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THE USE OF EMAIL AND THE RELATIONSHIPS BETWEEN EDUCATION LEADERS
AND FOLLOWERS

By

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Dissertation

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The Use of Email and the Relationships between Education Leaders and Followers

Chairperson: Dr. Frances L. O'Reilly

Through the use of a survey questionnaire and descriptive statistics to analyze the collected data, this quantitative research study sought to determine whether there is a relationship between the use of email as a form of communication and the quality of the leader-follower relationship in organizations. Two electronic survey questionnaires were designed based on questions derived from three already existing and pretested research instruments. Data were collected from faculty (n=28) and undergraduate students (n=92) at two higher education public institutions in the United States.

The predictor variables included age, gender, level of education, frequency of email use, responsiveness to emails, timeliness of emails, the number of emails initiated, the importance of email protocol, and the perceived benefit of email protocol training. The criterion variable was defined as the score generated from the LMX-7 questionnaire. A Spearman's Rho analysis was used to calculate the correlation coefficient between each of the nine predictor variables and the criterion variable.

The findings demonstrated that there is a moderate relationship between how faculty felt about the perceived benefit of email protocol training, and the score generated from the LMX-7 questionnaire. In addition, this research demonstrated that there is a very weak to a weak relationship between age, gender, level of education, frequency of email use, responsiveness to emails, timeliness of emails, the number of emails initiated, and the importance of email protocol, and the score generated from the LMX-7 questionnaire. Findings from this study provide grounds for building future inquiries into relationships between the use of email and the quality of the leader-member exchange.

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CHAPTER ONE: Introduction

Effective communication is very important to the success or failure of any organization. With the increased popularity of Computer Mediated Communication (CMC) tools such as email, and portable devices such as iPhones, Blackberries, and Microsoft mobile devices as an efficient means of communication, email has become somewhat of a necessity for many organizations. In fact, email is “the most widely used form of online communication” (Ribbers & Waringa, 2015, p. 19). It has been said that email in the post-higher education or business environment is “of heightened importance,” requiring professionals to “be aware of and participate in a hypersensitive communication environment” (Costello, 2011, p. 43).

It is no surprise that technology and telecommunications have had weighty impacts on how leaders complete and structure their work (Evans & Ward, 2007). Universities, for example, are using e-mail systems and text messaging for everything from day-to-day communications, to alerts to notify users of emergencies, weather advisories, and more. For instance, as stated on The University of Montana, Missoula, (U of M) website, a message alert system that communicates emergency notifications and safety concerns was put into place and tested several years ago as a response to an increased risk of threats to campus safety nationwide (U of M, “Emergency Notification System,” n. d.).

One observation is that the emergence of new technologies is creating a shift in how we view electronic communication. First, as noted by Costello (2011), “the effects of new technologies are unpredictable” (p. 2). For instance, “word-processing software has transformed writing,” but some facets of both written and oral communication have not changed (Miller, 1996, p. 1). Other aspects of communication have changed, however, and as technology continues to evolve and technical limitations decrease, the ways that we communicate with each

other will similarly continue to change. “This is where problems often arise with the use of e-mail” (Costello, 2011, p. 2). “Some literary critics have cautioned that contemporary patterns of education and technology may be altering our earlier relationship with the written word” (Baron, 1998, p. 12). “The shift toward electronic communication is very noticeable in many quarters, including higher education” (Costello, 2011, p. 3). While innovative technologies that speed up communication become more and more common, an understanding of how and why these communication technologies are used by faculty and other leaders who manage teaching and learning also becomes increasingly important (Markus, 1994).

From the level of the average student’s technology expertise, it is clear that there are favorable opportunities for integrating technologies into higher education (Kennedy, Judd, Churchward, Gray, & Krause, 2008). One study looked at the issue of whether students wanted to integrate a certain technology into their studies, and for a range of emerging technologies, the students indicated the answer was yes, with a majority of students (84%) answering that they would like to send or receive school-related text messages with their cellular phones (Kennedy, et al., 2008). Not only is it important to seek an understanding of what types of communications students would prefer to use in their studies, it is also important to investigate and learn more about the specific electronic means of communication in order to improve their effectiveness and assess their potential for increasing effectiveness.

Considering the degree to which incoming college students today are experienced with using technology, there are a number of avenues for discussions on the ways that these technologies are being implemented, their effectiveness and the various perceptions of each of these technologies. Not only are there more technologies available, there are more communication avenues, sites, and means to communicate.

