Gender and Hierarchy as Factors of Leadership Practices and the Use of Email

by

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M.S.A., Central Michigan University, 1997
B.S.N. Thomas Edison State College, 1993

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of the Requirements for the Degree of
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DOCTOR OF PHILOSOPHY DISSERTATION

OF

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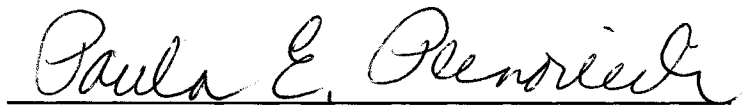

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ABSTRACT

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ABSTRACT

This quantitative study examined the extent to which the use of e-mail among leadership practices varied according to hierarchical position or gender. The study was designed to explore how, through e-mail, these social interactions have specifically affected work place communication. The researcher used two instruments in a survey of 233 managers in a health care system in central New Jersey. The first instrument accumulated participant scores about the self-reported frequency in which they engaged in behaviors related to five subgroups of leadership practices. The second survey was used to collected information about moderating variables related to gender and stratified managerial hierarchy, intervening variables including computer expertise, proficiency, attitude, and social influence, and the dependent variable of e-mail use. Quantitative data were analyzed using several different statistical tests, including analysis of variance (ANOVA), a "differences between genders" score, and Cronbach alpha.

While the data revealed equality and consistency with respect to the intervening variables, they also showed variation by leadership practice toward the moderating variables. Overall results showed a greater variation in the way different leaders treated the genders and a lesser variation in the way they treated the stratification of management hierarchy when using e-mail.

The study results suggest that leaders should become better educated about the power and dynamics of media and improve their communication skills, particularly with email, since it will continue to be a common exchange medium in contemporary organizations.

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CHAPTER 1: INTRODUCTION TO THE STUDY

Introduction

Leadership is about communication. Whether transmitted by speaking, writing, or listening, through the use of body posture or behavior, leaders are constantly communicating within organizations that are "socially constructed networks of relations and patterns of cognitive processes" (Malan & Kriger, 1998, p. 243). Through communication, information is passed back and forth among colleagues, subordinates, and superiors. This information is received, synthesized, and interpreted based on the subjective experience. The result of this individual subjective process is that the message being sent may or may not be the message that is received. Leaders must take into consideration more than the intention of the message they are sending, be aware of the interpretive capacities and capabilities of the message recipient, and understand the implications of the medium in which the message is being sent (Smith, 1997; Wood, 1999). Leaders must become acutely aware of how they are being perceived with each communicative encounter. According to Barrier (1999), for leaders "the ability to communicate effectively emerges repeatedly as the most important skill to cultivate" (p. 28).

E-mail as a communicative medium is becoming a dominant method for transmitting thoughts, ideas, and information between and within management levels. Rudick (2001) lent the perspective that the traits of this medium, instantaneous communication and broad reach are both useful and potentially destructive as a management tool. Today the expectation of communication has shifted from well thought

out, eloquent verbiage to impulsive and brief incomplete sentences. Technology, particularly e-mail, has contributed greatly to this change (Baron, 2000, p. 226).

Notebaert (1996) stated that "today's communications technology is a fantastic equalizer. Layers of people translating what one of us thinks and passing it along to others are no longer necessary" (p. 183). Today one hits a button and is in touch with anyone in any part of the organization. This differs greatly from the bureaucratic chain of command that was so common during the earlier part of the 20th century. Bureaucracy, as defined by Weber, was a form of organization that emphasized "precision, speed, clarity, regularity, reliability, and efficiency achieved through the creation of a fixed division of tasks, hierarchical supervision and detailed rules and regulations" (as quoted in Morgan, 1998, p. 23). According to Morgan (1998), Weber discovered that bureaucracies "routinized and mechanized almost every aspect of human life, eroding the human spirit and the capacity for spontaneous action" (p. 23). Today, organizations function in a knowledge era where speed, clarity, regularity, reliability, and efficiency hold a completely different meaning for leaders. Through communications technology the speed and regularity with which organizational leaders at all levels are able to, and are encouraged to, communicate with one another often can leave something to be desired where clarity, reliability, and efficiency are concerned. This knowledge era is different from the bureaucratic, hierarchical supervision and detailed rules and regulations of earlier organizational days. In this era, fixed division of tasks have become divisions of multitask. According to Buckingham and Coffman (1999) organizations have instituted

hierarchies that are much less vertical or rule bound. The implication for management in this new era is forcing inevitable change in both systems and methodologies.

Gunn (1995) highlighted this change in a discussion about the shift from second wave to third wave management,

> The rapid influx of information technology caused a paradigm shift that has changed the emphasis in organizations from the 'growth of assets' to the 'productivity of assets...that is, *second wave management* is affiliated with a human-centered paradigm, competition, subjective analysis, physical capital accumulation and reactive strategies. These attributes are in direct contrast to *third wave management*, which is associated with a truth-centered paradigm, cooperation, objective analysis, human capital appreciation and proactive strategies. (Gunn, 1995, p. 317)

Ponelis et al. (1998) echoed these thoughts, citing "the increasing emphasis placed on knowledge in an organizational context has given rise to a new manifestation of capital which occurs as human or structural intellectual capital" (p. 1). Managers functioning in this third wave world are now expected to be knowledgeable about and involved with much more than just their single division. In order to know and understand so much, managers have become highly dependent on information technology (Kawamoto, 2003, p. 18).

This knowledge era has created a new environment that is producing new outcomes for organizations and its people. One such outcome of this newer era is that leaders at every level within organizations across every industry are now experiencing a "word blizzard" from voice-mail, e-mail, faxes, pagers, letters, memos, and reports. This technological communications superhighway makes it all too easy for managers to impulsively communicate with each other and the masses. Although some technological

advancements, such as e-mail, have assisted with easier access to colleagues under certain circumstances within larger organizations, the ability to contact people regardless of time and space cannot always be said to be more effective. An example of this ineffectiveness is to quickly respond to an emotionally charged situation simply because it is easy to do so. Anyone having fallen into this circumstance can appreciate how difficult it can be to recover from the consequences of this type of impulsivity. According to McLuhan (1964), "Western man acquired from the technology of literacy the power to act without reacting" (p. 4). However he stated that "electric speed...in a sudden implosion has heightened human awareness of responsibility to an intense degree" (p. 5). This state of detached awareness, or the rapid return of a response without careful consideration of the recipient's perception, is where leaders may find that this electric medium yields personal and social consequences (McLuhan, 1964, p. 7). Therefore, in this electronic environment all levels of leadership, from the line supervisor to the organization's president, have a new responsibility: to establish clear and meaningful channels of communication (Smith, 1997). E-mail, therefore, has both individual and organizational implications that lends itself to more research.

Problem Statement

The problem with e-mail is that it is unknown how individual proficiency with and attitudes toward this technology, hierarchy or the level of the manager's responsibility, gender differences, and leadership styles collectively play a role in the way it is used by individual leaders. E-mail may or may not yet be a communications medium

that managers have become completely skilled at using. Although e-mail has been addressed in many varying technology and attitude studies, no research was found that specifically controlled for the variation in attitude, experience, proficiency, and social influence when addressing leadership practices and the use of e-mail as a communications venue. More specifically, investigating to what extent the use of e-mail among leadership practices varied according to managerial hierarchy and gender contributes to the growing body of research related to the topic of e-mail and therefore fills an apparent gap in the literature.

Background to the Problem

Social change in the 21st century is occurring at a dramatically faster pace than ever. Today there is a "rapid diffusion of ideas that are shared within a globalized culture and in an interrelated world where people and experience travel and mingle, quickly weaving a hyperquilt of women's voices throughout most of the planet" (Castells, as cited in Gilding, 2002, p. 6). This was not always the case, however. The first stage in the evolution of society was an underdeveloped stage of production, in which people lived by hunting and fishing. Information was transported by foot and was limited by the distance one could travel. As society became more complex, mobility through the invention of the wheel allowed for greater distances to be traveled and therefore information could be transported farther. The alphabet made it possible to keep larger amounts of information on hand. Roads and eventually airplanes soon allowed for even greater distances to be traveled and thus accelerated the pace at which information could be shared. Through

these stages of societal development advancement was largely about expansion or the moving away from one's locale at faster and faster speeds in order to gain greater access to more and more things. According to McLuhan (1964), "The stepping up of speed from the mechanical to the instant electric form reverses that trend from explosion into implosion. In our present electric age the imploding or contracting energies of our world now clash with the old expansionist and traditional patterns of organization" (p. 35). Electricity does not centralize, but decentralizes (McLuhan, 1964, p. 36). Our society is changing every minute due to cross-fertilization with other societies (McLuhan, 1964, p. 39). People are using computers to gain access to discuss networks that link geographically, politically, ethnically, and otherwise diverse people together into 'virtual communities' based not on the traditional parameters of physicality and adjacency but on interest and curiosity (Kawamoto, 2003, p.17). Today we can do and learn more than ever before without getting out of our chairs. All that is required is access to information.

Today, the need for knowledge is driving an information era that is concerned with growing, extracting, processing, manufacturing, recycling, and distributing things. Not surprisingly, it is all being done electronically through the Internet (Kawamoto, 2003, p. 6). The evolution from the industrial, or mechanical, to the information era is to do more with less through better knowledge (Cleveland, 1985, p.20). Technology is increasingly affecting that progression. It is speeding up traditionally mechanistic processes, carrying us from a world of sequence and connections into a world of creative configuration and structure (McLuhan, 1964, p. 12). Most recently, Kawamoto (2003) wrote:

> The Digital Age is upon us, and society is feeling its impact. The used car salesman, the retail merchant, the travel agent, the college professor, the librarian, the stock broker, the insurance provider, the grocer, the pharmacist, the bookseller, the political activist, the hobbyist, and yes the journalist and other media professionals, all face threats and opportunities in the Digital Age. (p. 6)

Knowledge management is therefore becoming paramount as data are proliferating at lightning speeds. The ability to communicate knowledge is increasingly more and simultaneously less of a challenge as information technology moves society and its knowledge capabilities into a new paradigm. Without the corresponding increase in the ability to manage, interpret, and communicate relevant information, society will divide into two groups: Those with knowledge will have power while those without will become powerless (Toffler, 1990, p. 14). This is echoed by Green (2002), who stated "technological advance means increased power and privilege" (p. 6). Ponelis (1998) concurred with his statement: "The future growth and prosperity of societies and specifically of organizations will depend on the ability to manage both information and knowledge" (p. 1). The ability to manage this information in organizations is the direct responsibility of its leaders.

Information Sharing through E-mail

Unavoidably, organizations share information through e-mail. Today, e-mail is used in almost every type of business activity that requires the exchange of information with external entities. It has also become an indispensable communication tool for internal management, horizontally connecting peers and vertically linking supervisors and their subordinates (Balasubramanian, 1998; Clapper & McLean, 1998; Lind & Zmud,

1995; Rangaswamy & Shell, 1997; Roxanne & Johnson, 1990; Schaefer & Dillman, 1998; Tan, Wei, Watson, as cited in Huang, 2002, p. 193; Ytterstad & Watson, 1996). When managers become employed, a computer with an e-mail account is now as common to receive as an office, a desk, and a phone. This would indicate that organizations expect and support use of this medium for sharing information, at least some of the time. How has this expectation affected leaders at work? Unfortunately, according to Fulk and Boyd (1991), theories related to media use and choice "have largely developed in a vacuum relative to the field of communication.... Communication media use in its most essential form is communication behavior. Communication behavior involves initiation, regulation of interaction, relational communication, message exchange, persuasion, and a host of other communicative processes" (p. 414).

Furthermore, this electric extension of the individual simply bypasses space and time creating problems of human involvement and organization for which there is no precedent. Where communication is concerned, "the old patterns of psychic and social adjustment become irrelevant" (McLuhan, 1964, pp. 104-105).

E-mail technology as a communications medium has been investigated from several organizational perspectives including leadership styles, communication between hierarchical levels of management responsibility, gender, attitude and experience, and social influence. However, as with any area of research, there is rarely a topic that has been totally exhausted. Usually through change over time, new methods of investigation are developed or new paradigms are identified that make re-examination of an event necessary.

Categories of leadership styles and practices such as transactional, transformational, authoritarian, humanistic, motivational, charismatic have been highlighted in the management and organizational literature for many decades. The literature has primarily focused on interpersonal communication behaviors with little specific insight toward the venues of media communication. Linguists, however, recognize that written English (at least in America) has increasingly come to reflect everyday speech and that e-mail has hastened this trend (Baron, 2000, p. 24). Additionally, Trevino et al. (1990) looked at whether a manager's own preferences and certain personality traits would influence the choice of medium. Yet no studies have specifically investigated the way e-mail is used among leadership practices with respect to hierarchy and gender.

Hierarchical managerial levels of communication have been addressed through research that can be categorized in several dimensions. Two dimensions most commonly include a) the relationship between supervisor and subordinate or that of management and staff where manager's conversations are designed to get people to do things; and b) the relationship between leader and organization especially where the leader's communication role is more symbolic, aimed at establishing shared meanings (Barge et al. 1989, pp. 357-358). Daft et al. (1987) investigated middle and upper-level managers' selection of communication media, finding that high performing managers intuitively understand that face-to-face communication is needed for unstructured communication with subordinates, while written communication works best for more routine symbolic communications (p. 355). However, no specific research was found that examined a

hierarchical managerial continuum with regard to communicating up, down, and laterally within organizations. This study will therefore add to the communications literature.

Gender has been addressed in the literature as having an impact on individual comfort and skill levels with technology and experience with computing activities. Women's lack of experience with computers (Allen & Griffeth, 1997; Allison & Rainer, 1997; Gefen & Straub, 1997; Green, 2001) has been highlighted throughout as a common theme for skill level and comfort. Wajcman (as cited in Green, 2001, p. 171) examined "the interrelationship of gender with technology, and argues that western societies construct technological competence as a masculine culture". However, Kawamoto (2003) reported that, "in August 2000, two Internet research companies-- Media Metrix and Jupiter Communications—jointly announced that the number of women online surpassed that of men for the first time ever" (p. 62). Prior to this announcement, Gefen and Staub (1997) looked specifically at the gender differences in the perception and use of e-mail and reported that although women and men differ in their perceptions about e-mail they did not show differences in their use of e-mail (p. 2). Multiple studies address gender and use of technology, but no studies could be found that looked specifically at gender differences and the use of e-mail with regard to organizational leadership practices. Further inquiry will add to the current lack of information on this topic.

Attitude toward, social influence of, and experience and proficiency with communications media have been researched from several perspectives. Green (2001) addressed attitude toward information technology from a sociological viewpoint where she described how marketing and domestication have guided attitudes. Wood (1999)

presented a case study that examined trends in the method of communication of the chief executive as preferred by staff within a specific organization. Bell (2002) provided dissertation research addressing leadership attitudes toward technology that focused on overload. Mitra (1998) and Hobbs (2002) both reported that as individuals gain more experience with computers, they tend to increase their use, thereby becoming more proficient. Trevino, Webster, and Stein (2000) concluded that media attitudes and behaviors are influenced by the characteristics of the situation, the social environment, and the people within a circle of communication.

According to Davis (1989) two determinants affect the use of technology. The first is perceived usefulness, which is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" and the second being perceived use of ease, which refers to the "degree to which a person believed that using a particular system would be free of effort" (p. 320). Davis (1989) theorized and then showed that "both perceived usefulness and ease of use were significantly correlated with self-reported indicants of system use"; however, "usefulness was significantly more strongly linked to usage than was ease of use" (p. 333).

Knowing when and when not to use this medium will undoubtedly contribute to the success of leadership communication. Therefore, this study investigated the extent to which the use of e-mail among leadership practices in a health care organization varied when using email to communicate with different genders and by managerial hierarchy through solicitation of information related to experience and proficiency with technology, from an attitudinal and social perspective, as well as from a communications behavioral

perspective. Investigating how often leaders are choosing e-mail for communication with peers, subordinates, superiors, men, and women offered insight about leadership communication practices.

Leader Communication

According to Smith (1997), the responsibility falls to leaders to establish and nurture effective channels of information sharing within their organizations and, therefore, "leaders are responsible for the communication design within their companies" (p. 123). Leaders at all levels of the organization, from line supervisors through chief executives, can establish this communication design by understanding the organization's culture and present state and by knowing what direction the organization must move in to stay competitive. Moving away from bureaucratic hierarchical situations and toward collaborative, participative democracies, leaders can design an environment where communication is guided for the good of the operating whole. This requires frequent and clear communication among the levels of management. Barker (2001), in supporting Smith, stated that leadership styles and practices "have stable, consistent and predictable repercussions for the workplace climate" (p. 68). Knowing how to manage one's own motives and select appropriate combinations of styles and communication mediums to motivate the workforce becomes paramount as "leaders personal qualities and actions have a decisive impact on others" (Barker, p. 69).

Why has communicating in organizations become such a challenge? The skill of communicating should be easy to master. After all, communication begins at birth. By the

time we begin to work in an organization most individuals have close to 2 decades of experience communicating with others. If one considers communication's basic framework as being rooted in cybernetics, it appears to be a simple system. A stimulus is sent to a receptor, which passes the stimulus to a transmitter, which amplifies the stimulus and moves it to an effector. This effector reacts to produce a response (Trask. 1971). Over time, however, it is expected that there is more than just simple mechanics to deliver a message. In face-to-face or voice-to-voice communication the transmitter has an opportunity to embellish the stimulus with expressive behaviors and actions that will add meaning beyond the spoken word. McLuhan (1964) presented the argument that Western scientific models of communication are linear, logical, and sequential in accordance with the pattern of efficient causality (p. 80). He described "hidden effects" that are largely overlook by what he called left hemisphere awareness, or recognition of a figure without perceiving the background upon which the figure gains its meaning. Within the context of all the things that exist, nothing has meaning except in relation to the environment, medium, or context that contains it (p. 71). McLuhan went on to state that Western communication is in the figure-minus-ground mode of the left hemisphere, and in contrast, does not relate to the instant effects of simultaneity and discontinuity and resonance that typifies one's experience in an electronic culture (p. 80).

Rich Information

Compared to McLuhan and Power's (1989) view is the premise of the consulting firm, Image Dynamics, which teaches that individuals form impressions of each other in

conversation by the following statistical components: 7% are the actual words used, 38% is the tone of voice, and 55% is the nonverbal or visual cues (Preston, 2002). During one-way communication, such as in e-mail, the opportunity to form these impressions is solely based on the words used, thereby losing 93% of the recipient's normal ability to perceive the intended message. If Preston's statistics are correct, e-mail appears to be nothing more than figure-minus-ground, or simple cybernetics.

Support for this loss in perceived message can be found in the information richness theory (IRT). This theory is defined as "the ability of information to change understanding within a time interval. Communication transactions that can overcome different frames of reference or clarify ambiguous issues to change understanding in a timely manner are considered rich" (Daft & Lengel, 1986, p. 560). Researchers (Barge, Down & Johnson, 1989; Daft, Lengel & Trevino, 1987; Fulk & Boyd, 1991; Gerloff & Muir, 1990; Rice, 1992; Trevino, Lengel, Bodensteiner, Schmitz & Fulk, 1991) have evaluated the venues through which organizational leaders choose to communicate based on the ambiguity and uncertainty of the message. A stratified hierarchy has been identified listing face-to-face communication as the highest in information richness followed by the telephone and then written communication (Allen & Griffeth, 1997; Daft, Lengel & Trevino, 1987; Rice, 1992; Schmitz, 1991; Trevino et al., 1990). "Un-addressed documentation" (e.g. e-mail communication) has been identified as one of the lowest in information richness (Allen & Griffeth, 1997, p.1243).

Additional support for the low richness of unaddressed documentation is that today technological advancements not only make communication potentially more

impulsive, it also moves leaders more and more toward one-way electronic communication (Hallowell, 1999). Without feedback to inform us whether our message was received, this one-way asynchronous communication leaves far too many opportunities for miscommunication. If one considers the definition of communication as "the exchange of thoughts, messages or information" (American Heritage Dictionary 1992, p. 177) one must also consider the timing, complexity, and circumstance within which this exchange is taking place. In other words, there must be a framework that accompanies this exchange in order for the recipient of the exchange to make sense of it. During one-way communication, the framework is often missing and therefore can attribute to misinterpretation. According to Weick (1995), "People make sense of things by seeing a world on which they already imposed what they believe" (p. 15). Therefore, it becomes important to frame communication in a context that will make the intended message clear. Supporting Weick's (1995) theory of sensemaking is Cleveland's (1985) statement indicating that knowledge "is organized information, internalized by me, integrated with everything else I know from experience or study or intuition, and therefore useful in guiding my life and work" (p. 22).

