant, if you are not a member of the "good old boy" club. You do not get a raise that it's fair regardless of your performance appraisal. There are about 10 managers that split the moneys and the rest of us do without. My immediate supervisor doesn't make himself clear in any aspect. He tells me what a great job i am doing then tells the director I am a discipline problem. Never tells me now he wants things done. just gets mad when they aren't done to his expectation. He is just like our director/ambiguous and unfair. There is no such thing as cultural diversity in physical plant.
19. This was completed during spring break. I deal with 12-15 students via email regularly. Email counts are low due to lack of student emails during this week.
20. State/University restrictions on salaries & spending policies discourage excellence.

USPS Regional Campuses

1. My indirect supervisor has become my direct supervisor via organization bureaucracy. This supervisor doesn't see my completed work yet fills out my evaluation. The evaluation is completed out without asking or finding out what my work output is, in regard to quality and quantity. I love my job, but dislike how administration rates employees. The pay is extremely poor, and that is true also for the few positions, which I could maybe promote to.
2. Communication is the item of complaint among the employees at the Regional Campuses. Good Luck.
3. I feel that some of my answers may be based on my need for a vacation, but I was

completely honest. :)

4. Good survey, clean, simple, to the point, and easy to understand.
5. Good survey. Best of luck with your results.
6. Although E-mail is not the primary communication method between my boss and I. I do receive quite a bit of daily E-mail of pertinent information or I am cc: which keeps me in the loop of ever-changing information. I'd rather be in the know than in the dark, so most communication to me is better than none at all. I can filter out what's useful at the time and disregard all the rest.
7. To compare answers from a USPS person to an A&P person would be like comparing whales and minnows.
8. I think e-mail is an efficient communication tool. You can write exactly what you need to convey without having the conversation go off on a tangent.
9. I believe that the proliferation of email has had a chilling effect on creative problem solving. When you could phone someone and work out a process or solve a problem, there was give-and-take and trust. Now, we have to defend ourselves because the phone call for clarification has become an email of complaint copied to 17 people. So instead of a collaborative resolution-oriented environment, we are put in a self-defense mode. I have encouraged my staff to try to use the phone once in a while.
10. Our office is one of the best examples of people working together who support one another through respect, a great sense of humor, and the open-door policy between supervisor and staff. I am proud to be a part of this department.
11. Based on questions 21 and 30: The UCF/Engineering Technology office is located on federal property, which means that we play on a totally different playing field than the other regional campuses. We are governed not only by UCF rules and regulations but also those of NASA and Delaware North, who control the immediate site of our building where we are located (Astronaut Memorial Foundation). It is a real balancing act at times providing excellent customer service to UCF students and staying true to the regulations of the various agencies that govern us. After 3 years on the job, I'm proud of our work record at KSC. On question 11: My immediate supervisor at the Cocoa campus never contacts me but I contact him if there is a need. The two professors I support talk to me when they are out of the office, at least once a week.

12. Sorry if this is late. I tried to get this to you around the 14th of December, but the survey site was unavailable. Have a great weekend :)
13. E-mail, in my opinion, cannot always take the place of face-to-face communication. I do believe, however, that e-mail is invaluable as a tracking device and work flow measure.
14. I feel the people who screw-up all the time are the ones who are getting SPI, raises and promotion. While us who do a good job cleaning up their mistakes get nothing.
15. It would be appreciative to receive the year-end statements with the W2's. The statements are very resourceful.
16. I strongly disagree with no merit-based raises.
17. It was difficult to answer questions regarding promotion as promotion within this organization requires an application process as it for a new job. Opportunities are available if you are willing to compete among other applicants, rather than being available based on merit job performance. Email is not a requirement to complete work, however it is an asset - much easier than fielding phone calls or maneuvering automated phone systems.