Since the advent of modern communication modes such as e-mail, voicemail, cell phones, personal digital assistants (PDAs), and social networking websites – [Twitter, Facebook, Snapchat, etc.], the ability, and perhaps the need, to communicate with one another has expanded exponentially. However, there does not appear to be a standard code of behavior associated with using these modes and devices. (Costello, 2011, p. 4)

This can create friction or tension between students and faculty in academia, if some have certain expectations regarding communication etiquette, to which not all individuals are aware of or feel the need to adhere. For instance, Levine and Dean (2012) explained, “One consequence of digital communication has been a growing expectation of immediacy – instant information, immediate contact, and split-second responses. Today’s college students are an impatient lot” (p. 75).

In addition, there can be misunderstandings, inaccuracies, or incomplete messages that can lead to miscommunications between students and faculties. It is especially notable that, while written emails may, like a lot of written communication in the present era, read similar to speech or speaking, it is an important observation that the “content of e-mail messages lacks the non-verbal cues offered in face-to-face communication so the receiver, or more specifically the reader, can mistake the implied tone of the message” (Costello, 2011, pp. 4-5).

Print exchanges don’t offer as many clues about meaning as speech and face-to-face interactions do. They are more open to interpretation, so anger and nasty exchanges can quickly spiral out of control. There is “more venting” and “less filtering.” (Levine & Dean, 2012, p. 75)

This supports the notion that in face-to-face communications, more than 90% of the communication exchange is through non-verbal cues, including: style, expression, tone of voice, facial expression, and body language (Mehrabian, 1981).

Turning our attention explicitly to the use of e-mail, college students today “have more communication choices than any preceding generation; key among these technologies is electronic mail” (Costello, 2011, p. 3). While some college professors and instructors might take the initiative in addressing protocol and proper communication skills, other faculty may think students should already have these abilities when they get to college (Costello, p. 4). “While some students are eager to communicate with faculty members via e-mail, others may be relatively disinclined to engage in this type of interaction or to produce messages at all” (Costello, p. 5). Searching for “ways to improve the effectiveness of this communication mode are important and worth investigating” (Costello, p. 3).

Regarding e-mail, it is a technology that is used extensively, and it can have a perceptible impact on educational outcomes and student achievement (Kim & Keller, 2008). Because e-mail is “almost universally available, it is essential that research be conducted to determine how best to use e-mail by understanding the uses and perceptions from both faculty members and students” (Costello, pp. 2-3).

Based on the rise in use of e-mail and its current use within higher education institutions, the prevalence of e-mail for communication among higher education leaders is likely to continue (Costello 2011). Therefore, gaining an understanding of ways to improve CMC between educational leaders and followers and overcoming barriers to effective electronic communication will be useful for application to e-mail and also to newer technologies as they surface.

Over the last decade, the use of e-mail has grown and changed, both at the University of Montana, Missoula, and in general (Dennison, April 19, 2007). E-mail is used by a variety of entities at universities, including staff, faculty, administrators and executives. The use of e-mail by these individuals includes, but is not limited to: communications between all university departments, and also to make contacts for purposes of arranging business transactions with external entities, such as other universities, government and grant agencies, potential donors and other research organizations. Anecdotal evidence has shown that many users also currently use e-mail to stay aware and updated with information that they are interested in or seeking. This includes many different kinds of e-mails, such as stock alerts, fare deal alerts, bill reminders, advertisements, or simply staying in touch with co-workers, friends and family. However, there is some indication that other means of communication are overtaking and dominating over the prevalence and importance of e-mail communication. In fact,

Bernard R. McCoy, an associate professor of journalism at the University of Nebraska at Lincoln whose research focuses on how students use devices in the classroom, said he believed the ‘immediacy’ of texting and social media is leading students to favor those forms of communication over email. (Straumsheim, 2016)

Although, for college students, it seems that e-mail still maintains a presence, as “the equivalent of what letter writing was to their parents” (Levine & Dean, 2012, p. 74).

Problem Statement

The realization about the importance of e-mail communications leads to questions about how educational leaders are using email and other types of communication technologies to keep their audiences informed. Due to the fact that e-mail is a written form of communication, while at the same time as immediate as a phone call, e-mail has the potential to become or continue to

be used as the primary way that leaders communicate with others. However, education leaders may also have certain reservations or concerns about using e-mail as their favored mode of communication, such as concerns about confidentiality, security, or effectiveness. This realization leads us to the current question of this study. What is the relationship, if any, between the use of e-mail communication and the quality of the relationship between the educational leaders and followers/students?

From a review of the scholarly literature, an important factor to take into consideration is that leadership through the use of CMC is still changing and developing. Some research has been conducted on the role of the internet in leadership or the impact of e-mail on certain groups of people. Richardson and Cooper (2006) looked at the ways in which state legislators use and regard e-mail. However, research on e-leadership has been described as “thin” when compared to research on the topic of leadership in general (Evans & Ward, 2007).