Time to Understand

Contrasting the IRT perspective is the ability to gain knowledge and an understanding from the information received through computer mediated-communication in an educational setting. According to Kawamoto (2003) distance education courses in many circumstances can be as effective as their on-campus counterparts (p. 78). This

method of education was shown by Gibb (as cited in Washer, 2002) to result in higher levels of deeper learning when compared to face-to-face seminar debates on abstract theoretical subjects. Perhaps this deeper level of learning comes from being able to take the time to organize the data before responding. According to Washer (2002), "One point that emerges from the educational literature is that communication by e-mail may encourage people who may be perhaps reticent in a more traditional social situation" (p. 1217).

Data are undigested observations, unvarnished facts (Cleveland, 1985, p. 22). Data, according to Ponelis and Fairer-Wessels (1998), have no intrinsic meaning until they are sorted, grouped, analyzed, interpreted, and processed into information, which when combined with context and experience, becomes knowledge (p. 3). Jordan and Ryan (as cited in Washer, 2002) argued that "this medium enabled participants to reflect and critically evaluate the material from other contributors and sources before responding" (p. 1217). Perhaps having the time to make sense of the message is why this deeper level of learning, as noted by Gibb, can take place. Unfortunately, in many organizations the luxury of time is not an option.

Although students in learning situations may have days to prepare responses to e-mails received, the expectation for the speed in which organizations respond to e-mail messages has become severely compressed. According to Weintraub and Prasso's report featured in Business Week's November 11, 2002, issue, where America's top 100 companies were sent e-mails, a response time of "three days or more" was unacceptable as implied by the authors (p. 14).

Clarity

Another issue surrounding e-mail is that the quality of writing is evolving or regressing, depending on one's perspective. According to Baron (2000),

> The choice of writing implement (stylus? typewriter?) and the medium upon which written marks are inscribed (clay tablet? paper?) can influence the shape and choice of the symbols themselves. The medium through which a written message is conveyed can also alter the linguistic content of messages, including choice of words, grammar, and topic of discussion. (p. 20)

This becomes an important issue, as e-mail is often utilized as an informal written medium; the message is designed more like speech but without the tangible cues that are delivered in face-to-face or voice-to-voice interactions. The context of the message must be very clear lest the meaning of the message become skewed. "Without this detailed specification, the sentence is ambiguous at best or even meaningless" (p. 156).

E-mail as an extension of computer technology has impacted society more than any other communicative invention. Its quick rise in popularity can be attributed to several characteristics. Unlike the telegraph or telephone, it is much less expensive, it offers a perception of privacy, and it is far-reaching, convenient, and quick (Green, 2001, pp. 129-130). Many leaders today receive far more e-mail messages than voice mail messages and likely encounter more individuals through e-mail than through face-to-face interactions. In larger organizations it may be a convenient communication medium of choice. However, this convenient choice comes with its own unique characteristics that, when not well managed, can create difficulties for both senders and receivers alike.

One such characteristic that can prove difficult is that although e-mail is written, the style of that writing is often more closely related to speech, but without the voice

inflections or visual cues. This creates potential equivocality and uncertainty of the contents of the message. Trevino et al. (1990) cited Daft and Lengel's work in the 1980s on the media richness hypothesis, which argued that "managers choose media to match the equivocality of the message" (p. 178). According to Trevino et al. (1990) equivocality is the existence of multiple and conflicting interpretations within the message. "Uncertainty can be defined as the gap between the data that is needed and the data that is currently available to resolve a problem or issue" (p. 177). McLuhan (1964) introduced this somewhat differently, describing hot media as one that extends one single sense in high definition while cool media offers little visual information. Therefore, hot media requires little participation, whereas cool media requires much more participation by the recipient (pp. 22-23). McLuhan describes these levels of participation:

> On the other hand, in experiments in which all outer sensation is withdrawn, the subject begins a furious fill-in or completion of senses that is sheer hallucination. So the hotting-up of one sense tends to effect hypnosis, and the cooling of all senses tends to result in hallucination. (p. 32)

This is an important concept for leaders who may "hallucinate" when receiving cool media information through e-mail.

More than 2 decades ago, e-mail was in its infancy within organizations and was used less frequently as a communications venue than today. Over that period, researchers have presented many different and conflicting perspectives on the characteristics of e-mail. According to Kawamoto (2003), "Digital media will continue to transform the communications landscape for many years into the future" (p. 125). Thus, examining e-

mail as a communicative medium several decades later may reveal new outcomes with regard to leaders choice of this previously identified low media rich venue.

Significance

Identifying how e-mail use is related to leadership practice and how that practice varies according to managerial hierarchy or gender is a significant topic for several reasons. First, because leadership is a "reciprocal process between those who choose to lead and those who choose to follow" (Kouzes & Posner, 1995, p.19), the ability to communicate is paramount to building this relationship. Leaders, therefore, need to understand more about the limitations and benefits of their style of communication when transmitted through e-mail.

Second, e-mail is becoming a more comfortable and convenient medium for communicating up, down, and laterally within organizations. Inevitably leaders must use this medium to communicate at least some of the time. Considering the low level of reported richness, (Allen & Griffeth, 1997; Daft, Lengel & Trevino, 1987; Rice, 1992; Schmitz, 1991; Trevino et al., 1990), it becomes important to know what, when, and how leaders are using this medium when communicating with their counterparts and whether its use is appropriate for the greatest professional good.

Finally, the importance of a leader's ability to communicate effectively has been highlighted for decades throughout the literature (Barker, 2001; Smith, 1997), yet there is no current research that studies the use of e-mail among leadership practices and how that

use varies according to hierarchy or gender. This study will therefore contribute to the scholarly research and literature in the field of leadership.

Purpose Statement

According to Kerry Preston, President of Image Dynamics Inc., executives fail more often due to their behavior, e-mail etiquette, and lack of interpersonal skills than their technical skills (Preston, May 6, 2002, personal communication). One of these factors, e-mail, is rising in popularity as a common organizational communication medium. According to Rice (1997), the Electronic Mail Association estimated that in 1994 between 30-50 million people were using e-mail (p. 5). That number was predicted to grow by 25% per year at that time. In 1998 Hacker et al. (1998) supported this projected increase, finding that approximately 75% of all United States corporations were using e-mail (p. 423). International Data Corporation estimated over 2 billion e-mail messages were sent daily in the United States, nearly double the volume at the end of 1997 (Baron, 2000, p. 245).

With such abundant use of e-mail it therefore becomes all too convenient for leaders to become trapped in a virtual world of unidirectional, noncontextual, unframed information. This age of information sharing in all corporate directions through the use of e-mail has resulted in major structural changes on the social front. It now becomes easier to misinterpret and impulsively respond to messages that are less inhibited than traditional written communication, yet more structured than phone calls (Rice, 1997, p.7). Organizational leaders must become cognizant of how they and their peers are utilizing

this popular communication medium, as increasing amounts of information are being generated and shared through e-mail, demanding the ability to communicate, manage, interpret, and act on so much information.

Although the literature has focused on leadership practices, hierarchical levels of management and communication, gender in relation to comfort with technology, social influence and attitude about and experience and proficiency with technology and communication, none has specifically addressed the use of e-mail among specific leadership practices and how that use might vary when communicating hierarchically and between genders while controlling for social influence, attitude, experience, and proficiency. Therefore, the purpose of this study was to identify whether the use of e-mail among leadership practices varies according to hierarchy or gender when the intervening variables of attitude, experience, proficiency, and social influence are statistically controlled.

Theoretical Framework

"It is generally agreed that 'good communication' is essential to any well-run organization" (Wood, 1999, p. 135). Leaders of these organizations are responsible for this core process. According to Wood (1999), during any given period, a chief executive's attitude will be directly reflected by the state and health of the communication function (p. 136). Building relationships and keeping subordinates informed while designing and ensuring specific cultures are all central to the organizational leaders role. These centralities associated with the electronic exchange of

information are imbedded in the theoretical concepts of media communication. This study, therefore, was conducted from a media communications theory perspective.

The concept of communication that guided this study was McLuhan & Powers' (1989) model for studying the structural impact of technologies on society. Powers (1989), in the preface to the book Global Village, stated

> This model emerged from a discovery that all media and technologies have a fundamentally linguistic structure. Not only are they like language but, in their essential form they *are* language, having their origins in the ability of man to extend himself through his senses into the environment. (p. x)

Cavell (1999) stated that "if all communications models account for the transmission of a signal or message between a sender and a receiver in some mutually decipherable code (as cited in Whiteside-St. Leger Lucas, p.12), then McLuhan's communications studies decidedly do not accommodate themselves to that definition" (p. 350). Cavell's (1999) description of signal transmission, however, merely provides a foundation for a very complex process. Baron (2000) described the complexity of human communication in terms of four dimensions: (a) social dynamics or the relationship of the individuals involved in the exchange; (b) format or the physical parameters of the message; (c) grammar or the lexical and syntactic aspects of the message; and (d) style or the conveyance of the intent (p. 250). In electronic communication the transmission of these four dimensions are altered by the medium.

Colin Cherry, a British communications theorist, made two distinctions (as cited in Cleveland, 1985) with regard to media and communication. The first is between the information itself and the service of delivering it and the second is between the message

itself and its meaning, which depends on the receiver as well as the sender (pp. 25-26). Claude Shannon and Warren Weaver (as cited in Cleveland, 1985) contributed to the field of communication theory by defining information as "the difference between two states of uncertainty, the uncertainty before and after receiving a message" (p. 24). As a result of their contributions, *information entropy* became an accepted term in the field of communications (Cleveland, 1985, p. 24). Information entropy is likened to the term *entropy*, which denotes disorder or randomness within a system (American Heritage Dictionary, 1992, p. 284). In this case, the uncertainty before and after reflects the potential randomness or disorder that may occur while communicating thoughts or ideas. As has been experienced by many at one time or another, what we think we said is not what was interpreted.

Supporting the information entropy theory was McLuhan's controversial philosophy, which stated that communication is a process rather than a matching of what is said to what is understood (Cavell, 1999, p. 350). According to McLuhan (1964) electric technology has allowed us to extend our central nervous systems around the world, abolishing both space and time (p. 3). E-mail has allowed us to extend our minds and voices well beyond the immediate, leaving what was typically the job of eyes and ears to eyes and mind, creating problems of human involvement and organization for which there is no precedent (McLuhan, 1964, pp. 105, 170). McLuhan challenged the linear model that interprets communication as the transmission of information from source to target believing instead that it is a transformation of the source and target simultaneously (Cavell, 1999, p. 350). Today the action and the reaction occur almost at

the same time (McLuhan, 1964, p. 4). "What emerges is a total field of inclusive awareness. The old patterns of psychic and social adjustment become irrelevant" (McLuhan, 1964, p. 104).

In alignment with Von Bertalanffy's (1968) general systems theory, where reductionism is not always possible in a multivariate (more than two dimensions) system, McLuhan seems to have said that communication cannot be linear since both sender and receiver encounter "side effects" from what is said and heard or what is written and perceived (Cavell, 1999, p. 351). McLuhan and Powers (1989), in the Global Village, wrote: "all media forms (a) *intensify* something in culture, while, at the same time, (b) *obsolescing* something else. They also (c) *retrieve* a phase or factor long ago pushed aside and (d) undergo a modification (or *reversal*) when extended beyond the limits of their potential" (p. x-xi). This four-part analysis, which is inclusive, is also apparently, irreducible. An interpretation of this might be to say that as communication through e-mail intensifies, it limits the amount of time people spend together face-to-face. As a result of this cool media, the sender must work harder to express clearly the intention of the message in order to assist the recipient in perceiving the intended meaning.

Finally, an alternative consideration that further supports McLuhan's electric information philosophy came from Smith (1997) who pointed out "there is no such thing as no communication" (p. 123). Accepting that it is not possible for leaders to not communicate, where no news becomes fabricated news by subordinates who expected to regularly share information and superiors based reporting and decision making on the feedback that was received, the information entropy concept becomes more apparent.

Uncertainty is absolutely enhanced when there is no communication. Likewise, too much information can have the same detrimental effect. "The ecologists have taught us that, in nature, too much is often as troublesome as too little; scarcity can be either drought or flood" (Cleveland, 1985, p. 30). It is with this information entropy, or the uncertainties before and after the transfer of communication, that leaders must become familiar. These ideas clearly point to how important it is for leaders to become experts at the skill of communicating above all other leadership skills.

Research Questions

Building on the premises presented that: (a) communication is an important leadership skill (Preston, 2001; Smith, 1997); (b) that leadership style will effect communication (Barker, 2001; Barrier, 1999; Rudick, 2001); and (c) e-mail has been highlighted as a potentially difficult communications media (Hallowell, 1999; Green, 2002), the following research questions arise:

1. To what extent does the use of e-mail vary among leadership practices (definition on the following page) according to gender?
2. To what extent does the use of e-mail vary among leadership practices according to managerial hierarchy?

Definition of Terms

These definitions represent a common understanding of terms utilized throughout the literature. They are as follows:

Electronic Mail (e-mail)- the use of computers to communicate privately (between individuals) or semi-publicly (Green, 2002, p. xvii).

Hierarchy- the term used to encompass the stratified levels of management responsibility including Subordinates, Peers and Superiors.

Medium/Mediums/Media- These terms will be used interchangeably and will share the definition of a venue for communicating as indicated by different authors in the literature.

Leader/Manager- one who mobilizes others to want to struggle for shared aspirations (Kouzes & Posner 1997, p. 30). These terms, for the purposes of this paper only, will be used interchangeably and will share the same definition.

Leadership style/practice- Style and practice will be used interchangeably to mean one of the five practices as defined by the Leadership Practices Inventory instrument; Challenging the Process; Inspiring a shared vision; Enabling others to act; Modeling the way; Encouraging the heart (Kouzes & Posner, 1997).

Media Communication- an extension of the mind and voice of men to reconstitute the human dialogue (McLuhan, 1964, p. 170).

Limitations

A limitation of this study includes the ability to generalize the results. Since the population of Meridian Health System leaders was chosen for convenience to the researcher, this nonrandom sample of leaders had a high probability of introducing bias

into the research. The reason is that this organizations leaders may not utilize e-mail in the same manner as other health care organizations or other industry organizations. This

Bridge

While the introductory chapter has provided an overview of the problem that was investigated, the next chapter will look at what has already been addressed in the literature, highlighting the gaps which this study intends to fill. According to Creswell (1994), the literature in a quantitative study is used deductively as a basis for advancing research questions or hypotheses (p. 24). Additionally, Merriam (2001) stated, "a literature review is a narrative essay that integrates, synthesizes, and critiques the important thinking and research on a particular topic" (p. 55). Through a review of literature related to this field of inquiry, the researcher was able to avoid duplication of efforts already put forth, find support or contrast with the findings of the study to be conducted, and ultimately insured a meaningful contribution to the existing available research (Smith, 1991, pp.49-50). Finally, chapter 3 will specifically address the methodology for this study, the instruments that were used, and will describe the intended analysis that will be calculated in order to determine answers to the research questions.

CHAPTER 2: LITERATURE REVIEW

Introduction

This study examined how organizational leaders are using e-mail to interact within organizations. Specifically, this research sought to understand how e-mail use varied among leaders with different practices when communicating, and whether the hierarchy of management and gender had an impact on that communication. While the use of e-mail in organizations is growing exponentially as a communications venue, it has also been shown that e-mail offers the lowest form of media richness (Daft et al., 1987; Rice, 1992; Schmitz & Fulk, 1991; Trevino et al., 1990). From a global perspective of communications theory much of the research has focused on several aspects of this medium besides richness. These foci have included social change, overload, matching of task to communication media choice, the social influence of organizational attitude toward the use of this media, media style, media perception, and whether personality trait contributes to selection. The literature is also rich with research related to leadership/managerial style and communication as well as gender differences and the use of technology. This is an important study that looks in-depth at leadership practices and the use of e-mail by combining the specific variables of managerial hierarchy and gender.

This topic becomes important for several reasons. First, it has been more then 10 years since e-mail was introduced as a communications venue in organizations. Second, electronic media are changing society permanently, from the way we do business to the way we gather and communicate information. Third, e-mail is changing the way leaders communicate hierarchically by breaking down bureaucratic barriers in all directions.

Fourth, women are increasingly becoming a larger portion of the leadership workforce. By closing the gender gap with regard to experience in communicating through e-mail technology, women may be having some impact on organizational communication. Finally, considering that all things evolve with time, addressing this topic may shed new information on how leaders are utilizing e-mail within organizations today.

E-mail and Social Change

"Today the consequences of digital media are all around us" (Kawamoto, 2003, p. 62). We see this in schools, libraries, health care, retail, banking, research, entertainment, news and information, and the list goes on. We stand at the cusp of change no more bewildering than our forebears experienced but a century ago when telephone and telegraph were dismissed as toys (Kawamoto, 2003, p. 23). Today the toys are more powerful, less expensive, easier to use, and farther reaching. They are allowing virtual communities and plastic societies to be formed and lived in quiet differently than ever before. Local neighborhoods are becoming disembodied communities on the basis of extraordinarily narrow interests (Gilding, 2002, p. 9). Several psychologists in describing relationships in cyberspace report them to be more emotionally and physically powerful then face-to-face relationships (Turkel, Ullman, Wallace, as cited in Gilding, 2002, p. 8). Wallace (1999), describing "hyperpersonal" relationships, is most descriptive in writing:

> You may reveal more about yourself to [online friends than real life ones], feel more attraction to them, and express more emotions—even when all you have is a keyboard. At the keyboard you can concentrate only on yourself, your words, and the feelings you want to convey. You don't have to worry about how you look, or those extra pounds you meant to

> shed...online you can reallocate your energies to the message. (as cited in Gilding, 2002, p. 8)

Perhaps this is what McLuhan and Powers (1989) were referring to when they wrote,

> Technology stresses and emphasizes some one function of man's senses; at the same time, other senses are dimmed down or temporarily obsolesced. The process retrieves man's propensity to worship extensions of himself as a form of divinity. Carried far enough man thus becomes a creature of his own machine. (p. 3)

As a global society we seem to be redefining ourselves and everything we do based on this newly discovered means of communication and information exchange that allows for the creation of both reality and illusion through the compression of distance and time.

Collaboratively learning to embrace changing technologies, take risks, and doing things differently will be critical to our success in the new century (Harrington & Li, 2002, p. 364). Professionals are sharing their experiences and expertise with members through computer-mediated communication (Washer, 2002, p. 1215). Students routinely e-mail their teachers from within their dorm rooms (Kawamoto, 2003, p. 59). Employers monitor their workers, ensuring that they are not wasting time browsing non-work-related web sites or sending and receiving personal e-mail (Archee, 2002, p. 33). The Internet has created dramatic changes in the way that firms do business with their publics both domestically and internationally. While some businesses will benefit others will dwindle significantly (Kawamoto, 2003, p. 72).

These new opportunities in society beg the question, what changed whom or is it the other way around? Technologies themselves appear to be the outcome of cultural

patterns and preferences, but by the same token, the new technologies dramatically extended the scale and scope of culture itself (Gilding, 2002, p. 10). So what does all of this have to do with organizations? Everything. Organizations are conglomerates of individuals that must communicate with other organizations and each other in order to remain in existence. These organizations are rife with opportunities to share political, economic, social, behavioral, psychological, marketing, and production information with workers and customers alike. They are little nervous systems extending outward and in through venues that largely include electronic media. Like everything around us, the skill of communicating is changing while remaining somewhat the same. It is in the ability to understand this simultaneous evolution, revolution, and de-evolution that leaders will succeed in guiding thier organizations through whatever will be faced in the future. Specifically reviewing literature that relates to the topic of leadership and communication can assist in recognizing how difficult a challenge this has been.

E-mail as Communication Media

The acceleration of communication through electronic media has left research at a disadvantage. More specifically there does not seem to be enough time to thoroughly explore a topic before it changes or new related information becomes available. Perhaps this is why it has been so difficult to specifically associate this topic with a communications theory. Fulk and Boyd (1991) presented a compelling article pointing out that "reviews and critiques on the subject of organizational communication invariably have assailed the lack of theoretical infrastructure behind the myriad of research reports"

(p. 407). The literature reviewed on this topic presented several sub or parallel theories of communications theory. These subtheories include organizational information processing theory, structural symbolic interaction theory, social information processing theory, and social learning theory. The first two theories, organizational information processing theory and structural symbolic interaction theory, fall directly under the model of media richness. Social information theory is grounded in the assumption that perception of media varies in systematic ways. Finally, social learning theory evolved from the media perceptions model, which assumes that media perceptions and media use are influenced by the social setting or organizational norm present. Fulk and Boyd (1991) asserted, "all of the approaches have merit as perspectives on the field. However, they have not as yet propelled us toward that decades-old but still elusive goal: the promulgation of new theory" (p. 408). Since the marriage of communications and computers new challenges have arisen for managers communicating within organizations. With this challenge comes new and perhaps some old perspectives on this venue of communication.