LIST OF REFERENCES

- Allen, B.J. (1995). Gender and computer-mediated communication. *Sex Roles, 32*, 557-563. Retrieved November 2, 2004, from InfoTrac One File database.
- Amaeshi, K. (2002). Computer-mediated communications technologies (CMCTS) and user's job satisfaction. *IFE Psychologia: An International Journal, 10*(1), 100-113.
- Anderson, R. (2004, May 13). Sick of spam. *Network Computing, 75*, 42, 43, 46, 48, 55. Retrieved July 15, 2004, from ABI/Inform Global database.
- Bailey, D. E. (2000). Modeling workgroup effectiveness in high-technology manufacturing environments. *IIE Transactions, 32*, 361-369. Retrieved October 29, 2004, from ABI/Inform Global database.
- Barber, R. E., Lucas, H. C., & Kling, R. (1983). Systems response time operator productivity, and job satisfaction. *Communications of the ACM, 26*(11), 972-987.
- Belanger, F., Collins, R. W., & Cheney, P. H. (2001). Technology requirements and work group communication for telecommuters. *Information Systems Research, 12*, 155-176. Retrieved June 25, 2004, from Business Source Premier database.
- Blake, R. L. (2000). An investigation of technology competence of school-based administrators in Florida schools. (Doctoral dissertation, University of Central Florida, 2000). *Dissertation Abstracts International, 61*, 2527.
- Brotsis, J. E. (1999). The impacts of the intranet on work and the individual: A case study analysis. *Dissertation Abstracts International, 60*(5-B) 2396, (UMI No. 9929403). Abstract retrieved June 22, 2004, from PsycINFO database.
- Buckingham, M. & Coffman, C. (1999). *First, break all the rules*. New York: Simon & Schuster.
- Baumgartner, R. M., & Rathbun, P. R. (1996, June). *Prepaid monetary incentives and mail survey response rates*. Paper presented at the 1996 Joint Statistical Meetings, Chicago, IL.
- Carey, J. M. & Kacmar, C. J. (1997). The impact of communication mode and task complexity on small group performance and member satisfaction. *Computers in Human Behavior, 13*, 23-49. Retrieved October 1, 2004, from PsycINFO database.

- Carless, S. A. (2004). Does psychological empowerment mediate the relationship between psychological climate and job satisfaction? *Journal of Business & Psychology, 18*, 405-425. Retrieved October 20, 2004, from PsycINFO database.
- Crowther, G. (2001). Face-to-face or e-mail: The medium makes a difference. *Communication World, 18*(5), 23-26. Retrieved July 1, 2004, from PsycINFO database.
- DeLuca, D.C. (2003). Business process improvement using asynchronous e-collaboration: Testing the compensatory adaptation model. (Doctoral dissertation, Temple University, 2003). *Dissertation Abstract International, 64*, 566.
- Delvecchio, W. F. (2000). The dynamic relationship between job satisfaction and job performance and career momentum. *Dissertation Abstracts International, 60*(7-8), 3604, (UMI No. 9938300). Abstract retrieved October 20, 2004, from PsycINFO database.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesely.
- Flowers, L. A., & Zhang, Y. (2003). Racial differences in information technology use in college. *College Student Journal, 37*, 235 –237.
- Fraze, S., Hardin, K., Brashers, T., Smith, J. H., & Lockaby, J. (2003). The effects of delivery mode upon survey response rate and perceived attitudes of Texas agriculture teachers. *Journal Agricultural Education Online, 44*. Retrieved May 3, 2005, from <http://pubs.aged.tamu.edu/jae/pdf/Vol44/44-02-27.pdf>
- Freed, D. E. (2003). Material benefits, advancement, or fulfillment: A study into the causes and predictors of job satisfaction based on how people view their work. *Dissertation Abstracts International, 64*(7-A), 2557. (UMI No. 3098915). Abstract retrieved October 20, 2004, from PsycINFO database.
- Gigliotti, P. M. (2002) A study of the use of e-mail and its effect on the academic relationship between Shippenburg university first-year students and Shippenburg University faculty. (Doctoral dissertation, Duquesne University, 2002). *Dissertation Abstracts International, 63*, 519.
- Golden, T. D. (2001). Telecommuting optimization: An investigation of influential factors during technology-reliant interactions. *Dissertation Abstracts International, 62*(9-A), 3106. (UMI No. 3025027). Abstract retrieved October 1, 2004, from PsycINFO database.