Many higher education institutions have attempted to get acceptable e-mail use policies in place. However, the new and experimental quality of e-mail has led to a state of uncertainty about proper e-mail policy among some educational leaders and institutions, perhaps even all leaders and followers. The researcher’s extensive employment experience and training in managing and implementing email system solutions within higher education settings supports the assertion that most higher education institutions do have email use policies, but that the institutions are continuously updating and changing their email policies, which are often evolving and not finalized.

Another issue concerns the user etiquette among e-mail senders and recipients. Newspaper articles have reported that students are flooding faculty members with unprofessional e-mails, specifically lacking in etiquette, grammar, and content (Glater, 2006). One report on

students' attitudes towards good supervisory practice showed that the relationship between instructors and students is so crucial that it cannot be left to chance, it must be managed (Abdelhafex, 2007). A study conducted at the University of California, Irvine acknowledged that the mistakes in student e-mails contributed to faculty frustration (Aguilar-Roca, Williams, Warrior, & O'Dowd, 2009). The UC Irvine study found that students do not intend to send disrespectful messages, and "those who received a two-minute e-mail etiquette training session on the first day of class showed a significant increase in overall professional quality e-mails," leading us to believe that "minimal time invested in training can considerably enhance the effective use of e-mail between students and faculty" (Costello, 2011, p. 46). Various institutions have created ways to begin to address this issue. Students at universities are often required to complete a class where they are taught how to draft a professional e-mail to their faculty. Additionally, the Online Writing Lab at Purdue University (OWL) has developed a useful guide for students, which includes e-mail etiquette and discussion topics including, writing a message to a person the student does not know, rules for continued conversations, and information that should not be sent via e-mail (Stolley & Brizee, 2010). "These concepts could be used to help establish effective e-mail protocol, which could lead to richer communication between faculty members and students" (Costello, 2011, p. 46).

Purpose of the Study

The purpose of this quantitative study is to determine the relationship between the use of e-mail as a form of communication and the quality of the leader-follower relationship in higher education organizations. Our ability and need to communicate through e-mail seems to increase daily, but we are left to determine user etiquette on an individual basis using somewhat of a trial and error method. This trial and error method risks our ability to build connections; an initial

bad impression gained through bad e-mail etiquette can mean the loss of a social or educational network building opportunity. Through an analysis of e-mail use by leaders in educational institutions, this study seeks to shed light on how this form of electronic communication is being used by leaders within higher education organizations. This study will look at the differences between these leaders' actual and effective uses of e-mail.

Research Question

Due to the recent and increasing prevalence of e-mail use in higher education institutions and settings, research is needed to gain an understanding of educational leader and follower usages and perceptions of e-mail. This study ultimately seeks to find and identify e-mail usages and the perceptions of users on college and university campuses.

Further, this study seeks to investigate how new communication technologies are reshaping leaders and leadership. More specifically, this study will look at answering the following research question:

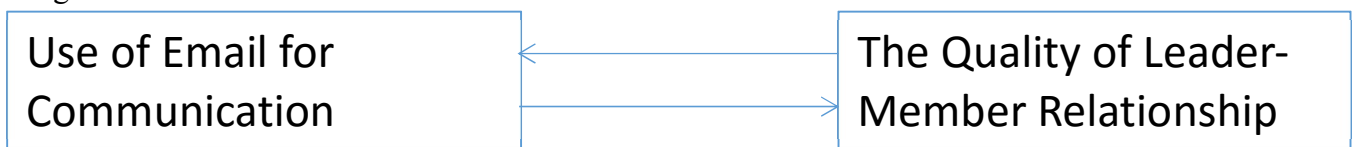
- What is the relationship, if any, between the use of e-mail communication and the quality of the relationship between the educational leaders and followers/students?

The hypothesis of this study is as follows:

- A relationship exists between the use of e-mails for communication and the quality of the relationships between educational leaders and followers/students.

This study will investigate the relationships illustrated here:

Figure 1.1



This model examines relationships between two variables: faculties' and undergraduate students' use of e-mail communication, and the quality of the leader-member relationship. The research settings will be two higher education institutions: the University of Montana, Missoula, Montana and Penn State, New Kensington, Pennsylvania. These two institutions were chosen due to the fact that they are both public higher education establishments, of similar size, which also value and promote diversity. The researcher has elected to limit this research to two institutions due primarily to the desire to create in-depth rather than cursory research and findings.

Definitions of Terms

For the purpose of this study, the following definitions will be used:

Computer Mediated Communication (CMC). A heterogeneous group or set of modes of communication. When new technologies emerge, new modes of CMC emerge as well; therefore CMC is a constantly changing concept. CMC is tentatively defined as any human symbolic text-based interaction conducted or facilitated through digitally-based technologies. This working definition includes the Internet; cellular phone text, instant messaging (IM), and multi-user interactions (MUDs & MOOs); email and listserv interactions; and text-supplemented videoconferencing (e.g. decision support systems). This definition requires actual people to be engaged in a process of message interchange in which the medium of exchange at some point is computerized (Greiffenstern, 2010).