E-mail as a Media-Rich Communication Venue

"The media richness hypothesis (Daft & Lengel, 1984, 1986; Lenge & Daft, 1988) argues that managers choose media to match the equivocality of the message" (Trevino, et al. 1990, p. 178). Equivocality or the existence of multiple and conflicting interpretations of a particular message has been highlighted in the literature since the early 1980s. More than 2 decades later the hypothesis raises new questions since the new media, e-mail, has become much more common in organizations. Rice (1992) recognized

these new media characteristics, stating that "communication media differ in the extent to which they can (1) overcome various communication constraints of time, location, permanence, distribution, and distance, and (2) transmit the social and nonverbal cues of human communication" (p. 476). Yet, he went on to state that numerous studies have found that text-based computer-mediated communication systems are perceived as less appropriate for social, intuitive, or emotional tasks that are difficult to analyze (Rice 1992, p. 477). In contrast however, Schmitz and Fulk (1991) reported perception and not richness as that driving force for usability regardless of the media. They state "the more types of communication situations for which a medium is usable (the richer it is perceived to be in terms of speed, number of channels, type of language, and personalness [sic]), the more useful it may be seen and the more it may be used" (p. 490). Move forward in time to Green (2001), who concurs that the usefulness of mediated communication increases by virtue of the creation and circulation of cultural material. This conflict in the literature with regard e-mail's usefulness raises the question, Have leaders in today's organizations adapted to the apparent limitations of e-mail as a communications media?

Overload

More recent studies have redirected their focus related to e-mail. The current literature has moved its focus from e-mail as a communications venue to e-mail as a technological stressor. Considering that technology can deliver more information at faster speeds than any manual process, e-mail being the primary mode of transmission,

overload has been highlighted. Since the mid 1990s several authors (Bell, 2000; Dalton, 1999; DeFrank & Ivancevich, 1998) have looked at the effects of information overload citing stress-related claims as the fastest growing segment of the workers' compensation system. In addition the flood of information generated by the rapid evolution of technology has inundated the work areas of managers and non-managers alike (DeFrank & Ivancevich, 1998, pp. 55-56). Dalton (1999) collected data indicating that the average U.S. office worker was getting between 30 and 300 e-mails per day. Bell (2000) does a thorough job of covering other stress related issues:

> Among the more dysfunctional effects of information overload in organizations managers could be the rush to make decisions without serious reflection on the quality of the information available, a danger cited in several studies (de Moor, 1996; Rees, 1997; Stuller, 1996). Some other ill effects include elevated blood pressure, decreased benevolence, and occasional overconfidence (Shenk, 1997). A litany of psychological and sociological effects caused directly by information overload include shortened attention span, a reactive mode, analysis paralysis, warped perspective and diminishing overall work quality (Reuters, 1996).McCune (1998) highlighted the problem of information fatigue syndrome on both individuals and organizations. (pp. 73-74)

Since it is likely that as technology becomes more integrated into workplaces, overload will continue to be an inevitable presence in organizational cultures. While stress at work is unavoidable, some stress is desirable creating motivation and peaking interest in the tasks at hand. Therefore, managers must learn to adapt and utilize technological stress appropriately.

Matching of task to communication media choice

One way to manage technological stress is to match technology to task. Certain situations require certain actions. Hundreds of years ago, if conversing with someone was required, limited choices were available to accomplish the task. One could write a letter and have it hand delivered or one could travel and seek out the individual with whom the conversation was to take place. Communication constraints such as the type of conversation or the distance between the individuals generally determined which choice was made. Today there are few constraints and many more choices, including telephone, voice-mail, e-mail, fax, and pager. While distance and time have become non issues, information processing has become a major issue. As a result, ambiguity and uncertainty have been studied with respect to the task and the type of communications media chosen to deliver the message (Fulk & Boyd, 1991; Rice, 1992). Rice looked specifically at the different media and the extent of variation with which each conveyed the information necessary for the analyzability of tasks. He defines *analyzability* as "those for which predetermined responses to potential problems, and well-known procedures, are available and useful, because outcomes are well understood" (Rice, 1992, p. 478). These tasks tend to be routine, measurable and straightforward in their processes where outcomes are predictable. In contrast the un-analyzable task is "more personal, less linear, more *ad hoc*, and improvisational" (Daft & Weick, as cited in Rice, 1992, p. 478). Daft et al. (1987) indicate in their research that better performing managers were more aware and sensitive to the media they chose to communicate from both the uncertainty and symbolic

perspectives. An example of symbolism would be to send a "thank you" note. Via e-mail, the "thank you" is symbolically much less personal than if handwritten.

Outcomes of the matching model have produced continuums or a ranking concept of media with regard to richness, analyzability, equivocality, and so forth. Several continuum tables have been published (Daft et al., 1987; Fulk & Boyd, 1991; Rice, 1992) where face-to-face is consistently at the top of the hierarchy providing the most richness. However, differences in the continuums follow the face-to-face agreement. In Daft et al. (1987), the 'Hierarchy of Media Richness' has face-to-face as the highest in richness followed by the telephone. Next on the continuum is written, "addressed documents" such as notes, memos and letters, which are listed as being slightly richer than "unaddressed documents" including fliers, bulletins and standard reports (p. 358). A comparison of Daft's hierarchy can be made to Rice's (1992) hierarchy, which listed face-to-face as the richest media and ends with letters and messages as the least rich. However, Rice (1992) created a more in-depth list that includes video, telephone, voice conferencing, group meeting, voice messaging, group gathering, chart/grapMHS, computer report, document/report memos, e-mail, facsimile and handwritten notes (p. 478). It is interesting to note that Rice listed e-mail as higher in richness than a handwritten note. Fulk and Boyd (1991) address these differences by summarizing the most prominent media richness studies concluding that the media richness models were more accurate when applied to traditional rather than newer mediums (Fulk & Boyd, 1991, p. 411).

Attitude toward and experience with technology

Another characteristic that may influence a person's choice or use of a particular medium is the skill level that may be required. Poor public speakers may hesitate to call large groups of individuals together for a meeting. Similarly if one lacks experience or proficiency to comfortably utilize computer technology an alternative media source may be sought. Mitra (1998) reported several variables that specifically impact computer use. These variables include length of time an individual would have used computers; frequency in the use of computers; level of instruction as it relates to anxiety and interest; and type of computer software and its application (p. 282). Conclusions drawn from Mitra's (1998) research and others are that if learning styles and instruction are matched and as experience increases anxiety decreases while usage increases. Hobbs (2002) supported Mitra's conclusion in his article that reviews four survey instruments that seek to collect data on experience with computer usage and nine instruments that determined attitude toward computers. These surveys were designed to specifically measure nursing experience with and attitude towards computers. Hobbs (2002) cited the American Nurse Association recommendations of basic and continuing education for the computer and information literacy skills of beginning and experienced nurses (p. 72). Hobbs (2002) stated that "computer competent nurses have a general knowledge and understanding of computer technology and a positive attitude toward computers and software and how they benefit nursing and are skillful in the equipment and software used in their environment" (p. 72).

Another consideration is that organizational policy may affect attitudes toward technology. Lea observes that organization members perceive e-mail as a medium that bridges spoken and written communication and that it is useful for communication that is spontaneous and informal (as cited in Hacker & Goss 1998, p. 424). Policies that regulate e-mail usage, particularly if those policies were established by management with little employee consultation, tend to alienate e-mail users. Hacker and Goss contended that, "qualitative data indicate that employees generally prefer guidelines to restrictive policies for e-mail communication" (p. 422).

Trevino, Lengel, and Gerloff (1990) found that individual characteristics could play a role in attitude toward media selection particularly with matching message equivocality to media richness. In their study they cited Carl Jung's work on psychological types that was further refined by Myers and Briggs (1985). Specifically, two psychological types, perception and judgment, were noted to have an impact on communication behavior. Individuals who scored higher on perception defined, as the ways individuals become aware of things, chose richer media more often when sending ambiguous messages than those who scored higher on judgment, which is defined as the way individuals come to conclusions (Trevino, et al. 1990. p. 183). Trevino et al. was the only work that addressed anything near to leadership styles or practices with respect to the use of e-mail.

Social influence of organizational and personal attitude toward the use of media types

The continued conflict in findings with respect to task matching and the media continuum models motivated researchers to look for alternative perspectives with regard to media selection. Social influence has been highlighted in the literature where the group or organization socially influences an individual choice with respect to the use of media for various communication tasks. Schmitz and Fulk (1991) referenced communications research showing that "an individual's attitudes, values, and behavior are shaped in important ways by the social world in which that individual resides" (p. 487). They further submitted that their research was grounded in the belief that "social interaction in the workplace shapes the creation of shared meanings and that these shared definitions provide an important basis for shared patterns of media selection" (p. 488). Also considered in the literature are several processes involved in both the perception and use of certain media including co-workers statements, vicarious learning and organizational norms. Fulk and Boyd (1991) reported specifically that individual's perceptions of electronic mail richness were predicted by their communications network partner's perceptions of electronic mail usefulness (p. 412). Fulk (1993) determined that social influences on technology-related attitudes were consistently more positive when individuals enjoyed their work group as opposed to when they did not. Several years later Fulk, Schmitz, and Ryu (1995) showed that individual cognitions of their combined network partner's attitudes and behaviors in using electronic mail predicted the individual's own attitudes and behaviors (p. 260). Straub and Karahanna (1998) added to the social influence perspective by looking at social presence and its effects on media

choice as it relates to the communicator's need to be psychologically present for one another during the communication experience (p. 162).

Another perspective is offered by Trevino, Webster, and Stein (2000) who considered that attitude toward certain communications media may be relatively unimportant to specific choice (p. 164). Whether one likes a particular medium may not matter if one is compelled to utilize it because everyone else in the organization communicates using that media. Likewise distance, time, decision-making, debate, or discussion may also require that a specific media be used despite the users attitude toward that media. Media attitudes and behaviors are therefore viewed as complex phenomena that are influenced by characteristics of situations, social environments, and persons (Trevino, Webster, & Stein 2000, p. 164).

Finally, social influence cannot be ignored as having an impact on individual attitude toward technology (Ellis, 1999; Fulk & Boyd, 1991; Fulk, 1993; Fulk, Schmitz & Ryu, 1995; Schmitz & Fulk, 1991; Straub & Karahanna, 1998; Trevino, Webster & Stein, 2000). Ellis discussed this social influence as having its roots in the act of communicating where communication is the only empirical reality of social structures (p.33). He stated that "Some work in organization theory (e.g. Harrison, 1994; Hawes, 1974; Weick, 1979) is a notable exception that focuses attention on how language and social interaction processes interweave action and order to produce larger organized relations out of patterned individual behaviors and goals" (p. 32). The implication is that individuals influence each other through the complex interactions that they engage in. Therefore, individuals become members of social networks that establish power, roles, and identity.

Gender and the use of technology

Another way that individuals become members of social networks is through sex role identification. Centuries of societies have established differences in power, roles, and identity with respect to men and women. As a result, at least in part, the reinforcement of gender differences through these social networks has had an impact on many aspects of the roles and responsibilities of individuals within organizations. It is therefore no surprise that these differences have been highlighted in the realm of technology.

Allison et al. (1997) predicted that by the year 2000, 47% of the workforce would be female and that 61% of all working-age women would be employed, suggesting that women would increase their participation in occupations that were once gender-segregated (p. 849). Additionally, computer technology has become an important part of most organizations, requiring employees to become computer competent in order to be successful within these organizations. Several subtopics related to gender and computing have been discussed in the literature, including gender roles, individual gender differences, and gender-related computing differences.

Under the topic of gender roles, several authors have pointed out that it has been primarily males who have dominated the field of technology (Allen & Griffeth, 1997; Gefen & Straub, 1997; Harrison et al. 1997). This may be attributed to several factors including the influence of social networking, gender-based behavioral differences, and information processing within the communications structure in organizations. The social networking factor is apparent early on in children's lives, particularly in school where boys and girls learn their place in society. An example comes from Culley who, "using

observational data, implied that school computer clubs tend to have a strong male culture which is derogatory toward females" (as cited in Harrison & Rainer Jr., 1997, p. 850). "The study also found that females, who chose to participate in the clubs despite the dominant male culture, often found that environment uncomfortable" (p. 851).

Another example is offered by Allen and Griffeth (1997), who noted that some theorists suggest women have suffered from a lack of power and information in organizations (p. 1241). From an information processing perspective women have simply been kept out of the communications circles. As managers communicate among themselves they develop common meanings and frames of reference. With few women in top management positions, 1.7% corporate officers in the fortune 500 companies as of 1990, it is difficult to form these common frames of reference (Allen & Griffeth, 1997, pp. 1240-1241).

Additionally the literature is rife with examples of individual gender differences, the effects of which may affect women's use of technology. Men have been described as more independent, rational, confident, influential, masterful, assertive, competent, dominant, and adversarial; women have been described as nurturing, compliant, unselfish, friendly, harmonious, and focused on intimacy and solidarity (Allen & Griffeth, 1997; Gefen & Straub, 1997; and Harrison et al. 1997). Stereotypically the technical world of computing and the competitiveness of the computer industry had no place for women. The media ensured this arrangement representing males as expert computer users while females were depicted as purely decorative and rarely positive in the computing environment (Harrison & Rainer Jr., 1997, p. 850).

Despite the differences in gender roles and behaviors, the recent research has concluded that among the gender-related computing differences, males had significantly more computer experience, less anxiety, and more positive anticipation about computer use, while women specifically viewed e-mail as having higher perceived usefulness and social presence than when compared to men's perception of the same (Gefen & Straub, 1997, p. 396). Allen and Griffeth (1997) predicted that powerless groups, such as women, would perceive less support, more job pressure, and information underload when compared to more powerful groups such as men. Additionally, Allen and Griffeth (1997) hypothesized that this powerless group would receive and send less information, have fewer interactions, and perceive less accurate information from supervisors and department heads. Through their research they found this to be generally not true (p. 1256). Additional support for these findings come from Gefen and Straub (1997), whose overall conclusion was that gender differences did not affect actual use of e-mail (p. 397). In August of 2000, Media Metrix and Jupiter Communications reported a 126% increase in usage of the Internet by teenage girls in a 12-month period (Kawamoto, 2003, p. 62). It will be several years before those girls impact the workforce.

Hierarchy and managerial communication

Regardless of attitude and comfort with technology, gender, or social network, the ability to communicate up, down, and laterally has been made easier through the development of e-mail. As a result, according to Notebart (1996), today's leaders face unique communication challenges because e-mail has become a fantastic equalizer (p.

183). Where once bureaucracy depended on layers of people to translate messages by passing them back and forth, up and down to others, e-mail has eliminated this making it no longer necessary. "Today we hit a button and we're in touch with anyone in any part of our organization" (Notebaert, 1996, p. 183).

> When individuals move up the corporate ladder the ability to exercise authority, or to get people to work real hard, one can no longer rely on the personal daily contact. You've got to lead through other means. Your words begin to count a lot more (Barrier, M. 1999, p. 29).

One can conclude, that the higher the level of authority the more likely one is to be more careful in the choice of communications media, particularly e-mail. As words become more and more important in motivating and inspiring employees, medium becomes a delicate choice. Therefore, the choice of e-mail by leaders must be carefully considered. Interestingly, this "newer phenomenon," with respect to ease of communicating both up and down between organizational members, has been largely ignored as the literature lacks research that addresses hierarchical communication in all directions through e-mail.

Leadership Practices and Communication Skills

What constitutes effective leadership, and what types of skills are required? These questions have been studied and debated for decades. Many interpretations have been documented. Barge, Downs, and Johnson (1989) have collected several definitions. These include:

> Behavior that makes a difference in the actions of others (Scott, 1977); as the management of reinforcement contingencies (Sims, 1977); as social influence (Kochan, Schmidt, & D Cotiis, 1975); as a perception that attributes organizational outcomes to people versus contextual factors

> (Pfeffer, 1978); and symbolic activity that establishes shared meanings (pp. 358-359).

Other more tangible actions involve establishing authority and being decisive and directive. Above all effective leadership is a fluid process requiring a set of skills that are constantly changing to fit the needs of the situations encountered.

In addition to the skills that have been listed above, there has been a perceived difference between managers and leaders, which has also been debated. Leaders have been described by as those who convey visions and set goals and direction for the organization while managers are responsible for operationalizing how these goals are met (as cited in Barge, et al., 1989, p. 360). Drucker stated that "the role of middle management has traditionally involved a large component of processing and communicating information" (as cited in Fenton-O'Creevy, 1996, p. 53). Kouzes and Posner (1995) wrote that, "Leadership has about it a kinesthetic feel, a sense of movement. Leaders go first while managing is about handling things, about maintaining order, organizing, and control" (p. 36).

In contrast Mintzberg (1998) pointed out that leadership is covert, meaning that managing with a sense of nuances, constraints, and limitations makes the leader appear that she is not leading at all (p. 140). Hodgson (1987) wrote, "Leadership is about path-finding (going outside the rules), management/administration is about path-following (using and applying the rules)" (p. 13). Yet many of the skills required for leading people are common in both the leader's and the manager's role, including decision-making, motivating, reinforcing, analyzing, and problem solving. Additionally, according to

Barge et al. (1989), "Leadership then becomes a symbolic activity designed to make organizational life meaningful and sensible to its members and to forge consensus on the meaning of these activities" (p. 360). While the ability to clearly and unequivocally communicate is paramount to the activity of leading, research has demonstrated that organizational leaders spend most of their time in brief informal interactions or conversations (Barge, et al. 1989, p. 362). Burns and Mintzberg concurred that leaders may interact with their followers using a variety of symbolic forms including written memos, meetings, formal presentations, or ordinary conversations however, the significance of these conversations cannot be underestimated in the leader-follower relationship (as cited in Barge, et al. 1989, p. 362).

Surrounding the leader-follower relationship is the leader's style.

> Litwin and Stringer's (1966) research into leadership behavior and workplace motivation suggested that leaders are prompted to adopt certain styles by their underlying characteristics and workplace motives. These styles have stable, consistent and predictable repercussions for the workplace climate for employees, strongly influencing their ability to perform well" (as cited in Barker, 2001. p. 67).

Additionally, Conger (1991) wrote, "A leader must not only be able to detect opportunities in the environment but to describe them in ways that maximize their significance...by articulating an organization's mission and communicating it in ways that inspire" (p. 31).

Several models of leadership styles have been discussed throughout the literature. Transformational leadership has been described by Lindholm, Sivberg and Uden (2000) as that which focuses on people and problem solving in a changing environment, while transactional leadership is concerned with day-to-day operations in an unchanged

organizational system (pp. 328-329). Charismatic leadership is about personal image building designed to inspire followers to be compliant through consistent communication strategies that effect social change (Fiol & Harris, 1999; Gardener & Cleavenger, 1998). Each has their place given the appropriate situation. McClelland (1995), however, saw leadership differently. He stated that "a good manager is not one who needs personal success or who is people oriented-but one who has a need for power" (p. 126). In addition to possessing a high need for power, a manager must be concerned about influencing people toward the benefit of the institution as a whole, making them feel strong and responsible, keeping them informed so they know what they should be doing (McClelland, 1995, pp. 127-128).

In line with McClelland's vision of leadership were those of Kouzes and Posner (1995) who have spent more than 18 years collecting data from more than 10,000 leaders and 50,000 constituents (forward by Tom Peters, p. xv). During that time Kouzes and Posner (1995) identified five practices leaders use to turn challenging opportunities into remarkable successes (p. xvii). Instrumental in producing change through certain behaviors are the practices of (a) challenging, or the ability to look for opportunities to change regardless of the risks; (b) inspiring, or the ability to inspire others with a common vision; (c) enabling others to act by giving power away to foster collaboration; (d) modeling the way by setting the example and achieving small wins that build commitment; and (e) encouraging the heart, or the commitment to recognizing and celebrating team accomplishments regularly (Kouzes & Posner, 1995, p. 18). These

leadership practices have been highlighted as consistent across countries, industries, and situations.

Helping to Close the Gap

The topics of leadership, technology, and communication in combination raise many interesting questions. Since leadership requires a core set of skills and processes destine to move on a continuum that is situation dependent, and while technology will continue to improve providing new and better options for leaders to share information, leaders must learn to adapt to these new options. Rudy (1996) pointed out that although there has been much research conducted on e-mail, much of that research lacks organizational context whether the studies were either experimental or conducted in controlled settings (p. 199).

Challenging qualities that have been associated with e-mail still exist. Equivocality, or ambiguity, continues to plague e-mail despite attempts by organizations and others to prescribe e-mail policies on etiquette or to introduce symbols meant to express emotion. Overload tends to become more of an issue as spans of control are broadened and managers are given more and more responsibility. Managers who receive more e-mail in a day then can be responded too can suffer a litany of psychological and sociological effects (Bell, 2000, p. 74). Survey data soliciting media richness and task matching have been collected where the social implications for managers have been found to shape relationships both positively and negatively (Schmitz & Fulk, 1991). Additionally, personal attitudes toward and experience with particular media influences

choice. Mitra (1998) has concluded that as experience increases, anxiety decreases and usage and proficiency increases (p. 283).