- Gueguen, N. (2003). Help on the web: The effect of the same first name between the sender and the receptor in a request made by e-mail. *Psychological Record, 53*, 459-466. Retrieved May 28, 2004, from PsycINFO database.
- Heller, D. (2003). The dynamic process of life satisfaction: The role of job and marital satisfaction, life events, personality and mood. (Doctoral dissertation, University of Iowa, 2003). *Dissertation Abstract International, 64*, 3582.
- Helms, M. M., & Raiszadeh, F. M. E. (2002). Virtual office: Understanding and managing what you cannot see. *Work Study: A Journal of Productivity Science, 51*, 240-247. Retrieved June 22, 2004, from PsycINFO database.
- Hill, E. J., Miller, B.C., Weiner, S.P., & Colihan, J. (1998). Influences of the virtual office on aspects of work and work/life balance. *Personnel Psychology, 51*, 667-683. Retrieved November 14, 2004, from Business Source Premier database.
- Hollingshead, A. B., McGrath, J. E., & O'Connor, K. M. (1993). Group task performance and communication technology: A longitudinal study of computer-mediated versus face-to-face work groups. *Small Group Research, 24*, 307-333.
- Hom, P.W., Katerberg, R., & Hulin, C.L. (1979). Comparative examination of three approaches to the prediction of turnover. *Journal of Applied Psychology, 64*, 280-290.
- Huang, X., & Vliert, E. (2004). Job level and national culture as joint roots of job satisfaction. *Applied Psychology: An International Review, 53*, 329-348. Retrieved November 2, 2004, from PsycINFO database.
- Huuhtanen, P., & Leino, T. (1992). The impact of new technology by occupation and age on work in financial firms: A 2-year follow-up. *International Journal of Human-Computer Interaction, 4*, 123-142.
- Innstrand, S. T., Espnes, G. A., & Mykletun, R. (2004). Job stress and job satisfaction: An intervention study for staff working with people with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities, 17*, 119-126. Retrieved October 20, 2004, from PsycINFO database.
- Ivry, B. (2004, November 7). E-mail credited with pivotal role in 2003 election. *The Bergen Record*. pp.A1, A10.

- Jepsen, D. A., & Hung-Bin, S. (2003). General job satisfaction from a developmental perspective: Exploring choice; job matches at two career stages. *The Career Development Quarterly*, 52, 162-179. Retrieved October 31, 2004, from PsycINFO database.
- Kahn, H., & Cooper, C.L. (1991). The potential contribution of information technology to the mental ill health, job dissatisfaction, and alcohol intake of money market dealers: An exploratory study. *International Journal of Human-Computer Interaction*, 3(4), 321-338.
- Kahn, H., & Robertson, I. T. (1992). Training and experience as predictors of job satisfaction and work motivation when using computers: A correlational study. *Behavior & Information Technology*, 11, 53-60.
- Keizer, S. M. (2002). A study of the effects of goal conflict on job satisfaction in auxiliary enterprise units within higher education. *Dissertation Abstracts International*, 63(9-A). 3093. (UMI No. 3065403). Abstract retrieved February 24, 2005, from PsycINFO database.
- Kiesler, S., Siegel, J., & McGuire, T. W. (1984). Social psychological aspects of computer-mediated communication. *American Psychologist*, 39, 1123-1134.
- Kiesler, S., & Sproull, L. (1992). Group decision making and communications technology. *Organizational Behavior & Human Decision Processes*, 52, 96-123.
- Kleeman, W. B. (1982). The future of the office. *Environment & Behavior*, 14, 593-610.
- Kwiatkowski, M. R. (1996). Stress and satisfaction in beginning teachers: An interactive research model. *Dissertations Abstracts International*, 57(9-A), 3766. (UMI No. 9703809). Abstract retrieved October 20, 2004, from PsycINFO database.
- Lantz, A. (1998). Heavy users of electronic mail. *International Journal of Human-Computer Interaction*, 10, 361-379. Retrieved April 4, 2004, from PsycINFO database.
- Lee, O. (2002). Cultural differences in e-mail use of virtual teams: A critical social theory perspective. *CyberPsychology & Behavior*, 5, 227-233. Retrieved November 13, 2004, from PsycINFO database.
- Lemmon, R. A. (2003). The relationship between correctional officers' personality and job satisfaction, performance, and turnover. *Dissertation Abstract International*, 64(8-A), 3078. (UMI No. 3103004). Abstract retrieved October 20, 2004, from PsycINFO database.