E-leadership. A social influence process mediated by AIT (advanced information technology) to produce a change in attitudes, feelings, thinking, behavior, and/or performance with individuals, groups, and/or organizations (Avolio, Kahai, & Dodge, 2000)

Email. A form of computer mediate communication, specifically an electronic communication that is computer and internet based, and is a broad domain of information exchange, which is sent from one individual to another or to many individuals (Baron, 1998)

Follower. Anyone not acting in a position of “leader” and responding to organizational actions (McCaw, 1999). “Essential to this definition of follower is the concept that followers are active rather than passive” (McCaw, 1999, p. 6). “Only people who are active in the leadership process are followers. . . . Passive people are not followers” (Rost, 1991, pp. 108-109)

Frequency of email use. How often a person sends or receives email messages.

Leader-Member Exchange (LMX) theory. A leadership theory that focuses on the *interactions* between leaders and followers. It focuses on creating positive relations between the leader and each of the followers and thus leading to organizational success. (Northouse, 2004).

Leader. “someone who assumes the responsibility for focusing all efforts, including the efforts of others, towards the achievement of mutual purposes. This is a general definition of a leader, but one that allows for the inclusion of followers who choose to lead” (McCaw, 1999, p. 4).

Leadership. “an influence relationship among leaders and followers who intend real changes that reflect their mutual purposes” (Rost, 1991, p. 102).

Responsiveness to emails. The instance of acknowledging a sent email whether via an email reply or other means of communication.

Timeliness of emails. The length of time it takes a person to respond or receive a response to an email message

Use of email. The factual ways in which email messages are sent and received by individuals.

Delimitations

This study is delimited to educational leaders and students at the U of M Departments of Management Information Systems, Management and Marketing, and Penn State New Kensington Department of Communication. The intent of this research is to look at how educational leaders at the U of M and Penn State New Kensington use e-mail to communicate with their followers. In addition, students in this major field will also be surveyed in this study. Further, although this study will use non-experimental methods of data collection, another possible delimitation is known as the “reactive effect of experimental arrangements” (Kazdin 1973, citing Campbell and Stanley 1963). This delimitation is created due to the fact that the participants know that they are participating in a study, and this may have an impact on their responses. Sometimes referred to as the “Hawthorne effect,” this is the idea that participants may change from their normal behavior, due to the attention they are receiving from being a part of a study. One researcher’s suggestion for how to overcome the Hawthorne effect is to have the participants’ responses be anonymous/confidential, as this may help to eliminate some effects of this source bias (McBride 2013). This study does employ this method, as each survey will include an explanation and assurance of confidentiality of the responses and anonymity of the participants.

Costello (2011) addressed potential delimitations of his study by stating that the key delimitation to his study was the fact that it was conducted at a single Catholic liberal arts college. He stated that the “purpose of the study was to draw on the experiences and perceptions of faculty members and undergraduates when using e-mail in business course-related

communication, and to determine if there are similarities and differences” (Costello, 2011, p. 62). Costello further stated that the conclusions he drew from his work are limited to similar types of institutions, as indicated by the proximal similarity model (Costello, 2011; Trochim, 2006). While this study also has delimitations, as stated above, it also must be recognized that the results of this research was conducted in institutions differing from the site of Costello’s research, as this study will utilize two research sites at two public, state-funded, higher education institutions.

Limitations

The use of a questionnaire for data collection limits the participants to answer from the options that are provided. “A questionnaire that measures perceptions generally must be constructed as a scale and should use a substantial number of items with the aim of obtaining a reliable assessment of an individual perception” (Gall, Gall, & Borg, 2007, p. 228). Costello’s “[c]areful and thoughtful design of the instrument utilized may have reduced this limitation” (p. 62).

A second identified limitation rises from the possibility of confusion of terms by the participants. This potential confusion is due to the use of the terms leaders/faculty and followers /students together in the survey questionnaire.

Further limitations of the survey results include the fact that the questionnaire respondents are constituents of the two research sites, and because of this it is possible that they may have a personal interest in the topic, may believe that they have a stake in the results, or may know the researcher. There may be biases on the research topic on the part of any of the participants (Costello, 2011, p. 61).

This researcher has made an effort to lessen respondent apprehension in the administration of the questionnaire through using credible instruments along with assurances of the confidentiality of the responses. However, as Costello (2011) noted, “some participants and respondents may [be] wary despite the assurances given” (Costello p. 61). “Security and concerns about privacy and computer viruses may also have [an] affect [on] the response rate of the questionnaire” (Costello, 2011, p. 62). This leads us to a final limitation, which is the assumption that all of the participants’ responses are honest responses. And finally, of the 814 targeted undergraduate students at both institutions, 92 chose to participate, for 11.3% response rate. This lower than average response rate could also be considered a limitation of this research.