Gender has played a roll in technology. Men have primarily dominated this field where high school computer clubs as well as the media have chastised women for their interest, portraying them as merely decorative in the computing environment (Allen & Griffeth, 1997). With nearly 50% of the workforce in the United States being female, women are more likely to be comfortable with technology, particularly e-mail. Gefen and Straub (1997) have pointed out that, for women, e-mail is socially significant for maintaining relationships. Finally, leadership communication has been challenged by the reality that e-mail eliminates bureaucracy and facilitates hierarchical communications up, down, and laterally.

Since e-mail has been available for more than a decade and is currently well integrated into organizations as both a communications and information sharing tool, and considering that while the qualities of e-mail have not changed, the demographics of the workforce have shifted and that workforce's experience with this media has increased; it is time to study how managers' practices have adjusted to the use of this media. The intention of this study is to explore the extent to which management practices vary in the use of e-mail with respect to hierarchy or gender. Therefore, a void in the existing literature may be filled.

CHAPTER 3: METHODOLOGY

Overview

The framework for the research was guided by a quantitative paradigm. Quantitative analysis is defined by Babbie (1998) as "the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect" (p. 5). Maxwell (1996) was more direct in his description: "Quantitative researchers tend to be interested in whether and to what extent variance in x cause variance in y" (p. 20). A quantitative paradigm has been chosen since this study looked at the extent to which the use of e-mail, the dependent variable, among leadership practices, the independent variables, varies according to hierarchy and gender, or moderating variables.

This study's methodological design was described by Fowler, who stated "survey design provides a quantitative or numeric description of some fraction of the population—the sample—through the data collection process of asking questions of people" (as cited in Creswell, 1994, p. 117). Since there is no treatment condition or independent variable within the control of the researcher, experimental design was inappropriate for this study. Instead, this research sought to describe the extent of variation between the dependent, email, and independent variables, leadership practices, based on the moderating variables, gender, and hierarchy. Research questions were utilized instead of hypotheses, given that the researcher did not wish to predict but instead report the extent to which a variation exists (Sproull, 1988, p. 42). Survey methodology and statistical analysis were employed in an attempt to determine this

extent. The research scope was designed for breadth rather than depth and tried to capture a population's characteristics by making inferences from a sample's characteristics.

Sample Characteristics

Studying a sample and generalizing it to an overall population is likened to averaging in a statistical approach (Weinberg, 1975, p. 14). Centuries of learning have been based on this concept where the "law of large numbers states that the larger the population, the more likely we are to observe values that are close to the predicted average values" (Weinberg, 1975, p. 14). Survey research of a sample as noted by Kerlinger has therefore been found to be quite accurate in assessing information about the larger population (as cited in Bell, 2000).

Collecting data through surveys offers several other advantages. Surveys "may often be completed in much less time than might some other types of data collection, especially interviews. Additionally, survey research is often less expensive than some other types of research" (Bell, 2000, p. 89). However, there can be some disadvantages to collecting data in this manner. These have been highlighted throughout the literature and include poor return rates, especially if surveys are mailed, potential lack of honesty in answering the questions, the inability to challenge or check on responses given by the participant. Finally, a large enough sample size may not be practical, and therefore the results may not be generalizable (Babbie, 1998; Bell, 2000; Cooper & Schindler, 1998; Kerlinger, 1973). Other methods, such as interview or observation, eliminate the potential

drawbacks associated with survey research yet bear the burden of time. Given the design and intention of this study, survey research was practical and appropriate.

Instrumentation

Data for this study were collected utilizing two surveys. The first, which appears in Appendix A, is the Leadership Practices Inventory (LPI) designed by Kouzes and Posner (1995), who discuss their survey development:

> The LPI "was developed through a triangulation of qualitative and quantitative research methods and studies. In-depth interviews and written case studies from people's personal-best leadership experiences generated the conceptual framework, which consists of five key leadership practices: Challenging the process, inspiring a shared vision, enabling others to act, modeling the way, encouraging the heart (pp. 341-342).

Their research spans more than a decade and includes more than 7,500 middle to senior managers from the United States, Europe, the Pacific Rim, Australia, and Mexico (Kouzes & Posner, 1995). The independent variables, or the five leadership practices, were determined by the first survey in this research, which consists of 30 questions, as developed by Kouzes and Posner. This survey's intention was to ascertain one dominant practice for each participant, from a possibility of five leadership practices, based on how that participant reported the frequency with which they actually engage in particular behaviors. These five leadership practices have been categorized and defined by Kouzes and Posner (1995) as follows:

> "Challenging the process", or the leader's practice of seeking out challenging opportunities to change, grow, innovate and improve while

> experimenting, taking risks, and learning for associated mistakes. 'Inspiring a Shared Vision', or the practice of envisioning an uplifting and ennobling future while enlisting others in a common vision by appealing to their values, interests, hopes and dreams. "Enabling others to act", or the practice of fostering collaboration by promoting cooperative goals and building trust while strengthening people by giving power away, providing choice, developing competence, assigning critical tasks, and offering visible support. "Modeling the way", or the practice of setting examples by behaving in ways that are consistent with shared values while achieving small wins that promote consistent progress and builds commitment. "Encouraging the heart", or the practice of recognizing individual contributions to the success of every project and celebrating team accomplishments regularly. (p. 18)

Permission for the use of this instrument appears in Appendix B.

A second survey was developed after an exhaustive search of the literature. No survey measured exactly the subject of e-mail in a way that all of the variables sought by this researcher. This second survey was developed to collect data pertaining to the venues with which leaders would choose to respond to everyday communication. Consisting of 31 questions, the survey was developed to capture several constructs that make up the dependent, moderating, and intervening variables. The variables captured by this second survey are as follows: use of e-mail as the dependent variable; hierarchy and the respondents gender as the moderating variables; and attitude, experience, proficiency, social influence and gender (built into the scenarios) as the intervening variables.

This second survey has three parts and collects self-reported data about the variables. The first part, titled "Experience and Proficiency with Computers," addresses several aspects of experience by ascertaining frequency in which the participant uses computers by first asking for the estimated hours per day and number of years one has been using a computer both at home and in work. The next section lists five categories of

programs and activities that would be commonly utilized on a computer both at home and in work. These categories have been determined to be generally common by the researcher's expert panel. This expert panel consisted of five individuals, three who have their doctorates, one who has a DN.Sc. and one who is a candidate to receive an Ed.D. This expert panel was asked to voluntarily provide feedback about this survey.
In this section the participants are asked to rate themselves on their proficiency level with each. One additional question asks the participant to report their level of expertise and three questions relate to their attitude toward computers. These four questions serve as internal reliability for the self-reported proficiency. Questions 1-9 address the intervening variables of attitude, experience, and proficiency.

The second part of the survey, titled "Use of E-mail," includes one question addressing the participant's e-mail practice with regard to sending and receiving e-mail. This one question ascertains additional information about the intervening variables of experience and proficiency. Finally, two additional questions ascertain information related to the intervening variable of social influence, which the participants may experience from friends and work colleagues with regard to the use of e-mail.

The first two parts of the survey address the intervening variables of expertise, proficiency, attitude, and social influence as determined by the self-reported experience with technology, particularly with the use of e-mail. Mitra (1998) reported an iterative cycle that showed the more experience one has with technology, the better ones attitude is toward technology, which facilitates more use and therefore more experience and proficiency. Additionally, there is evidence that individuals are influenced by their

surrounding social world and will align themselves with those values, attitudes, and behaviors associated with computer and e-mail use (Boyd, 1991; Fulk, Schmitz & Ryu, 1995; Schmitz & Fulk, 1991; Straub & Karahanna, 1998; Trevino, Webster & Stein, 2000). The first two parts of the survey were designed to support these findings.

The third part of the survey, titled "Scenarios," was developed to reflect common communication interactions in the workplace. These scenarios address the moderating variables of hierarchy and gender. The content of each scenario addresses a level of importance, urgency, or complexity. Research related to ambiguity and uncertainty, which have been studied with respect to the task and the type of communications media chosen to deliver the message is well covered in the literature. In their findings, Daft et al. (1987), Fulk and Boyd (1991), and Rice (1992) indicated that better performing managers were more sensitive to the media they chose to communicate from both the uncertainty and symbolic perspectives. The topics of ambiguity, uncertainty, task, and type were not addressed statistically in this study. Importance, urgency, and complexity were introduced into the questions only for the purpose of varying the scenarios to make them more realistic. The original communication route of each scenario's message is varied and the participants are given a choice of varied communication methods to respond to each scenario.

Hierarchy has been introduced into each of the scenarios. Notebaert (1996) pointed out that e-mail technology has made it much more convenient to communicate up, down, and laterally within organizations, thereby softening bureaucratic structures. For leaders, it has become far too convenient to communicate using this venue. Given

that no literature was found to address issues of communication in every direction of the managerial hierarchy using e-mail, determining whether the use of e-mail among leadership practices vary according to hierarchy will provide new information.

Additionally, gender was introduced into each of the scenarios purely as a gauge of social bias or preference with respect to who gets communicated to and who communicates by each method. While many (Allen & Griffeth, 1997; Gefen & Straub, 1997; Harrison et al., 1997), have found that there are differences in the way that men and women communicate using e-mail, Gefen and Straub (1997) found that gender was not a factor in the actual use of e-mail.

Two components of gender were collected. The intervening variable, gender of each respondent were collected demographically. Information about gender as a moderating variable was also collected through the participant's response to scenarios where male and female characters were embedded into the questions. This component of the survey will not try to resolve the apparent conflict in the literature but instead report whether the use of e-mail among leadership practices varies according to gender.

Two steps were taken to assure that this second survey is both valid and reliable. The first step was to bring the expert panel together to determine construct validity and readability. These individuals were asked to determine (a) does the experience and proficiency section collect information specific to participant experience and proficiency; (b) are the computer programs and activities common; (c) do the scenarios reflect typical reality based workplace communications, and finally; (d) does the survey and its instructions communicate in an understandable manner? This survey is located in

Appendix C. A summary of the variables, their survey source and related questions are listed in Table 1.

Table 1

Variables, Source and Associated Questions

Variable Name	Source	Question
Independent variable #1 Challenging the Process	Leadership Practices Inventory (LPI)	Five distinct practices were determined by the LPI developed by Kouses and Posner (1995)
Independent variable #2 Inspiring a Shared Vision		
Independent variable #3 Enabling other to Act		
Independent variable #4 Modeling the Way		
Independent variable #5 Encouraging the Heart		
Dependent variable #1 Use of email	Experience with Computers Survey	Questions 13 through 30 represent 9 pairs of scenarios that ask how the participant is most likely to respond to each of the situations. The choices include: Phone Call, Fax, Email, Written Memo, and Face to Face. A sample question is as follows: 13. Tom, a superior, sends you a written memo describing an action plan to address a public debacle. He has asked for your feedback. You know that his plan is the wrong approach. He will begin instituting this plan tomorrow.

(table continues)

Moderating variable #1 Hierarchy	Questions 13 through 30 represent 9 pairs of scenarios that asks how the participant is most likely to respond to each of the situations that incorporate hierarchical levels of management interaction with superiors, peers, and subordinates. A sample question is as follows: 15. Sally, your employee, emails you and requests to meet with you to talk about another employee who she thinks may be doing something illegal. She has no experience in handling this type of situation.
Moderating variable #2 Gender	Questions 13 through 30 represent 9 pairs of scenarios that match the same question using a male and female subject. Sample questions are as follows: 16. Ed, your boss, emails you and requests a five year strategic planning meeting that does not fall within your normal responsibilities. 19. Mary, your boss, emails you and requests a five year strategic planning meeting about a program that does not fall within your normal responsibilities.

(table continues)

Intervening variable #1 Experience	Questions 1 through 4 solicits the participants self determined experience with computers by asking the following questions: 1. Approximately how many hours per day do you use your computer at home?____ 2. Approximately how many years have you been using a computer at home?____ 3. Approximately how many hours per day do you use your computer at work? ____ 4. Approximately how many years have you been using a computer at work?____ Additionally question 10 solicits specific experience with sending and recieving email. 10. Check the one statement that most describes your email practice When using email, I send more emails than I receive. When using email, I receive more emails than I send. When using email I send and receive approximately equal amounts of email.
Intervening variable #2 Proficiency	Questions 5 and 6 solicit self determined proficieny with using computers. 5. In performing the following computer activities please rank on a scale of 1 through 5 how proficient are you with:(For all: 1= not proficient; 5 = very proficient; N/A = never used or no experience)Using Word Processing 1 2 3 4 5 N/A (example: 1= I can barely write a business letter; 5 = I can set up tabs, change margins, create multiple columns)Using presentation programs 1 2 3 4 5 N/A (example: 1= I can set up simple presentations; 5= I can create professional complex presentations) Using spreadsheets 1 2 3 4 5 N/A(example: 1= I can enter data; 5= I can have the spreadsheet perform mathematical equations, sort information, categorize data)Using email 1 2 3 4 5 N/A(example: 1= I can send, receive and reply to mail; 5= I can create list servs, set up electronic signature, forward mail to another accountUsing the Web 1 2 3 4 5 N/A(example: 1= signing on and searching; 5= building and maintaining my own web site)

(table continues)

	6. Overall I feel my level of computer expertise is very high:
Intervening variable #3 Attitude toward computers	Questions 7,8,and 9 solicit the participants attitude toward using computers. 7. Overall my attitude toward using computers is very good: 1 2 3 4 5 NA 8. Computers make my life easier at work: 1 2 3 4 5 NA 9. Computers make my life easier at home: 1 2 3 4 5 NA
Intervening variable #4 Social influence	Questions 11 and 12 solicit whether the participant experiences any social influence to use email. 11. Email is a common way of communicating among my friends? 1 2 3 4 5 (example: 1= we never communicate this way; 5= we very frequently communicate this way) 12. Email is a common way of communicating among my work colleagues? 1 2 3 4 5 (example: 1= we never communicate this way; 5= we very frequently communicate this way)

The second step was to do an independent study to ensure reliability. This was accomplished by asking graduate level administration students at an extended learning university located in southern New Jersey to participate in a test-retest procedure. Both surveys for each participant contained a unique set of numbers and letters in order to match them for analysis after the second survey was completed. Participants were sought based on classroom size and number of classes that were running simultaneously in the graduate program. Permission was granted in writing from the university (see Appendix

D). A separate consent form was developed for this pilot study (see Appendix E). Results of the pilot study appear in chapter 4.

Data Collection

Participants for this study were from within 3 hospitals and 75 non-hospital affiliates of a health system located in central New Jersey. Approximately 350 individuals were asked to complete the *Leadership Practices Inventory* and the *Experience with Computers* surveys during an organizational leadership retreat. These retreats take place four times per year and are mandatory for all department managers and above throughout the systemwide organization. The corporate vice president of human resources, who is directly responsible for these retreats, granted permission in writing (see Appendix F). A packet containing a consent form (see Appendix G) and the two surveys were placed at each individual's chair in advance of the first day's session. During the morning of the first day the researcher was given an opportunity to explain what was to be done and went over the consent form. The group was asked to voluntarily participate. Participants were asked to seal the envelope provided once the surveys had been completed. The corporate vice president's administrative assistant collected the sealed envelopes. An incentive was provided to encourage individuals to participate. The incentive, in the form of a gift basket, was raffled off at the end of the day for all who complete both surveys. The researcher was given the sealed envelopes containing the surveys at the conclusion of that day's activities.

Ethical Considerations

This study met all criteria for the highest degree of ethical research, as there was no risk involved in filling out the surveys. Anonymity was assured and participation was completely voluntary. In addition, a request to the Institutional Review Board, for approval to conduct this research using human subjects, was made and approved prior to the collection of any data.

Analysis

Analysis of the data was done using several statistical methods. Data collection of the independent variable, participant leadership practices, was analyzed using the *Leadership Practices Inventory* data analysis package designed by its creators. This package has been purchased and used by the researcher for this study. This survey instrument has proven to be both reliable and valid over time as documented in the appendix of Kouzes and Posner (1995). This analysis package accumulates participant scores about the self-reported frequency in which they engage in behaviors related to the five subgroups of leadership practices. There are six questions that relate to each of the five subgroups. The scores range from 1= almost never to 10= almost always using a 10-point frequency scale. Each participant was categorized into one of the five possible leadership practices.

The *Experience with Computers* data were analyzed using several techniques. First, the reliability test data were evaluated using correlation analysis to determine the consistency in which the responses to the questions moved in unison or opposition

between the test and retest sessions. The voluntary expert panel had already determined this survey's validity prior to these reliability sessions.

Primary analysis of the main study's data was aimed at controlling the intervening variables of participant gender, attitude, experience, proficiency, and social influence. As discussed in the literature review, these intervening variables were considered as potentially having an impact on the relationship between the independent and dependent variables, which needed to be controlled or held constant (Cooper & Schindler, 1998; Sproull, 1988).

Participant gender was analyzed using a nonparametric test. This type of test, according to Cooper and Schindler (1998), is simple to calculate, has good power efficiencies, does not force the researcher to accept assumptions, and is recommended for use with nominal data (p.163). Participant gender was reported in mutually exclusive categories by simply adding up the total of men and women in each of the leadership practices categories.

Attitude, experience, proficiency, and social influence data were collected on an ordinal scale using a cumulative score to indicate a better or worse attitude and more or less experience, proficiency, and social influence. Analysis of variance (ANOVA) was done for all individual intervening variables against all five leadership practices to determine the equality of distribution among these intervening variables within each category of leadership practice. If these intervening variables were not equally distributed then Analysis of covariance (ANCOVA) would be necessary in order to apply indirect statistical control on these variables.

Cronbach alpha was used to calculate internal consistency between the participants self-report about experience and proficiency and their reported attitude, expertise, and social influence within the first two sections. Cronbach coefficient alpha is typically used to estimate reliability with non-dichotomous responses (Sproull, 1988). Given Mitra (1998) and Hobbs's (2002) findings that these intervening variables are iteratively linked, then high scores in experience and proficiency would be followed by high scores in attitude, expertise and social influence.

The moderating variables, gender and hierarchy, were analyzed in the following ways. To determine the extent to which the use of e-mail among leadership practices varies according to gender, a "differences between genders" score was utilized. There were nine scenarios containing males and nine scenarios containing females. The participants were individually given 1 point each time they responded to the same gender using e-mail and 1 point for each time they used e-mail to respond to the opposite gender. A total of 9 points could be received in each of the two categories. The two scores were subtracted from one another. The closer the number was to zero the more equally the genders were treated by that participant.

Table 2

Differences Between (example)

	Male participant
Same gender	5
opposite gender	-5
Gender score	0

The example above, in Table 2, the male participant responded equally to both the same and opposite genders using e-mail. In this case 5-5=0, thus there was no difference in the way this participant treated the genders.

Finally, hierarchy analysis looked at the number of times each participant used e-mail to respond within each subgroup. ANOVA was used to determine whether the means of these subgroups superior, peer, and subordinate were equal when compared to each of the five leadership practices.

Summary

Rudy (as cited in Bell, 2000, p. 108) found much research conducted on e-mail. Yet at the same time much of that research, having been done in experimental or controlled settings, lacks organizational context. This study sought to capture e-mail use from within an organizational context and provide data that could contribute to the existing e-mail literature.

CHAPTER 4: RESULTS

Introduction

This chapter presents the results for this study, which occurred in two phases. The first phase included a pilot study that was initially done to test reliability of the *Experience with Computers* survey, which was created by the researcher. Since this survey had not been previously used in research, it became necessary to determine its ability to reliably solicit the information for which it was designed. This was done in a test/retest format where participants' responses were compared from the initial test to the repeat test. The researcher was focused on whether the instructions were understandable and whether there was consistency in the responses between the test and retest time periods.

The second phase of the results comes from the actual research study. These results are based on the responses to two survey instruments. The first survey, the *Leadership Practices Inventory* focused on determining the respondent's leadership practice by soliciting the frequency with which individuals practice certain leadership behaviors. This instrument is a well-established, published survey that has been used in many settings all over the world. The second instrument, the *Experience with Computers* survey, was designed to first collect information about the respondent's self-reported experience, proficiency, attitude toward, and social interactions through the use of a computer. This instrument also solicited how respondents replied to "real-life" interactions with co-workers by offering consistent technological and face-to-face choices of response to each situation. This section of the survey tried to determine

whether or not there is variation in the way particular leaders interact with superiors, peers, and subordinates and with members of the same and opposite gender.

Pilot Procedure

Prior to the conducting the research a pilot study was conducted with 42 graduate level students in the education administration track from Central Michigan University, McGuire Airforce Base, located in southern New Jersey. This pilot group was targeted based on their administrative backgrounds; participants held leadership positions in education and the military. These graduate students were considered by the researcher to represent leaders in general.