- Lind, M. R. (2001) An exploration of communication channel usage by gender. *Workstudy: A Journal of Productivity Science*, 50, 234-240. Retrieved April 26, 2004, from PsycINFO database.
- Lok, P., Crawford, J. (2004). The effect of organizational culture and leadership style on job satisfaction and organizational commitment: A cross-national comparison. *Journal of Management Development*, 23, 321-338. Retrieved April 26, 2004, from Business Source Premier database.
- Mann, S., Varey, R., & Button, W. (2000). An exploration of the emotional impact of tele-working via computer-mediated communication. *Journal of Managerial Psychology*, 15, 668-686. Retrieved November 14, 2004, from Business Source Premier database.
- Maree, J. (2000). Worker participation in decision-making: Who benefits? *Society in Transition*, 31, 111-126. Retrieved October 29, 2004, from Academic Search Premier database.
- Marquie, J. C., Thon, B., & Baracat, B. (1994). Age influence on attitudes of office workers faced with new computerized technologies: A questionnaire analysis. *Applied Ergonomics*, 25, 130-142.
- Martino, A. M. (2003). Leadership style, teacher empowerment, and job satisfaction in public elementary schools. *Dissertation Abstracts International*, 64(9-A), 3151. (UMI No. 3104415). Abstract retrieved October 28, 2004, from PsycINFO database.
- McNeil-Hueitt, T. D. (2003). The unseen educators: Job satisfaction and adjunct community college instructors in the southeastern region of North Carolina. *Dissertation Abstracts International*, 64(8-A), 2757. (UMI No. 3100240). Abstract retrieved October 20, 2004, from PsycINFO database.
- Morgan, S. J., & Symon, G. (2002). Computer-mediated communications and remote management: Integration or isolations? *Social Science Computer Review*, 20, 302-311. Retrieved May 28, 2004, from PsycINFO database.
- Morris, S. A. (1999). Impact of user satisfaction, system usage and trust on the job satisfaction of virtual organization members. (Doctoral dissertation, Auburn University, 1999). *Dissertation Abstract International*, 60, 1662.

- Morse, R. A. (1999). A research study concerning knowledge systems use and the relationships between perceived usefulness, intent to use and level of use. *Dissertations Abstracts International*, 60(4-A), 1224. (UMI No. 9928115). Abstract retrieved October 20, 2004, from PsycINFO database.
- Muhonen, T., & Torkelson, E. (2004). Work locus of control and its relationship to health and job satisfaction from a gender perspective. *Stress & Health: Journal of the International Society for the Investigation of Stress*, 20, 21-28. Retrieved June 22, 2004, from PsycINFO database.
- Murray, A. R. (1999). *Job satisfaction of professional and paraprofessional library staff at the University of North Carolina at Chapel Hill*. Unpublished master's thesis, University of North Carolina at Chapel Hill, Chapel Hill.
- Neuhaus, R. (1997). Causal flow from routinization to worker devaluation in work groups using computers. (Doctoral dissertation, Claremont Graduate University, 1997), *Dissertation Abstracts International*, 58, 6266.
- Odell, P. M., Korgen, K. O., Schumacher, P., & Delucchi, M. (2000). Internet use among female and male college students. *CyberPsychology & Behavior*, 3, 855-862. Retrieved November 11, 2004, from PsycINFO database.
- Pate, J., Martin, G., & McGoldrick, J. (2003). The impact of psychological contract violation on employee attitudes and behavior. *Employee Relations*, 24, 557-573. retrieved November 20, 2004, from PsycINFO database.
- Pendharkar, P. C., & Young, K. (2004). The development of a construct for measuring an individuals perceptions of email as a medium for electronic communication in organizations. *IEEE Transactions on Professional Communication*, 47, 130-143. Retrieved July 14, 2004, from PsycINFO database.
- Pinsonneault, A., Barki, H., Gallupe, B. R., & Hoppen., N. (1999). Research note: The illusion of electronic brainstorming productivity: Theoretical and empirical issues. *Information Systems Research*, 10, 378- 380. Retrieved May 28, 2004, from Business Source Premier.
- Pinsonneault, A., Barki, H., Gallupe, R. B., & Hoppen, N. (1999). Electronic brainstorming: The illusion of productivity. *Information Systems Research*, 10, 110-133. Retrieved May 28, 2004, from Business Source Premier.
- Porat, M. (1977). *The information economy*. Washington D. C.: GPO.