Significance of the Study

This study is important for several reasons. E-mail and other computer/internet based communications such as Skype and Facebook, are a growing means of communication throughout the world. More and more people are using e-mail on an everyday basis. At the same time, the Paper Reduction Act has also been a factor in increasing the use of e-mail within organizations (Zurier, 1996). This has led to an increased awareness and support for more waste management and energy efficient routines and policies. The rise of e-mail also has significant implications for leaders, because when “communication forms change, leadership forms may change as well” (Pearce, Yoo, & Alavi, 2004, p. 181). This is likely the case for leaders who are now using e-mail. “Being an effective writer has always been an asset for a leader; however, in an e-environment where so much of the interaction is through e-mail and various online postings, the skill becomes paramount” (Evans & Ward, 2007, p. 180). Although e-mail was found to be the most frequently used medium in business communication, in some instances, it is not considered the most effective (Ober, 2009). When considering the value of an e-mail message,

the initiator must take into account the receiver, the content, and timeliness of a response and ask, “Is e-mail the most appropriate mode to use?” (Brantley & Miller, 2008, p. 111). In addition, with organizations using virtual communities more and more, e-mail is now the only effective way to communicate within these communities, and therefore it has a significant impact on these communities’ cultures.

Summary of Chapter

In summary, this research shed some light on how e-mail is used by leaders, and how e-mail has reshaped the communication between leaders and followers, as “leaders and followers have a complex relationship and must be studied in tandem” (Bolman & Deal, 1996, p. 119). In addition, this research will provide advice, and recommendations about what to do, and what not to do, with regards to leaders’ use of email as a means of communication.

CHAPTER TWO: Review of the Literature

Boote and Beile (2005) indicated that a literature review serves as a vital foundation for complete research. It is important that researchers understand what has been done in the field, the pros and cons of existing studies, and what these works represent, before making their own contributions to the field. According to Pan (2003), “The major purpose for preparing a literature review is to synthesize literature in order to arrive at defensible conclusions in the face of the inherent uncertainty of the results reported in both qualitative and quantitative research reports” (p. 82). This chapter will serve as a literature review of works that explore the topics of computer based communication technology in higher education, which will then serve as a backdrop to the current study at hand involving the use of email communication and the relationships between education leaders and followers/students.

The samples of literature chosen for review in this chapter involve leadership and technology, and also literature specifically related to the development and use of email technology. The area of leadership and technology is an important area of inquiry, which currently remains relatively unexplored. This is mostly because it is still very new and undeveloped. However, we do know that technology is creating a significant impact on leadership and work settings in general. Consider this quote for instance: “It is very clear that technology, especially telecommunications, has changed the way work is done and even how we structure it” (Evans & Ward, 2007, p. 171). This quote comes from one of a few works that have been published on the topic of leadership and technology. Much research is yet to be conducted regarding the relationship between computer based communication technologies and specific work environments or among various types of individuals.

Computer-Mediated Communication

One major factor we must understand for purposes of this study is the role of email communication. Email is communication facilitated by computers, including applications such as instant messaging, chat, or conferencing software (Rice & Rogers, 1984; Walther, 1992; Clouse, 2001). Considering the desire to communicate with precision, speed, and articulation, email has entered the current workplace and continues to alter the methods by which leaders communicate with their employees. Leaders will continue to put email to the test in terms of seeing if it facilitates their development of communications strategies and allows them to employ effective communication practices. This is important considering that, “The importance of effective communication practices within an organization cannot be overemphasized” (Snowden & Gorton, 2002, p. 31). CMC [including email] can be either synchronous (same-time) or asynchronous (different-time) (Clouse, 2001).

Walther and Burgoon (1992) stated, “for many of us, CMC is no longer a novelty but a communication channel through which much of our business and social interaction takes place, and this transformation is expected to continue” (p. 51). There is some indication that different authority structures occur when an organization embraces CMC, where the role of leader may shift from a role primarily focused on control, to a role emphasizing interpersonal boundary management and empowerment. Communication is therefore a centerpiece of organizational decision making, as a crucial means of disseminating information and also building a shared understanding and commitment to the organization.

In one study regarding the means by which leaders communicate with their followers, Rice and Shook (1990) found from a meta-analysis of media use that leaders spend 50% of the day communicating orally and 23% of the day communicating using text. With the rise of

internet technology in the 25 plus years since that study was done, it would seem inevitable that today's leaders spend more than 23% of the day communicating using text.