Students who participated in the test phase of the pilot study were given a randomly assigned number and letter placed at the top of the survey they received. These students were asked to write the identifying digits on the researcher's business card and keep it in a location that would be easily accessible for the retest phase of the pilot study. During the retest phase students were asked to produce the business card and write the digits on the second survey. This procedure helped to match the two surveys without identifying the individuals directly. Of the 42 students who participated in the test phase, 27 followed instructions and were able to complete the second phase, which yielded an adequate size for a pilot study (Cooper & Schindler, 1998)

The interval between the test and retest ranged from 1 to 4 weeks. The researcher intended to do the retest 2 weeks after the test phase. However, since classes at this University's location did not run in parallel time frames, the 2-week retest was not

possible for all groups. Instead one group of students (n= 7) met 1 week later and would then be finished with that class, one group (n= 13) met 2 weeks after the test phase and the last group (n= 7) met one month after the test phase. As a result, the retests occurred 1 week, 2 weeks, and 4 weeks after the test phase was complete.

Statistical Analysis

Data were analyzed between the test and retest responses for all three groups by first correlating the overall responses to Questions 1 through 4 from the *Experience with Computers* survey. Questions 1 and 3 asked the respondent to self-report how many hours per day they use a computer at home and at work. Questions 2 and 4 asked the respondent to self-report how many years they have used a computer both at home and at work. Pearson product-moment correlation was used to measuring the relationship and consistency of the participant's responses from the test to the retest (Sproull, 1988). A two-tailed test at a .05 level of significance was performed for these questions. The hypothesis stated that the groups would have a high correlation of the test and retest phases. A summary of the test/retest phase for each group appears in Table 3.

Table 3

Summary of Pearson Correlation

Group 1	Q1	Q2	Q3	Q4
Pearson Correlation	0.685	0.966	0.915	0.999
Sig. (2-tailed)	0.090	0.000	0.004	0.000
N	7	7	7	7
Group 2				
Pearson Correlation	0.192	0.860	0.978	0.878
Sig. (2-tailed)	0.529	0.000	0.000	0.000
N	13	13	13	13
Group 3				
Pearson Correlation	0.366	0.989	0.766	0.917
Sig. (2-tailed)	0.419	0.000	0.045	0.004
N	7	7	7	7
All Groups				
Pearson Correlation	0.257	0.917	0.809	0.920
Sig. (2-tailed)	0.195	0.000	0.000	0.000
N	27	27	27	27

Question 1 correlated moderately for Group 1 and low for Groups 2 and 3. This question does not allow the null hypothesis to be rejected. A possible explanation for this result may be the recency effect, which is defined as "the common finding that in a free recall experiment the items that are presented toward the end of the list (i.e., most recently) are more likely to be recalled than those in the middle" (Reber & Reber, 2001, p. 606). Participants under the principle of recency may have answered this question differently from the test to the retest phase based on the amount of recent computer activity that was imposed on them through school assignments. During the test phase Group 1 was preparing a paper and presentation, Group 2 was only preparing a presentation, while Group 3 was preparing neither a paper nor a presentation. Groups 1 and 2 were assigned

to give presentations on the day that the retest was performed, while Group 3 again had no such assignment.

> Cowan assumes that short-term memory represents a nested subset of long-term memory; specifically, it comprises those portions of long-term memory that are currently active. Cowan further distinguishes among activation levels—e.g., some items are especially active because they sit in the focus of attention—but it is important to note that (a) short-term retention is generally tied to an item's activation level and (b) activation is assumed to be lost, normally through decay, as a direct function of time. (as cited in Nairne, 2002, p. 56)

Questions 2, 3, and 4 however, were strongly and positively correlated offering evidence of reliability within all groups. Therefore the null was rejected.

Spearman's rho was utilized to correlate Questions 6 through 9 and 11 and 12. "Rho correlates ranks between two ordered variables" (Cooper & Schindler, 1998, p. 547). The variables in this case are the ranked agreement responses given in the test phase as compared to the retest phase. Question 6 asked the respondent to rate their overall self-perceived level of computer expertise. Questions 7 through 9 asked about the respondent's attitude toward computers and whether computers made things easier at home and at work, while Questions 11 and 12 solicited the social influence related specifically to the use of e-mail that the respondents felt they experienced from coworkers and friends. Questions 6 through 9 and 11 and 12 all utilized a 1 through 5 scale where 1 equaled "I do not agree" and 5 equaled "I totally agree". N/A, or not applicable, was a choice for Questions 6 through 9 for those who did not have any experience or never used a computer while Questions 11 and 12 did not offer this choice. A summary of the test/retest phase for each group appears in Table 4.

Table 4

Summary of Spearman's rho

Group 1	Q6	Q7	Q8	Q9	Q11	Q12
Correlation Coefficient	0.867	0.943	0.889	0.893	0.658	0.970
Sig. (2-tailed)	0.012	0.001	0.007	0.007	0.108	0.000
N	7	7	7	7	7	7
Group 2						
Correlation Coefficient	0.907	0.672	0.855	0.792	0.654	0.750
Sig. (2-tailed)	0.000	0.012	0.000	0.001	0.015	0.003
N	13	13	13	13	13	13
Group 3						
Correlation Coefficient	0.761	0.939	0.219	0.471	0.667	1.000
Sig. (2-tailed)	0.047	0.002	0.637	0.286	0.102	.
N	7	7	7	7	7	7
All Groups						
Correlation Coefficient	0.884	0.841	0.669	0.726	0.674	0.842
Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000
N	27	27	27	27	27	27

All questions for Groups 1 and 2 correlated moderately high to high, while for Group 3 Questions 8 and 9 had a low correlation. The low correlation results for Group 3 may again be explained by the recency effect. In this case Group 3 was tested 4 weeks apart and may have been utilizing their computers differently during the test versus the retest phase. While time between the test and retest phases might be a factor, there is not enough evidence to support that consideration since the other questions correlated moderate to high with Question 12 having a perfect correlation.

Question 5 was analyzed using the Friedman test, which "tests the null hypothesis that k variables come from the same population" (SPSS Student Version 11.0). This

question asked the respondents to rank themselves on a scale of 1 through 5, 1 being not proficient and 5 being very proficient. Question 5 solicited how proficient the respondents perceived themselves to be in working with certain computer activities such as word processing, presentation programs, spreadsheets, e-mail, and the web. N/A, or not applicable, was a choice for those who had never used or had no experience with these activities. The Friedman test was run on the combined test/retest data for the three groups. The results showed no statistically significant difference among the groups and appear in Table 5.

Table 5

Friedman Test

	Group 1	Group 2	Group 3	All Groups
N	7.000	13.000	7.000	27.000
Chi-Square	12.944	17.341	13.398	70.329
Df	4.000	4.000	4.000	9.000
Asymp. Sig.	0.012	0.002	0.009	0.000

Next, the researcher wanted to know how consistent the participants were in their responses to Questions 10 and 13 through 31 from the test to the retest for each group. The paired samples t-test was used to compare each participant's response on the test to that same individual's response on the retest. Question 10 solicited experience in using e-mail by asking the respondent to chose one of the three questions: When using e-mail I send more e-mails than I receive; I receive more e-mails than I send, or I send and receive approximately equal amounts of e-mail. Questions 13 through 30 asked the respondents to chose how they would most likely respond to the following situations. Five choices

were given: Phone Call, Fax, E-mail, Written Memo, and Face to Face. Question 31 asked the respondent to circle their gender.

The hypothesis stated that there would be a significant difference between each group in how consistent they were in their responses from the test to the retest phases. The null hypothesis stated that there would not be a significant difference in the consistency between each group's responses from test to retest. The results for each paired question in Group 1 supported the null hypothesis at a confidence level of 95% where the p-values were all greater than the predicted .05 level of significance. The calculated t-value in all cases was less than the critical value of 2.447 at 6° of freedom. Group 2 also supported the null hypothesis at a confidence level of 95% where the p-values were all greater than the predicted .05 level of significance. The calculated t-value in these cases was less than the critical value of 2.179 at 12^{0} of freedom. Group 3 had two paired questions that did not support the null hypothesis at the predicted confidence level of 95%. Question 16 from test to retest had a calculated t-value of 2.828, which was higher than the critical value of t at 2.447 while the p-value was .030, which is less than the predicted .05 level of significance. Question 30 had a calculated t-value of 2.500, which again was higher than the critical value of t at 2.447 while the p-value was .047, which was less than the predicted .05 level of significance. All other questions for Group 3 did not reject the null hypothesis (see Table 6).

Table 6

Paired Samples t-Test

Group 1

		Mean	Std. Deviation	t	Sig. (2-tailed)
Pair 1	Q10W1 - Q10W2	-0.143	0.378	-1.000	0.356
Pair 2	Q13W1 - Q13W2	-0.571	1.512	-1.000	0.356
Pair 3	Q14W1 - Q14W2	-0.286	1.799	-0.420	0.689
Pair 5	Q16W1 - Q16W2	0.429	2.820	0.402	0.702
Pair 6	Q17W1 - Q17W2	-0.571	0.976	-1.549	0.172
Pair 7	Q18W1 - Q18W2	-0.286	0.756	-1.000	0.356
Pair 8	Q19W1 - Q19W2	1.571	2.299	1.808	0.121
Pair 10	Q21W1 - Q21W2	-0.571	1.902	-0.795	0.457
Pair 11	Q22W1 - Q22W2	0.143	0.378	1.000	0.356
Pair 12	Q23W1 - Q23W2	-0.286	2.430	-0.311	0.766
Pair 13	Q24W1 - Q24W2	0.000	1.155	0.000	1.000
Pair 14	Q25W1 - Q25W2	-0.714	2.059	-0.918	0.394
Pair 15	Q26W1 - Q26W2	-0.286	2.430	-0.311	0.766
Pair 16	Q27W1 - Q27W2	-0.571	0.976	-1.549	0.172
Pair 17	Q28W1 - Q28W2	0.714	2.059	0.918	0.394
Pair 18	Q29W1 - Q29W2	-0.286	0.756	-1.000	0.356
Pair 19	Q30W1 - Q30W2	-0.333	0.816	-1.000	0.363

Group 2

		Mean	Std. Deviation	t	Sig. (2-tailed)
Pair 1	Q10W1 - Q10W2	0.231	0.439	1.897	0.082
Pair 2	Q13W1 - Q13W2	0.308	2.428	0.457	0.656
Pair 3	Q14W1 - Q14W2	0.692	1.974	1.264	0.230
Pair 4	Q15W1 - Q15W2	0.000	2.309	0.000	1.000
Pair 5	Q16W1 - Q16W2	-0.231	1.423	-0.585	0.570
Pair 6	Q17W1 - Q17W2	0.308	1.109	1.000	0.337
Pair 7	Q18W1 - Q18W2	-0.154	0.555	-1.000	0.337
Pair 8	Q19W1 - Q19W2	-0.538	1.561	-1.244	0.237
Pair 9	Q20W1 - Q20W2	-0.769	1.536	-1.806	0.096
Pair 10	Q21W1 - Q21W2	-0.154	2.075	-0.267	0.794
Pair 11	Q22W1 - Q22W2	0.538	1.561	1.244	0.237
Pair 12	Q23W1 - Q23W2	-0.154	0.987	-0.562	0.584
Pair 13	Q24W1 - Q24W2	-0.462	2.184	-0.762	0.461
Pair 14	Q25W1 - Q25W2	-0.615	1.710	-1.298	0.219
Pair 15	Q26W1 - Q26W2	0.154	1.908	0.291	0.776
Pair 16	Q27W1 - Q27W2	0.154	1.519	0.365	0.721
Pair 17	Q28W1 - Q28W2	0.000	2.160	0.000	1.000
Pair 18	Q29W1 - Q29W2	-0.308	0.751	-1.477	0.165
Pair 19	Q30W1 - Q30W2	0.000	2.412	0.000	1.000

(Table continues)

Group 3

		Mean	Std. Deviation	t	Sig. (2-tailed)
Pair 1	Q10W1 - Q10W2	0.000	1.000	0.000	1.000
Pair 2	Q13W1 - Q13W2	-0.286	1.380	-0.548	0.604
Pair 3	Q14W1 - Q14W2	0.714	2.360	0.801	0.454
Pair 4	Q15W1 - Q15W2	0.286	1.799	0.420	0.689
Pair 5	Q16W1 - Q16W2	1.143	1.069	2.828	0.030
Pair 6	Q17W1 - Q17W2	0.571	2.760	0.548	0.604
Pair 8	Q19W1 - Q19W2	0.000	1.633	0.000	1.000
Pair 9	Q20W1 - Q20W2	0.571	1.902	0.795	0.457
Pair 10	Q21W1 - Q21W2	0.429	1.134	1.000	0.356
Pair 11	Q22W1 - Q22W2	0.000	1.915	0.000	1.000
Pair 12	Q23W1 - Q23W2	-0.571	1.512	-1.000	0.356
Pair 13	Q24W1 - Q24W2	-0.571	0.976	-1.549	0.172
Pair 14	Q25W1 - Q25W2	0.571	0.976	1.549	0.172
Pair 15	Q26W1 - Q26W2	0.286	0.756	1.000	0.356
Pair 16	Q27W1 - Q27W2	-1.429	1.902	-1.987	0.094
Pair 17	Q28W1 - Q28W2	1.143	1.952	1.549	0.172
Pair 19	Q30W1 - Q30W2	-1.429	1.512	-2.500	0.047

All Groups

		Mean	Std. Deviation	t	Sig. (2-tailed)
Pair 1	Q10W1 - Q10W2	0.074	0.616	0.625	0.537
Pair 2	Q13W1 - Q13W2	-0.074	1.960	-0.196	0.846
Pair 3	Q14W1 - Q14W2	0.444	2.006	1.151	0.260
Pair 4	Q15W1 - Q15W2	0.074	1.796	0.214	0.832
Pair 5	Q16W1 - Q16W2	0.296	1.836	0.839	0.409
Pair 6	Q17W1 - Q17W2	0.148	1.657	0.465	0.646
Pair 7	Q18W1 - Q18W2	-0.148	0.534	-1.442	0.161
Pair 8	Q19W1 - Q19W2	0.148	1.936	0.398	0.694
Pair 9	Q20W1 - Q20W2	-0.222	1.502	-0.769	0.449
Pair 10	Q21W1 - Q21W2	-0.111	1.805	-0.320	0.752
Pair 11	Q22W1 - Q22W2	0.296	1.436	1.072	0.294
Pair 12	Q23W1 - Q23W2	-0.296	1.540	-1.000	0.327
Pair 13	Q24W1 - Q24W2	-0.370	1.668	-1.154	0.259
Pair 14	Q25W1 - Q25W2	-0.333	1.687	-1.027	0.314
Pair 15	Q26W1 - Q26W2	0.074	1.796	0.214	0.832
Pair 16	Q27W1 - Q27W2	-0.444	1.601	-1.442	0.161
Pair 17	Q28W1 - Q28W2	0.481	2.064	1.212	0.236
Pair 18	Q29W1 - Q29W2	-0.222	0.641	-1.803	0.083
Pair 19	Q30W1 - Q30W2	-0.480	1.939	-1.238	0.228

The final analysis was done as a result of participant feedback. The researcher designed the scenario section, Questions 13 through 30, by pairing nine questions using the same question twice and only changing the gender. Some participants from Group 3, after completing the pilot study, expressed recognition of this arrangement in the questions and stated that they tried to be "politically correct" in treating the genders the same. To determine whether this would be a weakness in the survey the t-test was used to determine each group's treatment of the genders. The hypothesis was that there would be a significant difference in the way the paired gender questions would be treated, while the null hypothesis was that there would be no significant difference in the way the gender questions would be treated. The results in all cases support the hypothesis where the calculated t-values were higher than the critical values of t. Additionally, the p-values were all less than the predicted .05 level of significance (see Table 7). Therefore, there is no evidence to support the possibility that participants might recognize the paired gender arrangement and purposely treat the genders equally as a result.

Table 7

t-test for Equal Treatment of Paired Gender Questions

		Mean	Std dev	t	Sig. (2-tailed)
Group 1 n=7					
Week 1	Yes	16.143	1.069	39.952	0.000
	No	1.857	1.069	4.596	0.004
Week 2	Yes	16.571	1.272	34.457	0.000
	No	1.429	1.272	2.970	0.025
Group 2 n=13					
Week 1	Yes	16.538	1.391	42.857	0.000
	No	1.462	1.391	3.787	0.003
Week 2	Yes	16.308	1.032	57.000	0.000
	No	1.692	1.032	5.915	0.000
Group 3 n=7					
Week 1	Yes	16.286	1.380	31.220	0.000
	No	1.714	1.380	3.286	0.017
Week 2	Yes	14.714	2.690	14.470	0.000
	No	3.286	2.690	3.231	0.018
All Groups n=27					
Week 1	Yes	16.370	1.275	66.692	0.000
	No	1.630	1.275	6.639	0.000
Week 2	Yes	15.963	1.765	47.004	0.000
	No	2.037	1.765	5.998	0.000

Pilot Study Conclusion

The overall pilot study results support the reliability of the *Experience with Computers* survey. The data were statistically analyzed by question type and by the varied time frames in which the retest was given. Although there were variations in each group's responses between the test and retest phases, based on the analysis of each subset of questions for each group there was insufficient evidence to show the groups were significantly different. Additionally, the responses within the varied time frames were again not significantly different and therefore did not provide enough evidence to show

that time mattered. Despite these variations, they were not consistent enough to threaten the overall reliability of this survey.

The Research Procedure

The data for this research were collected during an organizational leadership retreat held by Meridian Health System (MHS) located in central New Jersey. These retreats take place four times per year and are mandatory for all department managers and above throughout the systemwide organization. The Meridian Health System comprises of three hospitals and 75 non-hospital affiliates. From the total population of 350 MHS managers who attended the retreat, 233 or 66% of the individuals participated.

Leadership Practices Analysis

Similarities in Leadership Practices

The overall rank order distribution of leadership practices for the MHS group was compared to the Kouzes and Posner distribution, where both groups reported "Enabling Others to Act" as the most frequent leadership practice. Less frequent but in the same rank order as the Kouzes and Posner distribution were "Modeling the Way," "Encouraging the Heart," and "Inspiring a Shared Vision." These were the only similarities that were noted between the two groups. These results appear in Table 8.

Table 8

Distribution of MHS Manger Leadership Practices

Leadership Practice	Population Distribution
Enabling Others to Act	67
Modeling the Way	63
Encouraging the Heart	41
Challenging the Process	6
Inspiring a Shared Vision	6
Multiple Practices	50
Total number of respondents	233

Differences in Leadership Practices

Several differences were noted between the study group and the Kouzes and Posner (1995) research. First, the distribution of leadership types from the MHS managers did not match the distribution of types from the Kouzes and Posner results. A comparison to the Kouzes and Posner (1995) results that include responses (N= 6,651) shows that

> Based upon mean scores, 'enabling others to act' is perceived by respondents and their constituents as the leadership practice most frequently used, which is followed by 'challenging the process', 'modeling the way', and 'encouraging the heart'. 'Inspiring a shared vision' is perceived by both respondents and their constituents as the leadership practice least frequently engaged in. (p. 343)

While the results of the MHS participants concurred with "Enabling others to act" as the most frequent leadership practice reported and "Inspiring a shared vision" as the least frequent, the respondents in the MHS study reported "Modeling the way" and "Encouraging the heart" as the next two most frequent leadership practices. "Challenging the process" was reported least frequently and equally to inspiring a shared vision.

Second, the mean scores were higher in the MHS sample compared to the Kouzes and Posner sample. This finding may be the result of the environment in which these data were collected. Since the survey was distributed at a leadership retreat, the MHS managers may have been feeling positive about their leadership abilities and subsequently scored themselves artificially higher with respect to the frequency in which they engage in the leadership behaviors. For example, the mean score for "Enabling others to act" was 23.89 for the Kouzes and Posner group as compared to 53.2 for the MHS group. Similar findings were noted for all five leadership practices.

A third difference was noted in the standard deviations of the mean scores. The standard deviations for the Kouzes and Posner group ranged from 4.16 to 5.22, depending on the leadership practice. A range of 4.0 to 7.5 was noted for the MHS group, suggesting a much wider variation in mean scores within the leadership practices (see Table 9). When investigating whether the 50 participants who scored themselves equally on more than one leadership practice had affected the means and standard deviations, it was determined that they had little to no effect as noted by the 50 participants standard deviation range of 4.5 to 7.3 versus the rest of the MHS group range of 3.9 to 7.4 (see Table 11).

Table 9

Comparison of Mean Scores and Standard Deviations

Leadership Practice	Mean Score N=6,651	Std dev N=6,651	Mean Score N=233	Std dev N=233
Enabling Others to Act	23.89	4.37	53.2	4
Modeling the Way	22.18	4.16	53	4.7
Encouraging the Heart	21.89	5.22	51.4	6.1
Challenging the Process	22.38	4.17	49	6.3
Inspiring a Shared Vision	20.48	4.9	48	7.5
Multiple Practices			52.4	5.7

A fourth difference related to 50 of the MHS participants, who scored themselves equally on more than one leadership practice. Nowhere did Kouzes and Posner (1995) report this finding. Jim Kouzes (personal communication, April 14, 2003) explained that this has happened in his experience but is negated when the observer information is taken into consideration. The Leadership Practices Inventory is designed to solicit feedback from both the leader and their constituents. Normally, when both leader and observer results are considered one single practice is revealed. This research only solicited the leader's self-report. Although this finding was unanticipated in the study design, only 21% of the participants in this study scored themselves equally on more than one leadership practice.