- Purdy, J. M., & Nye, P. (2000). The impact of communication media on negotiation outcomes. *International Journal of Conflict Management*, *11*, 162-187. Retrieved November 11, 2004, from PsycINFO database.
- Raghuram, S., Wiesenfeld, B., & Garud, R., (2003). Technology enabled work: The role of self-efficacy in determining telecommuter adjustments and structuring behavior. *Journal of Vocational Behavior*, *63*, 180-198. Retrieved June 22, 2004, from PsycINFO database.
- Reese, S. D. (1988). New communication technologies and the information worker: The influence of occupation. *Journal of Communication*, *38*, 59-70.
- Roberts, P., & Henderson, R. (2000). Information technology acceptance in a sample of government employees: A test of the technology acceptance model. *Interacting with Computers*, *12*, 427-443. Retrieved October 1, 2004, from PsycINFO database.
- Rosenfeld, L. B., Richman, J. M., & May, S. K. (2004). Information adequacy, job satisfaction and organizational culture in a dispersed- network organization. *Journal of Applied Communication Research*, *32*, 28-54. Retrieved November 11, 2004, from PsycINFO database.
- Sealy, M., Phillips, G. J., & Stevenson, R. (2002). Shyness and anxiety as predictors of patterns of Internet use. *CyberPsychology & Behavior*, *5*, 507-515. Retrieved November 11, 2004, from PsycINFO database.
- Scott, C. R., & Fontenot, C.J. (1999). Multiple identifications during team meetings: A comparison of conventional and computer-supported interactions. *Communications Reports*, *12*, 91-100. Retrieved June 22, 2004, from Communications Mass Media Complete database.
- Schleicher, D. J., Watt, J. D., & Greguras, G. J. (2004). Reexamining the job satisfaction-performance relationship: The complexity of attitudes. *Journal of Applied Psychology*, *89*, 165-177. Retrieved October 31, 2004, from PsycArticles database.
- Schmiesing, R. J. (2002). Factors related to Ohio State University extension agents perceptions of organizational justice and job satisfaction. *Dissertations Abstract International*, *63*(4-A), 1217. (UMI No. 3049110). Abstract retrieved October 20, 2004, from PsycINFO database.

- Sheehan, K. B. (2002). Of surfing, searching, and newshounds: A typology of Internet users' online sessions. *Journal of Advertising Research*, 42, 62-71. Retrieved November 11, 2004, from Business Source Premier database.
- Sherman, R. C., End, C., Kraane, E., Cole, E., Campbell, J., Birchmier, Z., & Klausner, J. (2000). The Internet gender gap among college students: Forgotten but not gone? *CyberPsychology & Behavior*, 3, 885-894. Retrieved November 11, 2004, from PsycINFO database.
- Siegel, A. M., & Topel, E. M. (2000). E Supervision: Something new under the sun. (A. Goldberg). *How responsive should we be?: Progress in self psychology*. United Kingdom: Elsevier Science.
- Shikdar, A. A., & Das, B. (2003). The relationship between worker satisfaction and productivity in a repetitive industrial task. *Applied Ergonomics*, 34, 603-610. Retrieved October 28, 2004, from PsycINFO database.
- Sipe, R. B. (2000). Virtually being there: Creating authentic experiences through interactive exchanges. *English Journal*, 90, 104-111.
- Sipior, J. C., & Ward, B. T. (1999). The dark side of employee email. *Communications of the ACM*, 42, 88-92. Retrieved July 1, 2004, from PsycINFO database.
- Soloman, D. J. (2001). Conducting web-based surveys. *Practical Assessment, Research & Evaluation*, 7. Retrieved February 23, 2005, from <http://PAREonline.net/getvn.asp?v=7&n=19>
- Spector, P. E. (1985). Measurement of human service staff satisfaction: Development of the job satisfaction survey. *American Journal of Community Psychology*, 13, 693-711.
- Spector, P. E. (1997). *Job satisfaction: Application, assessment, cause and consequences*. Thousand Oaks, CA: Sage.
- Spitzmuller, C. (2003). Investigating mediators of the core self-evaluations: Job satisfaction relationship. *Dissertation Abstracts International*, 64 (7-B), 3569. (UMI No. 3099424). Abstract retrieved October 20, 2004, from PsycINFO database.
- Staples, D. D., Hulland, J. S., & Higgins, C. A. (1999). A self-efficacy theory explanation for the management of remote workers in virtual organizations. *Organizational Science: A Journal of the Institute of Management Sciences*, 10, 758-776. Retrieved October 1, 2004, from Business Source Premier database.