The results of a more study specifically examining the use of technology by university and college faculty indicate a high percentage of these educators utilize computer based communication technologies in their teaching methods. In a nationwide survey of college and university faculty, over 80% of these faculty use social media in some capacity, 30% use social networks to communicate with students, and more than 52% use online videos, pod-casts, blogs, and wikis during class time (Blankenship, 2011). In his article on the impact of social media in higher education, Blankenship (2011) discussed the advantages and disadvantages of using social media in teaching college level courses. For instance, he guest lectured an undergraduate class over Skype, which allowed an interactive discussion to take place that otherwise could not have taken place due to a lack of a travel budget; however he noted that it was not possible to make eye contact with the students, which was "frustrating, because the best ideas often come from sharing an actual space with someone" (Blankenship, 2011).

As CMC, including email, continues to expand and replace traditional communication between the leaders and followers, understanding which forms of communication are most successful and when they are best utilized will help leaders and organizations provide better communication practices that will lead to their success. It is therefore important that leaders understand the relationships between CMC and leadership in an organization.

Some research has been done on the role of the internet in leadership or the impact of electronic communications such as email on certain groups of people. For instance, one study examined the use and perceptions of email by state legislators (Richardson & Cooper, 2006). "However, research on a serious basis into the subject of e-leadership is really just beginning,

and the literature is ‘thin,’ especially in comparison to leadership in general” (Evans & Ward, 2007, p. 180).

However, it is critical to understand the changes that are taking place in this area because it impacts us on a day-to-day basis. For instance, in today’s world, effective communication is essential to the success or failure of any organization. We have seen this in action by universities that have implemented email or text messaging systems for all kinds of purposes including everything from day-to-day communications, to emergency alert systems (Thompson, 2016).

There is considerably more literature regarding the area of the history and current use of email, particularly within higher education settings. To understand the characteristics of email that have brought its use and prevalence to that of the present day, it is instructive to examine some theories about the type of communication that email is considered to be, and also some of the ideas within the literature regarding both the advantages and the disadvantages of email communication.

Communication Effectiveness

Communication theorists have indicated that in our use of language, we must proceed with caution when visual and non-verbal components of communication do not exist (Mehrabian, 1981). When considering the effectiveness of communication between leaders and followers in higher education settings, the suggestions of the “information richness theory” as it relates to CMC, are important. Information is a main component of email, as it is in any means of communication. The information richness theory consists of a framework for explaining communication modes by their ability to reproduce the information sent. “Originally proposed by Richard Daft and Robert Lengel (1984), information richness asserts that the more ambiguous the message, the more information rich it should be” (Costello, 2011, p. 24). This theory has

been expanded to include email and is now known also as the “media richness theory” (Trevino, Lengel, Bodensteiner, Gerloff, & Muir, 1990). Costello (2011) summarized this theory of communication as follows:

Communication that is comprehensible promotes understanding; communication that is indistinct can take longer for the receiver to understand. According to Daft and Lengel (1984), information richness is a compilation of immediate feedback, available cues, and focus on the recipient. . . . On a continuum of *effectiveness of communication*, where face-to-face is classified as more effective and bulk mail as less effective, e-mail is positioned closer to a less effective end. (p. 25)

Because face-to-face and telephone conversations are oral media, these types of communication provide additional cues to help enable the receiver understand, and are therefore richer than written media (Markus, 1994). Research by Daft and Lengel (1986) addressed the question of “Why do organizations process information?” The literature indicates that “organizations process information to reduce uncertainty” and “attain an acceptable level of performance” (Daft & Lengel, 1986, p. 554). It is critical for organizations, including higher education institutions, and individuals, such as their faculty, to process information and communicate effectively. “Matching the message to the mode is imperative to effective communication in both the educational and the business worlds” (Costello, 2011, p. 44). The mode chosen to accomplish the communication can have an impact on the success or failure of the communication. As Costello (2011) explains,

Tasks with a high degree of ambiguity require richer information. Media are more suitable for equivocal information tasks, or have a higher degree of information richness, if they score high on these criteria: 1) the possibility of

instant feedback, 2) the medium's ability to convey multiple cues, such as body language, facial expressions, tone of voice, 3) the use of natural language to convey subtleties and nuances, and 4) the personal focus of the medium. Based on these criteria, e-mail is generally considered a relatively 'lean' medium. . . Generally, uncertainty reduction will improve an individual's perceived capability to predict future outcomes. These outcomes can significantly affect behavior and decision making capabilities. (pp. 25-26)

When we apply this theory to settings in which higher education leaders are communicating with their followers, it is instructive to note that conversation and correspondence between educational leaders and followers must be clear, understandable, and comprehensible in order to decrease ambiguity and to enhance the communication experience. It has been found that effective communication may increase as interdependence among participants increases (Van de Ven, Delbecq, & Koenig, 1976), and as the quantity or the nature of information was associated with task (Daft & Lengel, 1986). Costello (2011) further stated as follows:

Markus (1994) provided strong evidence that the technologically deterministic perspective underlying media richness offers only a partial explanation, and should be combined with the rational actor perspective, which states that how people use the technology and what they try to accomplish with it are likely to determine the outcomes of that use. Fulk (1993) provided more insight stating experience, shared meaning, and behavioral patterns are more important predictors of the use of communication technology than media richness-related variables. Lee (1994) concluded that, instead of being an inherent property of the

medium itself, the richness or leanness of e-mail is an emergent property of the interaction between technology, the user, and the appropriateness of the medium for conveying content, and is defined over time by user groups. (pp. 26-27)

Using this theory, followers in higher education settings may form an accepted and shared meaning of email that may diverge from the original intention of the senders. However, the factors contributing to the convenience of email, for instance the speed of transmission, must also be considered when evaluating the richness of this type of communication.

Communication scholars and theorists have considered whether email as a mode of communication, is more like a form of speech, or more like other types of written communication.

As is true of many emerging communication technologies, e-mail has some aspects of oral, as well as written communication. Baron (1998) surveyed the literature to discern definitions of this communication mode and found a variety of possibilities: “e-mail is a form of writing; e-mail is a form of speech; e-mail is a combination of written and spoken elements; e-mail is a distinct language style; and e-mail is still evolving.” (as cited in Costello, 2011, pp. 2-3)

Ducheneaut and Watts (2005) compared email with the speech act theory. Costello explained this as follows: “When speaking or typing an e-mail message, the words alone do not have meaning; the speech act theory considers the context of the message: the sender, the receiver, and the situation” (Costello, 2011, p. 27). An advantage of having email is that it allows users to organize and refine messages in ways that are not possible when communicating face-to-face. This allows the writer to reconsider their words and the audience (Ducheneaut &

Watts, 2005, p. 21). “Basically, the sender does not own an e-mail message until it is sent and time can be taken to improve the message up until the sending moment” (Costello, 2011, p. 27).

Costello posits that considering this flexibility element that email includes and the numerous communication options available, email systems in higher education settings may be underutilized (Costello, 2011, p. 27). Many, if not almost all, colleges provide students with email accounts upon their admission or registration at the institution (Lu, Ma, & Turner, 2004). However, leaders who have less experience with electronic messaging systems may choose to communicate with their followers through other more traditional channels, while more college students seem to be using portable, mobile devices to send and receive messages. “Problems associated with the inconsistency of use and the perception of content may involve the nature of the inquiry or the media selection, an alignment that faculty members might consider exploring with students” (Costello, 2011, p. 28).

There are some clear advantages and disadvantages of email as a form of communication. First, a major advantage of email is the convenience that it offers. This includes the following factors: a message can be sent and received directly and instantaneously; one message can be sent to any number of people at the same time; however, recipients do not have to be available when the message is sent (Brantley & Miller, 2008; Costello, 2011).

Although there are advantages, there are also certain disadvantages or challenges, particularly concerning business or work settings. For instance, senders may find themselves making decisions and drafting emails at the same time. This practice, along with drafting and sending messages too quickly, often results in ineffective, unprofessional, and unwanted emails (Brantley & Miller, 2008; Costello, 2011). Costello discussed one hot topic in employment law, which is the use and abuse of email in the workplace. He explained, “Improper use of e-mail

creates a host of legal problems for employers, because of three inherent e-mail system characteristics: broadcasting capabilities, perpetual retention, and susceptibility to abuse” (Costello, 2011, p. 43). These factors can lead to legal challenges, which also apply within higher education settings.

A number of colleges and universities do not have established protocols for the use of e-mail, even though institutions support the servers that make this communication possible. Rather it is left to faculty members to establish practices and policies for e-mail use that apply to their courses. (Costello, 2011, p. 43)

This lack of consistency with regard to the use of email in higher education settings makes it important to look at effective email practices among higher education leaders, with an eye towards coming up with suggestions for creating protocols in an effort to avoid these legal challenges. One definition of an effective message is as follows: one in which words are carefully chosen, are precise, and the reader will comprehend (Krizan, Merrier, Logan, & Williams, 2007).

Consider some of the benefits and potential drawbacks of using email to communicate. Wilson (2016) lists 10 advantages and 10 disadvantages of email. Advantages include as follows:

- 1) no cost (once you have internet connection);
- 2) ease of reference, easily, logically, and reliably stored and organized;
- 3) easy to send and receive messages;
- 4) subject lines make it easy to prioritize which messages you need and which you can delete without opening;

- 5) speed;
- 6) global;
- 7) less use of paper;
- 8) store information without the need for file cabinets;
- 9) leverage, meaning you can send the same message to multiple people;
- 10) you can use multiple accounts. (Wilson, 2016)

On the other hand, some disadvantages of using email include:

- 1) emails sent in the heat of the moment may not be undone and can cause lasting damage;
- 2) too many people send too much information and don't use email effectively, leading to information overload;
- 3) lacks a personal touch that a hand written card or letter contains;
- 4) emails can lead to misunderstandings and wasted time due to not being edited before they are sent;
- 5) no break from checking email inbox, it constantly needs to be checked and not ignored;
- 6) pressure to reply or act immediately;
- 7) spam wastes time;
- 8) over-checking email drains time;
- 9) email is suited to brevity, long emails are not good form and the longer it is, the harder it is to take in;
- 10) internet viruses coming into your computer through email messages can break your computer. (Wilson, 2016)

Leadership Theory

The literature is remiss when it comes to finding a consistent explanation and understanding of leadership.