Based on the overall goal of this research, which was to find the extent to which the use of e-mail among leadership practices varies, Kouzes (personal communication, April 20, 2003) recommended that in order to know how each practice uses e-mail than

all practices should be included despite the necessity of double counting respondents (see e-mail from Jim Kouzes, Appendix H). This recommendation was utilized to determine the overall outcomes of this study.

The new population included some participants being counted multiple times depending on how many leadership practices they scored equally on. This brought the overall number of responses to 295. Interestingly, this change did not alter the ranking of the leadership practice distribution from the original ranked distribution.

Table 10

New Leadership Practices Distribution

Leadership Practice	Original population	Multiple practices all groups
Enabling Others to Act	67	104
Modeling the Way	63	98
Encouraging the Heart	41	67
Challenging the Process	6	13
Inspiring a Shared Vision	6	13
Multiple Practices	50	0
Total number of respondents	233	295

Since it was possible to determine how these participants with equal scores for multiple leadership practices may have affected the overall scores, two levels of investigation were initiated. First, the multiple practices respondents were removed from the overall sample, creating two new samples where n= 183 represents the group without multiple leadership practices and n= 50 which represents the multiple leadership group by itself. These new sample means and standard deviations were recalculated (see Table 11).

Table 11

Recalculated Means and Standard Deviations

Leadership Practice	Mean Score N=233	Std dev N=233	Mean Score n=50	Std dev n=50	Mean Score n= 183	Std dev n= 183
Enabling Others to Act	53.2	4	53.8	4.5	53	3.9
Modeling the Way	53	4.7	54	4.9	52.7	4.5
Encouraging the Heart	51.4	6.1	53.4	5	50.8	6.2
Challenging the Process	49	6.3	50.6	6.8	48.6	6.1
Inspiring a Shared Vision	48	7.5	50.2	7.3	47.4	7.4

Next a test for equality of variance was done. The hypothesis stated that all variances would not be equal, while the null hypothesis stated that all variances would be equal. Given that the results showed all variances are probably not equal (see p-values Table 12), the null was rejected and the test for equality of means was done (see p-values Table 13). Again the hypothesis stated that all means would not be equal, while the null hypothesis stated that the means would be equal based on the t-test, which assumes unequal variances. While the variance comparison by Leadership Practice between the N=233 group and the n=183 and n= 50 groups show differences in all groups, the mean comparisons showed instances where the means might be equal in two groups as noted in the highlighted cells in Table 13. Therefore, based on the results shown, the null in this case cannot be rejected.

Table 12

Variance Comparisons

	Variances 233 vs 50	Variances 233 vs 183	Variances 50 vs 183
Enabling Others to Act	0.2575	0.7225	0.1830
Modeling the Way	0.6703	0.5396	0.4225
Encouraging the Heart	0.0970	0.8121	0.0780
Challenging the Process	0.4562	0.6499	0.3099
Inspiring a Shared Vision	0.8471	0.8527	0.9401

Table 13

Mean Comparisons

	Means 233 vs 50	Means 233 vs 183	Means 50 vs 183
Enabling Others to Act	0.3865	0.6080	0.2561
Modeling the Way	0.1916	0.5085	0.0951
Encouraging the Heart	0.0159	0.3244	0.0027
Challenging the Process	0.1309	0.5133	0.0638
Inspiring a Shared Vision	0.0583	0.4150	0.0189

A fifth difference related to the participant's gender. First, the overall population distribution of MHS managers by gender was 76% female versus 24% male (n=187 versus n= 46) as compared to the Kouzes and Posner group where 22% were female and 78% were male (n= 1,267 versus n= 4,571). Next, when analyzing the leadership practices by gender the men in the MHS group had a frequency distribution order of Enabling, Modeling, Encouraging, Challenging, and Inspiring. The women in the MHS group differed slightly with a rank distribution order of Modeling, Enabling, Encouraging, Challenging, and Inspiring. Both of these distributions differ from the Kouzes and Posner (1995) results where they found that women tended to engage in the

leadership practice of Encouraging more often then men (p. 346). In the MHS group both men and women ranked the Encouraging leadership practice as the third most frequent practice. Finally, the MHS women ranked Modeling as the most frequent practice, which differed from their MHS male counter parts and from the Kouzes and Posner findings (see Table 14).

Table 14

Health System's Gender Distribution by Leadership Practice

Leadership Practice	Original Male	Original Female	New Male	New Female
Enabling Others to Act	15	52	21	83
Modeling the Way	9	54	14	84
Encouraging the Heart	7	34	9	58
Challenging the Process	4	2	4	9
Inspiring a Shared Vision	4	2	5	8
Multiple Practices	7	43	0	0
Total	46	187	53	242

Additionally, based on the redistribution of the multiple leadership practices the distribution of males and females changed slightly for all groups where the percentage of males n= 53 to females n= 242 is now 18% and 82%, respectively. This indicates a new participant gender distribution and a higher response rate from the female participants.

As a result of this redistribution a chi-squared test for homogeneity was done. The null hypothesis that the two groups, males and female, are homogeneous with respect to the different practices is the same for both the original distribution and the new distribution. The expected counts and the distance of the observed to the expected counts are shown in Table 15. The results reveal that the new distribution is more homogeneous

than the original distribution where the original distribution rejects the null hypothesis based on the p-value of 0.002, but the new distribution does not reject the null hypothesis based on that p-value of 0.119. Additionally, this analysis reveals that both the "Challenging the Process" and "Inspiring a Shared Vision" practices in the original male and female test and the new male test may be invalid. These results are highlighted in Table 15.

Table 15

Chi-squared Test of Homogeneity

	Expected counts Original		Expected counts New		Distances of Original observed from expected		Distances of New observed from expected	
Leadership practice	Male	Female	Male	Female	Male	Female	Male	Female
Enabling Others to Act	18.685	85.315	18.685	85.315	0.036	0.01	0.287	0.063
Modeling the Way	17.607	80.393	17.607	80.393	1.459	0.395	0.739	0.162
Encouraging the Heart	12.037	54.963	12.037	54.963	0.346	0.094	0.766	0.168
Challenging the Process	2.336	10.664	2.336	10.664	5.792	1.569	1.186	0.260
Inspiring a Shared Vision	2.336	10.664	2.336	10.664	5.792	1.569	3.040	0.666

Experience with Computers Analysis

Controlling Intervening Variables

The analysis of the second survey's data was first aimed at controlling the intervening variables of participant gender, attitude, experience, proficiency, and social influence. These intervening variables may have an impact on the relationship between the dependent (use of e-mail) and independent (leadership practice) variables, which need to be controlled or held constant (Cooper & Schindler, 1998; Sproull, 1988). This was

accomplished by performing an analysis of variance (ANOVA) on all individual intervening variables against all five leadership practices to determine the equality of distribution among these intervening variables within each category of leadership practice (see Table 16).

Overall Findings about the Intervening Variables

The results indicate no significant differences in the means with respect to the intervening variables among the five leadership practices. The p-value in all cases is well above the significance level of .05. Therefore, no indirect statistical controls need to be applied since there is evidence that supports equal distribution of these variables.

Specific Findings

Although there were no significant differences between the leadership practices groups, further evaluation of the analysis does show some minor variation in the specific responses by leadership practice with respect to the intervening variable questions. For example, in Table 16, the leadership practices groups were most similar with a significance level of p= .978, in their response to the question that solicited how many years these individuals have been using their computer both at work and at home. In contrast the most variation was noted between the groups in their responses to the question soliciting information about their practice of sending and receiving e-mail where the significance level was p= .242.

Another interesting finding in this analysis was that the groups showed a greater variation in their responses to the questions that solicited general information about attitude, expertise, and proficiency. Specifically, the leadership practices groups showed a greater amount of variation (p= .358) in the responses to their overall attitude toward computers, yet when asked specifically about computers making their lives easier at work (p= .655) and at home (p= .674) the data show much less variation in the responses between groups. Likewise, there is more variation between the groups in their responses to the question asking about overall level of computer expertise (p= .305), but much less variation when asked about the level of proficiency (p= .585) when performing specific computer activities such as using work processing, spreadsheets, or e-mail. Finally, the questions that solicited whether e-mail was a common way of communicating among friends (p= .570) and work colleagues (p= .461), a similar amount of variation was noted between the groups for both responses.

Table 16

Equality of Intervening Variables

		Sum of Squares	df	Mean Square	F	Sig.
YEARS	Between Groups	12.731	4	3.183	0.112	0.978
	Within Groups	8161.699	288	28.339		
	Total	8174.430	292			
Q5	Between Groups	69.991	4	17.498	0.711	0.585
	Within Groups	7140.599	290	24.623		
	Total	7210.590	294			
Q6	Between Groups	5.783	4	1.446	1.215	0.305
	Within Groups	345.200	290	1.190		
	Total	350.983	294			
Q7	Between Groups	3.490	4	0.873	1.098	0.358
	Within Groups	230.422	290	0.795		
	Total	233.912	294			
Q8	Between Groups	1.581	4	0.395	0.611	0.655
	Within Groups	187.456	290	0.646		
	Total	189.037	294			
Q9	Between Groups	4.645	4	1.161	0.584	0.674
	Within Groups	576.392	290	1.988		
	Total	581.037	294			
Q10	Between Groups	1.885	4	0.471	1.377	0.242
	Within Groups	98.238	287	0.342		
	Total	100.123	291			
Q11	Between Groups	5.163	4	1.291	0.733	0.570
	Within Groups	506.803	288	1.760		
	Total	511.966	292			
Q12	Between Groups	2.251	4	0.563	0.906	0.461
	Within Groups	178.855	288	0.621		
	Total	181.106	292			

Internal Consistency

Based on the slight variations noted between the intervening variables, and given Mitra (1998) and Hobbs's (2002) findings that these intervening variables were iteratively linked, it became important to determine how consistent the participants were in answering the questions to the variables. For example, if a participant scored himself or herself as being very proficient when performing all of the computer activities, then it would be expected that this participant would also report their level of computer expertise as being higher. Likewise, it would be expected that a participant's attitude would be better if they also reported a higher level of proficiency and therefore expertise. Finally, a greater level of social influence would be expected to have an affect on a participant's attitude as well. Therefore, the hypothesis is that experience, proficiency, expertise, attitude, and social influence will be iteratively linked. The null is that these intervening variables will not be linked.

Cronbach alpha was used to calculate internal consistency between the participants self-report about experience (Questions 1 through 4 and 10) and proficiency (Question 5) and their reported expertise (Question 6), attitude (Question 7 through 9), and social influence (Questions 11 and 12). In all leadership practices groups the magnitude of the Alpha scores ranged from 0.611 to 0.689 except for the Challenging group, whose Alpha was 0.445, which was the leadership group least consistent in their responses.

Table 17

Cronbach Alpha for Reliability

Group	Alpha
Enabling	0.637
Challenging	0.445
Encouraging	0.611
Modeling	0.689
Inspiring	0.640

Overall, the magnitude of the respondent's scores show consistency for all of the intervening variables in all of the leadership groups, showing that there is support for the iterative linkage in experience, proficiency, expertise, attitude and social influence.

Genders Analysis

The moderating variable, gender, was analyzed in several ways. First, the most apparent characteristic of the participant group was noted in the number of female leaders in the MHS organization. Overwhelmingly, 80% of those leaders were female. Once the multiple practices were placed in the respective leadership practices categories this number rose to 82%.

The next analysis was done using a "differences between genders" score to determine the extent to which the use of e-mail among leadership practices varies according to gender. There were nine scenarios containing males and nine scenarios containing females. The participants were given one point each time they respond to

males using e-mail and one point for each time they use e-mail to respond to the females. A total of 9 points could be obtained in each of the two categories. The two scores were then subtracted from one another. The closer the number was to zero the more equally the genders were treated by that participant. These scores were totaled for each of the leadership practices to determine an overall group treatment of the genders. In general both the females and the males tended to e-mail males more frequently.

Table 18

Differences Between Genders

Leadership Practice	Respondent	# of E-mails to Females	# of E-mails to Males	Difference Between
Enable	Female	242	240	2
	Male	53	55	2
Challenge	Female	23	24	1
	Male	9	9	0
Encourage	Female	146	147	1
	Male	25	21	4
Model	Female	243	242	1
	Male	40	42	2
Inspire	Female	27	30	3
	Male	11	11	0
Total # of E-mails sent		819	821	3

More specific analysis revealed several interesting findings. When determining the number of e-mails sent by the MHS leaders it was noted that less than one third of the time these leaders chose e-mail to communicate based on the scenario questions. This was calculated by multiplying the number of leaders in each of the practices by the

number of times it was possible to choose e-mail as the method of communication. For example, in the Encouraging category 67 leader practices participants were able to choose e-mail 18 times in the scenario section of the *Experience with Computers* survey. The total possible number of e-mails that could be sent in this category was 1,206. The total number of actual e-mails sent in this category was 339, which represents 28% or the total percentage of e-mails sent by the participants in this category. The Challenging participants sent the fewest e-mails at 27% with the Modeling and Enabling participants sending e-mail 32% of the time. The Inspiring participants sent the most e-mail, which calculated to be 34% of the time.

Upon further analysis by gender it was noted that, overall, more e-mails were sent to males than to females, 821 times versus 819 times, respectively. Similarities were noted by leadership practice as follows: In the Challenging, Encouraging, and Inspiring categories the female leaders sent e-mail more often to males; the males in the Enabling and Modeling categories sent e-mail to males more often; and the Enabling and Modeling females and the Encouraging males both sent e-mail to females more often. Interestingly, the Challenging and Inspiring males sent e-mail in equal numbers to both males and females.

Hierarchy Analysis

Finally, Questions 13 through 30 each had a scenario that included a superior, a peer, or a subordinate as the subject. The respondents were given 1 point for each category of hierarchy each time they responded using e-mail. As an example, a

respondent may have chosen e-mail to reply three times to superiors, twice to peers, and twice to subordinates. Hierarchy was analyzed first by looking at the number of times each participant used e-mail to respond within each subgroup for each leadership practice. The overall results showed that all groups e-mailed peers most frequently and subordinates least frequently with specific differences in the way the genders within each group treated the hierarchies (see Table 19).

Table 19

Number of E-mails sent by Hierarchy

Leadership Practice	Respondent	% of E-mails to Superiors	% of E-mails to Peers	% of E-mails to Subordinates	Total # of E-mails sent
Enable	Female	42%	44%	14%	482
	Male	6%	58%	36%	67
	Group Total	37%	46%	17%	549
Challenge	Female	40%	43%	17%	47
	Male	33%	56%	11%	18
	Group Total	38%	46%	15%	65
Encourage	Female	43%	48%	9%	293
	Male	48%	26%	26%	46
	Group Total	44%	45%	11%	339
Model	Female	40%	46%	14%	485
	Male	41%	33%	26%	82
	Group Total	40%	44%	16%	567
Inspire	Female	33%	49%	18%	57
	Male	18%	50%	32%	22
	Group Total	29%	49%	22%	79
All Practices	Female	41%	46%	13%	1364
	Male	30%	42%	28%	235
	Groups Total	39%	45%	15%	1599

As shown in Table 19, in all leadership practices, female participants chose to communicate most frequently with their peers and least frequently with their subordinates. The male participants, however, contributed moreso to the noted differences in the way the leadership practices groups communicated with the hierarchies. In all but the "Challenging the Process" practice, the male participants treated the hierarchies differently from the female participants. Overall, variation in the hierarchy categories was calculated by dividing the actual number of e-mails sent in each of the subcategories by the total for females or males in each leadership practice. The results showed the participants sent e-mail to superiors between 29% and 44%, peers between 44% and 49%, and subordinates between 11% and 22%. Specifically, male participants in the Enabling and Inspiring practices groups communicated using e-mail most often with their peers, 58% and 50%, but least often with their superiors, 6% and 18%. The males in the Modeling and Encouraging practices groups communicated most frequently with superiors, 41% and 48% respectively. However, the Encouraging group communicated equally with peers and subordinates, each 26%, while the overall Modeling group communicated least frequently with their subordinates at 26%. The only hierarchical category that was treated nearly identically by both females and males was the superiors noted in the Modeling group, with 40% and 41% communication, respectively.

Next, ANOVA was used to determine whether the means of the subgroups superior, peer, and subordinate were equal when compared to each of the five leadership practices. Significant differences did not exist for any individual group or for the overall groups with respect to how the participants treated their superiors using e-mail, where the

F statistics were higher than the computed value of 3.86 at 1 degree of freedom at a denominator of 400 and all p-values above .05. There were differences noted, however, in the treatment of both peers and subordinates.

In analyzing how the participant communicated using e-mail with their peers all groups overall were significant showing that female participants used this medium to communicate slightly more often than their male counterparts. This gender result was consistent across all leadership practices categories except in the Challenging group. Additionally, the Enabling and the Challenging groups did not show significance in the way the genders used e-mail to communicate to their peers (see Table 20).

Table 20

Communication with Peers- ANOVA Results

Group	Gender	Mean	Std dev	F	Sig
Enable	Female	2.554	1.290	5.572	0.477
	Male	1.857	0.793		
Challenge	Female	2.222	0.441	0.187	0.674
	Male	2.500	1.915		
Encourage	Female	2.414	1.243	5.047	0.028
	Male	1.444	0.882		
Model	Female	2.679	1.214	4.863	0.030
	Male	1.929	0.917		
Inspire	Female	3.500	0.756	5.296	0.042
	Male	2.200	1.304		
All	Female	2.583	1.227	14.893	0.000
	Male	1.887	0.993		

In contrast, when analyzing how the participant communicated using e-mail with their subordinates, all groups overall showed that male participants used this media to communicate more often than their female counterparts. This gender result was consistent for all individual leadership practices except for the Challenging group, who proved to be

statistically different. This group was the only group where the males did not communicate more often with their subordinates. Interestingly, only the Encouraging group was significant in the way the genders communicated with their subordinates using e-mail. All other individual leadership practices groups did not show significance in using e-mail to communicate with their subordinates (see Table 21).

Table 21

Communication with Subordinates- ANOVA Results

Group	Gender	Mean	Std dev	F	Sig
Enable	Female	0.831	1.146	1.049	0.308
	Male	1.143	1.590		
Challenge	Female	0.889	1.054	0.387	0.546
	Male	0.500	1.000		
Encourage	Female	0.776	0.102	5.483	0.022
	Male	2.179	0.726		
Model	Female	0.810	1.187	3.556	0.062
	Male	1.500	1.698		
Inspire	Female	1.250	1.832	0.029	0.869
	Male	1.400	0.894		
All	Female	0.748	1.115	7.237	0.008
	Male	1.245	1.616		

Segue

These data have brought about an opportunity to gain insight into the relationship between leaders with particular practices and how they use email. The next chapter will summarize these findings and answer the research questions from the perspective that has been offered by the study population's responses to the surveys. A comparison of the study outcomes to the literature will be presented, including a section relating the continued significance of McLuhan's theory of communication. The chapter will close by

reviewing the limitations encountered in the data collection and offer suggestions for future research on this topic.

CHAPTER 5

SUMMARY OF THE DATA

Since the early 1980s, technology, specifically e-mail, has brought about fundamental changes in social interactions between people. (Kawamoto, 2003, p. 59-60). This study was designed to explore how, through e-mail, these social interactions have specifically affected work place communication. Two research questions were developed to ascertain whether there would be variations in communication among different leadership practices with respect to gender and by leader responsibility stratification, or hierarchy, when using e-mail.

1. To what extent does the use of e-mail among leadership practices vary according to gender?
2. To what extent does the use of e-mail among leadership practices vary according to managerial hierarchy?

To answer the specific research questions, a two-step data collection process was followed. First, leadership practices needed to be solicited, which was done by using the *Leadership Practices Inventory* (LPI) survey instrument. The data collected from the MHS participants were then compared to the overall LPI data in order to determine whether the MHS group was similar to that reported by Kouzes and Posner (1995). The leadership practices of the MHS group when compared to the Kouzes and Posner group revealed several differences. First, the MHS group had 21% of its participants score themselves equally in more than one leadership practice; second, the MHS group had higher means and standard deviations when compared to the Kouzes and Posner results;

third, the MHS group had many more female participants than did the Kouzes and Posner sample; and finally, the rank order of leadership practices for the MHS group differed from those of Kouzes and Posner. These differences, as previously discussed, may have been the result of several factors, including the type of participant group, the environment the group was in at the time of the data collection, and the way the survey was administered.