- Stevens, P.M., Williams, K.P., & Smith, M.C. (2000). Organizational communication and information processes in an Internet-enabled environment. *Psychology & Marketing, 17*, 607-632. Retrieved November 2, 2004, from PsycINFO database.
- Steward, B. (2000). Changing times: The meaning, measurement and use of time in teleworking. *Time & Society, 9*, 57-74.
- Straus, S. G. (1997). Technology, group process, and group outcomes: Testing the connections in computer-mediated and face-to-face groups. *Human-Computer Interaction, 12*, 227-266. Retrieved June 29, 2004, from PsycINFO database.
- Straus, S. G., & McGrath, J.E. (1994). Does the medium matter?: The interaction of task type and technology on group performance and member reactions. *Journal of Applied Psychology, 79*, 87-97. Retrieved May 5, 2004, from PsycArticles database.
- Sturgill, A. F. C. (1998). Relationship of telecommuting to organizational communication: A preliminary study of group process and communication satisfaction. (Doctoral dissertation, Cornell University, 1998). *Dissertation Abstracts International, 58*, 4116.
- Sujdak, E. J. (2002). An investigation of the correlation of job satisfaction, organizational commitment, perceived job opportunity, organizational communications, job search behavior, and the intent to turnover in IT professionals. *Dissertation Abstracts International, 63*(8-A), 2940. (UMI No. 3060680). Abstract retrieved October 1, 2004, from PsycINFO database.
- Sussman, S. W., & Sproull, L. (1999). Straight talk: Delivering bad news through electronic communication. *Information Systems Research, 10*, 150-166. Retrieved November 11, 2004, from Business Source Premier.
- Tafao-Helsham, I. (2002). Using job satisfaction indicators to improve work performance: A case study at the American Samoa Community College. (Doctoral dissertation, Golden Gate University, 2002). *Dissertation Abstracts International, 62*, 3885.
- Thompson, L. F., & Coovert, M. D. (2003). Teamwork online: The effects of computer conferencing on perceived confusion, satisfaction and postdiscussion accuracy. *Group Dynamics, 7*, 135-151. retrieved November 11, 2004, from PsycArticles database.

- Vernick, S. H. (2003). An analysis of the correlates of job satisfaction: The contribution of person-environment congruence, self-efficacy, and environmental identity to the explanation of job satisfaction. *Dissertation Abstracts International*, 64 (7-A), 2397. (UMI No. 3098405). Abstract retrieved June 22, 2004, from PsycINFO database.
- Vietez, J. A. C., Garcia, A., & Rodriguez, M. T. V. (2001). Technological change: Necessary organizational strategy that effects workers. *Psychology In Spain*, 5, 75-81. Retrieved November 2, 2004, from PsycINFO database.
- Violanti, L. M. (2003). The relationship of job satisfaction to role ambiguity and role conflict among school counselors. *Dissertation Abstracts International*, 64(8-A). 2746. (UMI No. 3101566). Abstract retrieved October 20, 2004, from PsycINFO database.
- Walsh, J. P., & Maloney, N. G. (2002). Computer network use, collaboration structures, and productivity. In P. Hinds & S. Kiesler. (Eds), *Distributed works* (pp. 433-458). Cambridge, MA: MIT.
- Watanabe, N. (2000). Workplace computerization and employee adjustment in Japan. *International Medical Journal*, 7, 17-21. Retrieved October 1, 2004, from PsycINFO database.
- Williams, J. R. (2004). *Job satisfaction and organizational commitment*. Retrieved October 20, 2004, from Boston College: http://www.bc.edu/bc_org/avp/wfnetwork/rft/wfpedia/wfpJSOCent.html
- Wimsatt, L. A. (2002). A study of work-related satisfaction and turnover intentions of faculty in higher education. (Doctoral dissertation, University of Michigan), (2002). *Dissertation Abstracts International*, 63, 3497.
- Workman, M., & Bommer, W. (2004). Redesigning computer call center work: A longitudinal field experiment. *Journal of Organizational Behavior*, 25, 317-337. Retrieved November 1, 2004, from Proquest ABI/Inform Global database.
- Yeuk-Mui, M. T. (2001). Information technology in frontline service work organization. *Journal of Sociology*, 37, 177-206. Retrieved November 1, 2004, from Info Trac Onefile database.
- Zhang, J. J., DeMichele, D.J., & Connaughton, D. P., (2004). Job satisfaction among mid-level collegiate campus recreation program administrators. *Journal of Sports Behavior*, 27, 184-212. Retrieved October 20, 2004, from PsycINFO database.