Next, by using the *Experience with Computers* survey, several pieces of data were collected. First, the intervening variables including experience, proficiency, expertise, attitude, and social influence were statistically analyzed to determine whether there was equal distribution of these variables among the leadership practices. These variables were important to hold constant, as they have been cited in the literature as having an effect on individual preferences regarding utilization of technology (Fulk & Boyd, 1991; Schmitz & Fulk, 1991; Mitra, 1998; Green, 2001; Hobbs, 2002). Although the variables were equally distributed, some minor variations were noted. The leadership groups showed the most variation in their responses to the way they reported sending and receiving e-mail. Additionally, a greater amount of variation was noted in the way these leadership groups responded to the questions soliciting general information about attitude and proficiency, but less variation when these groups responded to more specific questions. As a result of these variations, internal consistency was calculated, resulting in the magnitude of the scores being consistent for all but one leadership practices category, "Challenging the Process," where responses were slightly less consistent when compared to the other leadership practices categories.

Next, this survey allowed the researcher to collect data related to gender. An analysis of gender revealed that both female and male participants tended to e-mail males more frequently. While the female and male participants in each leadership practice varied in how often they chose e-mail to communicate, the males in both the Challenging and Inspiring categories treated the genders equally. In general the overall results showed the participants choosing e-mail to respond less than one third of the time to the total number of scenario questions.

Finally, this survey solicited data about communication with the different levels of managerial stratification. Statistical analysis focused on the way the leadership practices treated these different hierarchical levels of managerial stratification when using e-mail, revealing that all leadership practices categories tended to communicate with their peers most frequently and their subordinates least frequently. Male participants in general deviated from the overall statistics by consistently using e-mail to communicate with subordinates. The Challenging category once again stood out as the only category where the males did not remain consistent with this finding.

Gender Variation with the use of E-mail among the Leadership Practices

The gender results contained several variations between the leadership practices. First, 40% of the males reported behaviors that placed them in the "Enabling Others to Act" category. Other male behaviors were distributed as follows: 26% in the "Modeling the Way" category, 17% in the "Encouraging the Heart" category, 9% in the "Inspiring a Shared Vision" category, and 8% in the "Challenging the Process" category. The female

respondents categorized themselves differently. The distribution of female participant reported behaviors showed 35% in the "Modeling the Way" category, 34% in the "Enabling Others to Act" category, 24% in the "Encouraging the Heart" category, 4% in the "Challenging the Process" category, and 3% in the "Inspiring a Shared Vision" category. The overall distribution of participants showed some variation, with male responses placing them in the "Enabling Others to Act" category most frequently and the "Challenging the Process" category least frequently, while females placed themselves in the "Modeling the Way" category most frequently and the "Inspiring a Shared Vision" least frequently. In general, however, both males and females showed consistency in their responses with the responses most frequently reported placing both genders in the Enabling, Modeling and Encouraging categories more frequently while the behaviors that would place participants in the Challenging and Inspiring categories were reported much less frequently.

The next gender variation by leadership practice was noted in the number of times e-mail was chosen as the mode of communication when responding to the scenario questions. The Encouraging category showed no difference between males or females as both chose to send e-mail equally when responding to the scenario questions. In contrast the Inspiring and Enabling categories showed the most difference between the genders, with females in the Inspiring category choosing e-mail 40% of the time to communicate while their male counterparts chose this mode only 24% of the time. The females in this group were the most frequent users of e-mail when compared to all other participants. In the Enabling category females chose e-mail 32% while males chose this mode only 18%

of the time. The males in this category were also the least frequent users of e-mail overall.

The other categories showed the male's and female's choices varying less significantly. The Challenging category showed females at 29% and the males at 25% utilization of e-mail. Finally, the Modeling category showed both genders choosing e-mail almost identically as their mode of communication with females at 32% and males at 33%.

The final variation between genders was noted in the way the female and male participants chose to respond to the genders that were imbedded in the scenario questions. This was determined by the "differences between" scores previously described where, for example, the total number of e-mails sent by each female participant in each leadership practices category to each of the gender types was subtracted. For example, a participant's number of e-mails to males was subtracted from the number e-mails to females. The closer the number was to zero the more equally the genders were treated. The results showed the males treating the genders no differently in both the Challenging and Inspiring categories. In contrast the males in the Encouraging category treated the genders least equally of all males and females in all of the other leadership practices categories. The females in all leadership practices categories treated the genders unequally with e-mails being sent to males more often in the Challenging, Encouraging, and Inspiring categories most often. Additionally, the females in the Inspiring category treated the genders least equally of all the females and all the males overall, except when compared to the Encouraging males as noted above. The largest differences between the

gender participants was noted in both the Encouraging and Inspiring categories, where the genders in the scenario questions were treated least equal by those participants. In contrast, the Enabling category participants were noted to treat the genders equally different, which was not the case in any other leadership practices category.

To what extent does the use of e-mail among leadership practices vary according to gender? Three major areas of variation were revealed: the distribution of leadership practices by gender, the number of times e-mail was chosen to communicate, and the way the genders were treated by the participants when using e-mail to communicate. Variation was noted in all of these areas based on gender participant responses, with only one exception. The "Encouraging the Heart" category showed both female and male participants choosing e-mail in equal amount to communicate when responding to the scenario questions.

Hierarchy Variation with the use of E-mail among the Leadership Practices

In terms of the second research question the results revealed that there were some variations between the leadership practices with respect to hierarchy; however, these variations were much less overall when compared to the gender variations. When analyzing each leadership practices category and comparing it to the others the Inspiring category indicated that its participants choose to use e-mail most often to communicate with their peers while the Modeling category participants chose to communicate with their peers least frequently. The Challenging and Enabling category participants chose to

e-mail peers equally while the Encouraging category participant's choice equaled the overall mean number of e-mails used to communicate with peers.

While reviewing the participant responses when communicating with their superiors using e-mail, the Encouraging category participants were noted to choose e-mail most frequently while the Inspiring category participants chose e-mail least frequently. The Modeling, Challenging, and Enabling category participants chose e-mail to communicate with their superiors consistently overall.

Subordinates were communicated with least frequently by all leadership practices participants with the Inspiring practices category showing e-mail being utilized the most and the Encouraging practices category showing e-mail use as being the lowest. Interestingly these two practices categories chose to send e-mail in inverse proportions when compared to the utilization when communicating with their superiors. Once again there was consistency in the way participants chose e-mail to communicate with their subordinates in the Modeling, Challenging, and Enabling categories.

Again the data provide the answer to the research question: To what extent does the use of e-mail among leadership practices vary according to managerial hierarchy? The data show an overall consistency in all leadership practices categories where the participants chose to communicate with peers most frequently and subordinates least frequently using e-mail.

Combined Gender and Hierarchy Results

Further investigation of the data showed additional variation when considering the combined gender and hierarchy results. ANOVA was used to compare the leadership practices to determine how similar they were with respect to how each category's participants chose to communicate with each of the peer, subordinate, and superior scenario questions. Only the Challenging participant category showed no statistical significance for any of the hierarchical subgroups with both males and females having similar mean data. The Encouraging participant category showed statistical significance in both the peer and subordinate subgroups with that data showing the males communicating more frequently with their subordinates while the females communicated more frequently with their peers. The last three leadership practices participant categories, Modeling, Enabling, and Inspiring, showed statistical significance only in the peer subgroup with females communicating more frequently in all three practices categories.

Additionally, these data show a gender dichotomy within the Encouraging leadership practice where the males in this category, having the highest mean data when compared to all other categories, communicated most frequently with their superiors using e-mail, while the females in this category, having the lowest mean data when compared to all other categories, communicated least frequently with their subordinates. Other mean data show the males in the Challenging practices category communicating least frequently with their subordinates while the females in the Inspiring practices

category communicated most frequently with their peers when compared to all other practices categories.

Comparison of the Results with the Literature

Throughout the literature several issues were highlighted as having an effect on the use of technology, including e-mail. These were discussed in the literature review. As an overview of the main points, the literature supported the idea that variables such as an individual's attitude toward particular technology would influence the amount of time someone would spend with that technology. The amount of time spent with the technology would in turn affect that individual's ability to gain experience and become proficient in the use of that technology (Hobbs, 2002; Mitra, 1998). The participant's responses in this study were averaged for each of the intervening variable questions. Questions 1 through 4 solicited experience with using computers. The participants reported a mean number of years using computers at 11.24 with the mode being 10 years. This group also reported the mean number of combined hours per day both at home and in work to be 6.6 with the mode being 6 hours per day. Considering the 5-point Likert scale for Questions 6 through 9, which solicited attitude toward computers, with the average response for each individual question being greater than 3. Question 5 solicited participant reported proficiency with a total possible score of 25. The average participant score was 17.8. These overall responses appear to support the literature findings, where a better attitude is begat by more experience and/or vice versa, which in turn is followed by an increase in proficiency.

Additionally, the literature supported the concept that there was a social component to one's choice in using certain technology (Fulk & Boyd, 1991; Fulk, Schmitz & Ryu, 1995; Schmitz & Fulk, 1991; Straub & Karahanna, 1998). Here the participant's responses supported the literature with the data revealing that peers were the most frequent group to receive e-mail from the study participants. Further support is noted with average scores of 4.4 out of a possible 5, indicating that e-mail is a common way of communicating at work and an average score of 3.2 out of a possible 5, indicating that e-mail is also a common way of communicating with friends at home.

Furthermore, Question 10 solicited whether participants sent, received, or sent and received equal amounts of e-mail. The average participant reported that they tended to either receive more or send and receive equal amounts of e-mail. Interestingly, however, when determining how often the participants chose e-mail to communicate in response to the scenario questions, this choice was made less than one third of the time. This finding will be expanded upon later in the theoretical discussion section.

Another consideration was made toward participant gender since the literature showed a conflict in research findings. These findings showed men and women to use e-mail differently (Allen & Griffeth, 1997; Harrison & Rainer Jr., 1997) based on experience primarily in the work place, and similarly (Kawamoto, 2003) due to social change and the availability of computers and the Internet Since this study population was overwhelmingly female, or 82%, the issue of workplace experience seems to be supported by the study results, where there were differences in the utilization of e-mail between the men and women. Combined mean scores for all leadership practices

categories overall show the males communicating using e-mail slightly less frequently, 1.754, than their female counterparts, 1.879. These results lend support toward Gefen and Straub's (1997) findings that, as more women enter the workplace, they are more likely to become comfortable with technology, particularly e-mail. Additionally, these authors pointed out that, for women, e-mail is socially significant for maintaining relationships (Gefen & Straub, 1997). Again, the data from this research show that the female participants communicated through e-mail more often with both peers and superiors as compared to their male counterparts.

Finally, many researchers (Barge, Down & Johnson, 1989; Daft, Lengel & Trevino, 1987; Fulk & Boyd, 1991; Rice, 1992; Schmitz & Fulk, 1991; Trevino, Lengel, Bodensteiner, Gerloff & Muir, 1990) have evaluated leaders' choice of communication and noted that the choice of media seemed to depend on the ability to be clear and unambiguous when sending the message. Based on the nine scenarios presented in the *Experience with Computers* survey, the most frequent response resulted in the participants choosing face-to-face communication for four questions, which included topics incorporating budget preparation, handling a public debacle, discussing a potential illegal act by a subordinate, and dealing with a long-time peer who is thinking of leaving the organization. The next most frequent response by participants was to communicate using e-mail in three of the cases, two of which were in response to participating in social events while one requested a meeting. The third most frequent response was the choice of phone communication for two of the scenarios, one in response to a faxed resume and the other where a peer inquires about handling a disciplinary action. Although the scenarios

were not ranked in terms of complexity, intuitively it appears that the manager's choice of communication did support the literature.

Theoretical Discussion

"Electronic man, having found himself in an arena of simultaneous information also finds himself increasingly excluded from the older more traditional (visual) world in which space and reason seem to be uniform, connected, and stable" (McLuhan, 1989, pp.13-14). Managers in this study tended to support but also challenge McLuhan's statement by their responses to typical workplace scenarios that offered both simple and complex communication situations.

In support of McLuhan (1989), media choices by the managers in this study revealed face-to-face communication as the most frequent choice, but includes e-mail as the second most frequent choice over phone communication. E-mail was chosen by managers in this study one third of the time to communicate. While the information richness theory (Allen & Griffeth, 1997; Daft, Lengel & Trevino, 1987; Rice, 1992; Schmitz, 1991; Trevino et al., 1990) offers a stratified hierarchy of communication venues listing face-to-face as the highest in information richness, this is followed by the telephone and then written communication. The managers in this study chose e-mail over phone communication despite the perceived complexity of the message. In other words, a manager could have easily communicated by phone for all three of the scenarios where they chose e-mail instead. In this case the exclusion of more traditional methods of communication is supported by the responses of the managers in this study.

McLuhan (1964) argued that Western scientific models of communication are linear, logical, and sequential in accordance with the pattern of efficient causality. These data also show that the scenarios requiring the least amount of feedback from the message sender were most frequently responded to by e-mail. These overall findings reveal support for both the exclusion of traditional methods of communication and the matching of media to message.

In contrast to McLuhan's theory, however, these managers did choose face-to-face communication most frequently and in response to the most complex scenarios. The data showed that in six of the nine scenarios these managers chose the more traditional methods of communication, face-to-face, and phone, which challenges McLuhan's (1989) idea that electronic man is increasingly excluded from the more traditional venues of communication.

In their chapter on resonating intervals, McLuhan and Powers (1989) described the concepts of figure and ground, which are borrowed from gestalt psychologist Edgar Rubin (p. 5). They stated that "all cultural situations are composed of an area of attention (figure) and a very much larger area of inattention (ground). The two are in a continual state of abrasive interplay, with an outline or boundary or interval between them that serves to define both simultaneously" (p. 5). E. H. Grombrich defined this in a term, *synesthesia*, or the splashing over of impressions from one sense modality to another, which when applied to communication is at its peek during face-to-face communication and its trough during written communication particularly with electronic communication (as cited in McLuhan & Powers, p. 5).

McLuhan and Powers (1989) argued that Western scientific models of communication create a disadvantage because the "hidden effects" that are so much a part of communication in general are largely overlook by this left hemisphere awareness. Recipients, who recognize the figure without perceiving the background upon which the figure gains its meaning, are in a position to misinterpret the message. Within the context of all the things that exist nothing has meaning except in relation to the environment, medium, or context that contains it (p. 71). According to McLuhan (1964), "Western man acquired from the technology of literacy the power to act without reacting" (p. 4). However, he stated that electric speed, in a sudden implosion, has also heightened human awareness of responsibility to an intense degree (p. 5). This state of detached awareness is where leaders may find that this electric medium yields personal and social consequences (McLuhan, 1964, p. 7).

According to Smith (1997), it is the responsibility of all levels of leadership to establish clear and meaningful channels of communication. The data in this research study show managers taking this responsibility seriously by making conscious choices with respect to the venue of communication necessary to relay the appropriate message. Having only a snapshot in time, however, with respect to media choice does not support a research theory where a degree of certainty lends itself to an empirical finding. While this study did reveal some limitations it also allows for future research that might provide more definitive conclusions to this topic.

Limitations of the Research

While researchers work diligently to prepare methodology that considers and controls for the variations that might occur, it is often impossible to know in advance all of the possible outcomes that will be revealed post data collection. This is also what makes research both challenging and enjoyable. "All research studies have their limitation, and the sincere investigator recognizes that readers need aid in judging the study's validity" (Cooper & Schindler, 1998, p. 602). This research, although carefully planned, encountered several unanticipated operational outcomes that may or may not have affected the results.

First, the research was designed to collect individual self reported leadership behaviors that would ultimately determine, based on the *Leadership Practices Inventory* instrument, what type of leadership category each participant practiced most often. The survey instrument, however, was designed by its creators to be used by both leaders and their constituents in order to definitively reveal one leadership category. Due to time and cost this research chose to only survey leaders and not their constituents. This choice created an unanticipated outcome where 50 of the 233 participants scored themselves equally in more than one category.

Kouzes was contacted for his insight on this matter. He explained that if the leader's constituents were surveyed it was more likely that there would not have been multiplicity of leadership practices. It was mutually decided that despite the necessity of double counting respondents, all leadership practices would be included. This decision was made based on two determining factors. The first factor was based on the overall

goal of this research, which was to find out the extent to which the use of e-mail among leadership practices varies. The second factor was based on Kouzes's (personal communication, April 20, 2003) argument that in order to know how each practice uses e-mail than all practices should be included. It cannot be known as to what extent this double counting affected the overall results.

Next, the mean scores of the survey participants were more than twice those of the Kouzes and Posner (1995) survey results. The most evident reason was that the data for this research were collected during a company leadership retreat. This may have caused managers to feel better about their leadership behaviors then they might have in another environment. Additionally, these managers were asked to fill out the survey during the course of the day. This placed these managers in a situation where they were required to pay attention to the retreat presentations and give thought to their survey responses. This may have caused the managers to be less self-reflective. It cannot be known whether this environment effected the distribution of leadership categories, which when compared to the Kouzes and Posner results were slightly different.

Finally, the survey population had more female participants than male participants. In fact, the proportion of males to females for this research study was almost directly inverse, 20% male versus 80% female, when compared to the Kouzes and Posner (1995) study population, which was reported to be 78% male and 22% female. Although it does not appear that any biases were introduced into the results of this study, it may have been more acceptable to have equal proportions of both males and females.

Recommendations for Future Research

This research studied managers from a single health care system in central New Jersey and was chosen for its convenience to the researcher. Its purpose was to determine the extent to which the use of e-mail varied among leaders with different leadership practices with respect to both gender and hierarchy. Future research might be conducted to explore the variation in the utilization of e-mail by leadership practice within other health care systems and in other non health care organizations.

Moreover, conducting this study in a more controlled environment while soliciting leadership practices feedback from both leaders and their constituents may allow for an opportunity to definitively know how leaders with only one dominant practice are using e-mail to communicate with the different genders and hierarchically.

A third recommendation for future research might consider a triangulated approach that includes qualitative data collection. Through an interview process a richer quality of information regarding why managers chose to respond to the *Experience with Computers* survey scenarios could provide more insight into the specific leadership practices and how they might differ in the ways that they chose to communicate.

Finally, based on McLuhan's (1989) statement that

> Electronic man, having found himself in an arena of simultaneous information also finds himself increasingly excluded from the older more traditional (visual) world in which space and reason seem to be uniform, connected, and stable. (pp.13-14)

a longitudinal study might help to discover whether, over time, electronic communication takes on a more significant role in organizations to the exclusion of more traditional communications media.

Contributions to New Knowledge

Traditional management teaching has focused leaders on the benchmarks of success as the ability to control the environment so that the organization functions in an orderly and stable state by focusing on short-term goals designed to create efficient processes through microanalysis. All this occurs while the manager remains emotionally separate from the work at hand (Kouzes & Posner, 1995, p. 15). This study did not wish to solicit traditional management philosophy, but instead asked managers to report their behaviors from a relationship level. By understanding how managers relate at work the question could then be asked about how those relationships effect the manager's choice of communication with those around them.

Successful leaders of the 21st century will be those who give free agents (co-workers, employees, bosses) what they need, when they need it, in a form in which they can use it. The new leaders will be those who provide people with what they need to perform to the best of their potential. It is an approach based on the belief that modern organizations require adaptable leaders. The social changes that are occurring in work environments are requiring leaders to adapt how they communicate within those environments. Since newer forms of technology have freed workforces from the traditional workspaces and work times, leaders must become more aware of the fluidity of modern communication. Sending a message today requires the writer to rely on resources outside the information itself (Seely, Brown, & Duguid, 2000, p. 201). Getting the intended message through requires thoughtfulness about the context as well as the content of what is being communicated. McLuhan and Powers (1989) described the

"hidden effects" of communication that include a figure, or written text, and the background upon which the figure gains its meaning. Within the context of all the things that exist, nothing has meaning except in relation to the environment, medium, or context that contains it (p. 71). Communication is becoming more global, therefore requiring leaders to become more aware of both the figure and the ground and the instant effects of simultaneity and discontinuity and resonance that typifies one's experience in an electronic culture (McLuhan & Powers, 1989, p. 80). McLuhan once remarked "the medium is the message" (as cited in McLuhan & Powers, 1989, p. 64). An interpretation of this statement is that the medium through which the message is being sent is more important than the message itself. Leaders need to become aware of the power of communication mediums, particularly e-mail, since it will continue to be a common medium on which many messages will be sent. This represents social change that is requiring leaders to become increasingly aware of their communication skills. Successful leaders will be people who understand the dynamics of life in the contemporary organization, and who are experts at matching their leadership actions to the organizations performance needs (Beck & Yeager, 2001, p. 2).

With this in mind, leaders meet the needs of those around them primarily through two avenues, one being communication and the other being behavior. "E-mail is a powerful communications tool that can be expected to grow in popularity and use in the coming decades" (Bell, 2000, p. 201). Managers must be continually aware of when e-mail is an effective electronic extension of one's self and when other forms of communications media will be more appropriate to deliver the message.

This research attempted to provide a bit of insight into how leaders, who have particular practices, are using this powerful tool to communicate with those around them in the work environment. Future studies will undoubtedly provide additional information that can help leaders to understand and adapt their practices in order to better meet the needs of the work forces they encounter.

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APPENDIX A

To what extent do you typically engage in the following behaviors? Choose the number that best applies to each statement and *record it in the blank to the left of the statement.*

1	2	3	4	5	6	7	8	9	10
Almost Never	Rarely	Seldom	Once in a While	Occasionally	Sometimes	Fairly Often	Usually	Very Frequently	Almost Always

____ 1. I seek out challenging opportunities that test my own skills and abilities

____ 2. I talk about future trends that will influence how our work gets done.

____ 3. I develop cooperative relationships among the people I work with.

____ 4. I set a personal example of what I expect from others.

____ 5. I praise people for a job well done.

____ 6. I challenge people to try out new and innovative approaches to their work

____ 7. I describe a compelling image of what our future could be like.

____ 8. I actively listen to diverse points of view.

____ 9. I spend time and energy on making certain that the people I work with adhere to the principles and standards that we have agreed on.

____ 10. I make it a point to let people know about my confidence in their abilities.

____ 11. I search outside the formal boundaries of my organization for innovative ways to improve what we do.

____ 12. I appeal to others to share an exciting dream of the future.

____ 13. I treat others with dignity and respect.

____ 14. I follow through on the promises and commitments that I make.

____ 15. I make sure that people are creatively rewarded for their contributions to the success of our projects.

1	2	3	4	5	6	7	8	9	10
Almost Never	Rarely	Seldom	Once in a While	Occasionally	Sometimes	Fairly Often	Usually	Very Frequently	Almost Always

____ 16. I ask "What can we learn?" when things do not go as expected.

____ 17. I show others how their long-term interests can be realized by enlisting in a common vision.

____ 18. I support the decisions that people make on their own.

____ 19. I am clear about my philosophy of leadership.

____ 20. I publicly recognize people who exemplify commitment to shared values.

____ 21. I experiment and take risks even when there is a chance of failure.

____ 22. I am contagiously enthusiastic and positive about future possibilities.

____ 23. I give people a great deal of freedom and choice in deciding how to do their work.

____ 24. I make certain that we set achievable goals, make concrete plans, and establish measurable milestones for the projects and programs that we work on.

____ 25. I find ways to celebrate accomplishments.

____ 26. I take the initiative to overcome obstacles even when outcomes are uncertain.

____ 27. I speak with genuine conviction about the higher meaning and purpose of our work.

____ 28. I ensure that people grow in their jobs by learning new skills and developing themselves.

____ 29. I make progress toward goals one step at a time.

____ 30. I give the members of the team lots of appreciation and support for their contributions.

Now turn to the response sheet and follow the instructions for transferring your responses.

APPENDIX B

KOUZES POSNER INTERNATIONAL
15419 Banyan Lane
Monte Sereno, California 95030
Phone/FAX: (408) 354-9170

December 20, 2002

Ms. Janet Urbanowicz
132 St. Lawrence Blvd
Brick, New Jersey 08723

Dear Janet:

Thank you for your request to use the Leadership Practices Inventory (LPI) in your dissertation. We are willing to allow you to reproduce the instrument as outlined in your letter, at no charge, with the following understandings:

(1) That the LPI is used only for research purposes and is not sold or used in conjunction with any compensated management development activities;
(2) That copyright of the LPI, or any derivation of the instrument, is retained by Kouzes Posner International, and that the following copyright statement be included on all copies of the instrument: "Copyright © 1997 James M. Kouzes and Barry Z. Posner. All rights reserved. Used with permission.";
(3) That one (1) bound copy of your dissertation and one (1) copy of all papers, reports, articles, and the like which make use of the LPI data be sent promptly to our attention; and,
(4) That you agree to allow us to include an abstract of your thesis and any other published papers utilizing the LPI on our various websites.

If the terms outlined above are acceptable, would you indicate so by signing one (1) copy of this letter and returning it to us. Best wishes for every success with your research project.

Cordially,

Barry Z. Posner, Ph.D.
Managing Partner

I understand and agree to abide by these conditions

APPENDIX C

Experience and Proficiency with Computers

1. Approximately how many hours per day do you use your computer at home?

   _____

2. Approximately how many years have you been using a computer at home?

   _____

3. Approximately how many hours per day do you use your computer at work?

   _____

4. Approximately how many years have you been using a computer at work?

   _____

5. In performing the following computer activities please rank on a scale of 1 through 5 how proficient are you with:

(For all: 1= not proficient; 5 = very proficient; N/A = never used or no experience)

Using Word Processing 1 2 3 4 5 N/A
(example: 1= I can barely write a business letter; 5 = I can set up tabs, change margins, create multiple columns)

Using presentation programs 1 2 3 4 5 N/A
(example: 1= I can set up simple presentations; 5= I can create professional complex presentations)

Using spreadsheets 1 2 3 4 5 N/A
(example: 1= I can enter data; 5= I can have the spreadsheet perform mathematical equations, sort information, categorize data)

Using email 1 2 3 4 5 N/A
(example: 1= I can send, receive and reply to mail; 5= I can create list servs, set up electronic signature, forward mail to another account

Using the Web 1 2 3 4 5 N/A
(example: 1= signing on and searching; 5= building and maintaining my own web site)

Rate the following sentences on how much you agree with them on a scale of 1 through 5.

(1=I do not agree; 5 =I totally agree; N/A = never used or no experience)

6. Overall I feel my level of computer expertise is very high:

1 2 3 4 5 NA

7. Overall my attitude toward using computers is very good:

1 2 3 4 5 NA

8. Computers make my life easier at work:

1 2 3 4 5 NA

9. Computers make my life easier at home:

1 2 3 4 5 NA

Use of Email

10. Check the one statement that most describes your email practice

- ❑ When using email, I send more emails than I receive.
- ❑ When using email, I receive more emails than I send.
- ❑ When using email I send and receive approximately equal amounts of email.

Rate the following sentences on how much you agree with them on a scale of 1 through 5.

(1=I do not agree; 5 =I totally agree; N/A =I do not use it)

11. Email is a common way of communicating among my friends.

1 2 3 4 5

(example: 1= we never communicate this way; 5= we very frequently communicate this way)

12. Email is a common way of communicating among my work colleagues?

1 2 3 4 5

(example: 1= we never communicate this way; 5= we very frequently communicate this way)

Scenarios

Please consider how you are most likely to respond to each of the following situations. Circle your most likely response

13. Tom, a superior, sends you a written memo describing an action plan to address a public debacle. He has asked for your feedback. You know that his plan is the wrong approach. He will begin instituting this plan tomorrow.

Phone Call Fax Email Written Memo Face to Face

14. You receive a faxed resume' from Beth who wants to work in a role that you have had vacant for some time. Beth appears very qualified. You want to make sure she understands the mission of your department.

Phone Call Fax Email Written Memo Face to Face

15. Sally, your employee, emails you and requests to meet with you to talk about another employee who she thinks may be doing something illegal. She has no experience in handling this type of situation.

Phone Call Fax Email Written Memo Face to Face

16. Ed, your boss, emails you and requests a five year strategic planning meeting that does not fall within your normal responsibilities.

Phone Call Fax Email Written Memo Face to Face

17. Robin, your peer, leaves you a voicemail asking to speak to you about how you would handle a disciplinary action. She states she may not be at her desk but really needs your input.

Phone Call Fax Email Written Memo Face to Face

18. Several of your female peers talk with you and ask if you will participate in this year's sports fundraiser. You will have to check your calendar and get back to them.

Phone Call Fax Email Written Memo Face to Face

19. Mary, your boss, emails you and requests a five year strategic planning meeting about a program that does not fall within your normal responsibilities.

Phone Call Fax Email Written Memo Face to Face

20. Joe, your employee, emails you and requests to meet with you to talk about another employee who he thinks may be doing something illegal. He has no experience in handling this type of situation.

Phone Call Fax Email Written Memo Face to Face

21. Your female boss talks with you and asks if you will participate in a social event honoring her. You will have to check your calendar and get back to her.

Phone Call Fax Email Written Memo Face to Face

22. You receive a faxed resume' from Mike who wants to work in a role that you have had vacant for some time. Mike appears very qualified. You want to make sure he understands the mission of your department.

Phone Call Fax Email Written Memo Face to Face

23. You receive an email from Mark telling you that he has found another job and is thinking about leaving. Mark has been your peer for 10 years. You are concerned that he is making this decision for the wrong reasons.

Phone Call Fax Email Written Memo Face to Face

24. Stephanie, your new employee, leaves you a voice mail stating that she is having trouble understanding how to prepare her budget. She is requesting to meet with you.

Phone Call Fax Email Written Memo Face to Face

25. Your male boss talks with you and asks if you will participate in a social event honoring him. You will have to check your calendar and get back to him.

Phone Call Fax Email Written Memo Face to Face

26. You receive an email from Jane telling you that she has found another job and is thinking about leaving. Jane has been your peer for 10 years. You are concern that she is making this decision for the wrong reasons.

Phone Call Fax Email Written Memo Face to Face

27. Jack, your peer, leaves you a voicemail asking to speak to you about how you would handle a disciplinary action. He states he may not be at his desk but really needs your input.

Phone Call Fax Email Written Memo Face to Face

28. Jennifer, a superior, sends you a written memo describing an action plan to address a public debacle. She has asked for your feedback. You know that her plan is the wrong approach. She will begin instituting this plan tomorrow.

Phone Call Fax Email Written Memo Face to Face

29. Several of your male peers talk with you and ask if you will participate in this year's sports fundraiser. You will have to check your calendar and get back to them.

Phone Call Fax Email Written Memo Face to Face

30. Sam, your new employee, leaves you a voice mail stating that he is having trouble understanding how to prepare his budget. He is requesting to meet with you.

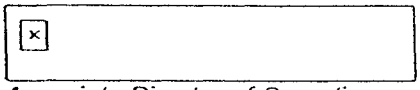
Phone Call Fax Email Written Memo Face to Face

31. Your gender: (circle one) Male Female

APPENDIX D

Urbanowicz, Janet Senior Manager

From: Howard, Eula K [howar1ek@cmich.edu]
Sent: Monday, January 27, 2003 3:02 PM
To: jurbanowicz@meridianhealth.com
Subject: FW: Urbanowicz Survey



Associate Director of Operations
Central Michigan University-East Region
WK # 703-988-0010
Toll Free #: 877-679-1268
Fax # 703-9880019

-----Original Message-----
From: Howard, Eula K
Sent: Monday, January 27, 2003 2:57 PM
To: 'jurbanowicz@merdianhealth.com'
Cc: Carter, Angelo M
Subject: FW: Urbanowicz Survey

Please see the attached email permission to conduct survey.

Associate Director of Operations
Central Michigan University-East Region
WK # 703-988-0010
Toll Free #: 877-679-1268
Fax # 703-9880019

-----Original Message-----
From: Rawls, Daniel Terry
Sent: Monday, January 27, 2003 12:26 PM
To: Howard, Eula K
Subject: RE: Urbanowicz Survey

This is to grant permission for Janet Urbanowicz to contact CMU faculty with the intent of distributing a survey instrument to be used for her Doctoral research.

Thanks, Lou, for tracking this all down!

TRawls

D. Terry Rawls, Ed.D.
Associate Dean
College of Extended Learning
Central Michigan University
CEL North
Mt. Pleasant, MI 48859

989 774 3784 voice
989 774 3232 fax
www.cel.cmich.edu

-----Original Message-----
From: Howard, Eula K
Sent: Monday, January 27, 2003 11:50 AM
To: Rawls, Daniel Terry
Cc: Carter, Angelo M
Subject: RE: Urbanowicz Survey

I finally got in touch with Janet Urbanowicz and she intends to go to class (with permission of the instructor) and have the students complete the survey and then return in 2 weeks and give them the survey again and look at the consistency of their answers.

I hope this clarifies how she will access the students and please let me know if you give your permission to conduct this survey.

Thanks,

Associate Director of Operations
Central Michigan University-East Region
WK # 703-988-0010
Toll Free #: 877-679-1268
Fax # 703-9880019

-----Original Message-----
From: Rawls, Daniel Terry
Sent: Friday, January 24, 2003 9:59 AM
To: Howard, Eula K
Subject: RE: Urbanowicz Survey

So, she wants to use our students for this study. Remind me again, how will she access our students?

Overall, the survey looks fine, so that hurdle is out of the way.

TRawls

-----Original Message-----
From: Howard, Eula K
Sent: Tue 1/21/2003 4:25 PM
To: Rawls, Daniel Terry
Cc: Carter, Angelo M
Subject: Urbanowicz Survey

Terry,

Back in December when you were here with Dan and Bill I talked to you about a student wanting to survey the McGuire students and you asked to see the survey. I have attached [illegible] and survey from the student.

Please let us know once you decide if the survey can be distributed.

Thanks,

Associate Director of Operations
Central Michigan University-East Region
WK # 703-988-0010
Toll Free #: 877-679-1268
Fax # 703-9880019

APPENDIX E

Consent Form

You are being invited to participate in a pilot study. Thank you for taking a few moments to go over this consent form.

This study is being conducted by: Janet A. Urbanowicz, a doctoral candidate at Walden University. The purpose of the research is to determine the reliability of a survey created to collect information about your use of email. If you agree to participate in this study you will need to fill out this survey twice over a two-week period. It should take you approximately 10 minutes to complete this survey.

Your responses will be completely confidential, as both surveys will be marked with the same identifying numbers and letters. They have been arbitrarily chosen. DO NOT PUT YOUR NAME ON EITHER SURVEY.

There is no risk attached to participating or not participating in this study as you are being asked to volunteer. Your decision will not in any way affect your current or future relationship with Central Michigan University or the researcher.

If you have any questions now please ask. If you have any questions in the future you are welcome to contact Janet A. Urbanowicz (student researcher) at 732-530-2227 or Dr. Gary Gemmill (student's advisor) at ggemmill@waldenu.edu.

By turning in the completed surveys you will have consented to participating in this research.

Thank you for considering to voluntarily participate in this study.

APPENDIX F

JERSEY SHORE MEDICAL CENTER
MEDICAL CENTER OF OCEAN COUNTY
RIVERVIEW MEDICAL CENTER

Meridian
Health System

Tel 732 751-7500

Meridian Health System
Monmouth Shores Corporate
1350 Campus Parkway
Wall, NJ 07753

www.meridianhealth.com

March 10, 2003

Janet Urbanowicz
Riverview Medical Center
One Riverview Plaza
Red Bank, NJ 07701

Ms. Urbanowicz:

I am happy to inform you that I am approving the request to conduct your research project during the next Meridian Health System Leadership retreat.

I understand that the purpose of the research is to determine through survey data collection whether there is a relationship between leadership practices and use of email. This research as has been explained is necessary as a partial fulfillment of your doctoral education.

I also understand that you will ask for voluntary participation and for those voluntary participants confidentiality and anonymity will be assured. There are no risks associated with participating or not participating in this research study.

Finally, you have made me aware that a gesture of good will is to be offered to those voluntary participants by raffling off a basket of cheer at the end of the day.

I wish you luck in this endeavor and look forward to your sharing these results at a future leadership retreat.

Sincerely,

John E. Sindoni, SPHR
Sr. Vice President, Human Resources

JES kaf

APPENDIX G

Consent Form

You are being invited to participate in a research study. Thank you for taking a few moments to go over this consent form.

This study is being conducted by: Janet A. Urbanowicz, a doctoral candidate at Walden University. The purpose of the research is to determine through survey data your leadership practice as well as to collect information about your use of email. If you agree to participate in this study you will need to fill out as honestly as possible the two surveys that accompany this form. It should take you approximately 20 minutes to complete both surveys.

Your responses will be completely confidential, as both surveys have been marked with the same identifying numbers and letters. They have been arbitrarily chosen. DO NOT PUT YOUR NAME ON EITHER SURVEY.

There is no risk attached to participating or not participating in this study as you are being asked to volunteer. Your decision will not in any way affect your current or future relationship with Walden University, Meridian Health System or the researcher. A benefit does exist however in that all participants who complete both studies will be eligible for a gift basket to be raffled off at the end of this day. Both surveys must be completed in total to become eligible for this benefit.

If you have any questions now please ask. If you have any questions in the future you are welcome to contact Janet A. Urbanowicz (student researcher) at 732-530-2227 or Dr. Gary Gemmill (student's advisor) at ggemmill@waldenu.edu.

By turning in the completed surveys you will have consented to participating in this research.

Thank you for considering to voluntarily participate in this study.

APPENDIX H

Forwarded Message:
Subj: Re: Response to your LPI question
Date: 04/20/2003 6:08:07 PM Eastern Daylight Time
From: jim@kouzesposner.com (Jim Kouzes)
To: StagaardKL@aol.com
CC: bposner@scu.edu (Barry Posner)

Janet,

I talked to Barry on Thursday, and I mentioned our conversation. I told him the options we discussed, and of those he thought the double-counting option was the best. He said that if you are looking to see the correlation between the use of a practice and the use of email, then he'd suggest that you'd not want to drop out a practice when it's a tie with another. You'll have to do some statistical manipulation in order to do this, but your advisor can help you out on that.
If you have questions, I suggest that you contact Barry. OK? I'm going to be traveling for the next couple days.

Love 'em and lead 'em,
Jim

---------- Headers ----------
Return-Path: <jim@kouzesposner.com>
Received: from rly-xm03.mx.aol.com (rly-xm03.mail.aol.com [172.20.83.104]) by air-xm01.mail.aol.com (v93.8) with ESMTP id MAILINXM13-81ea3ea31a47f0; Sun, 20 Apr 2003 18:08:07 -0400
Received: from mta5.snfc21.pbi.net (mta5.snfc21.pbi.net [206.13.28.241]) by rly-xm03.mx.aol.com (v92.16) with ESMTP id MAILRELAYINXM37-6013ea31a3a1c; Sun, 20 Apr 2003 18:07:55 -0400
Received: from [192.168.1.2] ([67.115.132.160])
by mta5.snfc21.pbi.net (iPlanet Messaging Server 5.1 HotFix 1.6 (built Oct 18 2002)) with ESMTP id <0HDN00CWWXH4PG@mta5.snfc21.pbi.net> for StagaardKL@aol.com; Sun, 20 Apr 2003 15:07:53 -0700 (PDT)
Date: Sun, 20 Apr 2003 15:12:08 -0700
From: Jim Kouzes <jim@kouzesposner.com>
Subject: Re: Response to your LPI question
In-reply-to: <108.21b7c165.2bcc2793@aol.com>
To: StagaardKL@aol.com
Cc: Barry Posner <bposner@scu.edu>
Message-id: <BAC86948.539E%jim@kouzesposner.com>
MIME-version: 1.0
Content-type: text/plain; charset=US-ASCII
Content-transfer-encoding: 7bit
User-Agent: Microsoft-Entourage/10.1.1.2418

Janet A. Urbanowicz

132 St. Lawrence Blvd. Brick, New Jersey 08723 (732) 920-7260 jurbanowicz@meridianhealth.com

Education:

Ph.D. February 2003
Walden University
Minneapolis. Minnesota
Applied Management and Decision Sciences

Central Michigan University December 1997
McGuire Air Force Base, New Jersey
Masters of Science in Administration
Health Services Administration

Thomas Edison State College December 1993
Trenton, New Jersey
Bachelors of Science, Nursing

Ocean County College May 1988
Toms River, New Jersey
Associates in Applied Science, Nursing

Positions:

Meridian Health System January 2004- Present
Riverview Medical Center Campus
1 Riverview Plaza
Red Bank, New Jersey
Product Line Manger, Surgical Services

Meridian Health System November 2001
Riverview Medical Center Campus
1 Riverview Plaza
Red Bank, New Jersey
Senior Manager, Critical Care, Telemetry, Emergency, and Surgical Services

Meridian Health System January 2000
Jersey Shore Medical Center Campus
1945 Corlies Ave
Neptune, New Jersey
Nurse Manager

Meridian Health System — May 1999
Alert Ambulance Service
Industrial Way
Lakewood, New Jersey
Chief Critical Care Transport Coordinator

Meridian Health System — December 1996
Jersey Shore Medical Center Campus
1945 Corlies Ave
Neptune, New Jersey
Assistant Director, Diagnostic Imaging

Meridian Health System — February 1995
Jersey Shore Medical Center Campus
1945 Corlies Ave
Neptune, New Jersey
Clinical Coordinator, Diagnostic Imaging

Meridian Health System — October 1993
Jersey Shore Medical Center Campus
1945 Corlies Ave
Neptune, New Jersey
Administrative Supervisor

Publications:

"Are Creatinine Levels Really Necessary?" American Radiology Nurses Association Journal, Images, May 1998.

"An Evaluation of an Acuity System as it Applies to a Cardiac Catheterization Laboratory" The Journal of Nursing Informatics, May/June 1999.