Perhaps the greatest weakness in the leadership literature has been the striking lack of precision in the use of the term, “leadership,” and probably even in what constitutes the concept. It is thus not surprising that the processes studied under the label of leadership have been quite varied. Analysis . . . indicates that the total range extends from what seems to be garrulousness, through coercive power, to authority relationships. . . .”

(Jacobs, 1970, p. 338)

According to Rost (1991), scholars and practitioners have not focused on the nature of leadership, and as a result of this, leadership scholars up until the 1990s, have not known what leadership is. “It should be no surprise that scholars and practitioners have not been able to clarify what leadership is, because most of what is written about leadership has to do with its peripheral elements and content rather than with the essential nature of leadership as a relationship” (Rost, 1991, p. 5). As stated by Jacobs (1970),

The essence of social exchange is the development of relationships with other persons, such that the benefits of mutual value can be ‘traded’ between participants of both equal and unequal status. . . . It is probable that the ability to lead must be based on the competence to make some kind of unique contribution to the success of the group being led. It appears, then, that leadership is a transaction between the leader and the group. (p. 339)

Rost (1991) credits Jacobs (1970) with developing an exchange theory of leadership. Jacobs “insisted that leadership as a concept must be distinguished from the concepts of authority and

power” (Rost, 1991, p. 60). “Leadership is taken as an interaction between persons in which one presents information of a sort and in such a manner that the other becomes convinced that his outcomes (benefits/costs ratio) will be improved if he behaves in the manner suggested or desired” (Jacobs, 1970, p. 232).

Burns (1978) also presented a transactional leadership model using exchange theory. Burns (1978) stated that transactional leadership “occurs when one person takes the initiative in making contact with others for the purpose of an exchange of valued things. The exchange could be economic or political or psychological in nature” (Burns, 1978, p. 19). Hollander (1978) developed a social exchange theory of leadership, which stated,

leadership is a process of influence between a leader and those who are followers. . . . A leadership process usually involves a two-way influence relationship aimed primarily at attaining mutual goals, such as those of a group, organization, or society. . . . Leadership is not just the job of the leader but also requires the cooperative efforts of others.

(Hollander, 1978, p. 1)

Hollander (1978) stated, “The process of leadership involves a social exchange between the leader and followers. This social exchange, or transactional approach, involves a trading of benefits” (Hollander, 1978, p. 7). Hollander (1978) further stated,

Leadership is a process, not a person. Certainly, the leader is the central and often vital part of the leadership process. However, the followers are also important in the picture. Without responsive followers there is no leadership, because the concept of leadership is relational. It involves someone who exerts influence, and those who are influenced.

However, influence can flow both ways (Hollander, 1978, p. 4).

Lord (1979) stated that leadership is “a mutual influence process grounded in shared perceptions of followers” (Lord, 1979, p. 156). Bell (1975) defined influence as “the process of using persuasion to have an impact on other people in a relationship” (p. 105). Leadership as an influence relationship means that “it is noncoercive, meaning that it is not based on authority, power, or dictatorial actions but is based on persuasive behaviors, thus allowing anyone in the relationship to freely agree or disagree and ultimately to drop into or out of the relationship” (Rost, 1991, p. 107). “The influence patterns in the relationship are inherently unequal because leaders typically exert more influence than do followers” (Rost, 1991, p. 112). Rost (1991) stated,

Followers and leaders develop a relationship wherein they influence one another as well as the organization and society, and that is leadership. They do not do the same things in the relationship, just as the composers and musicians do not do the same thing in making music, but they are both essential to leadership. (p. 109)

Regarding influence, Rost (1991) stated that the leadership relationship between leaders and followers

is inherently unequal because the influence patterns are unequal. Typically, leaders have more influence because they are willing to commit more of the power resources they possess to the relationship, and they are more skilled at putting those power resources to work to influence others in the relationship However, there are times when followers may exert more influence than leaders, times when they seize the initiative, and times when their purposes drive the relationship These fluctuating patterns of influence are normal and developmental, as viewed from a postindustrial school of leadership. The industrial paradigm of leadership saw/sees these fluctuations as

abnormal, an aberration of the real leadership process, and counterproductive to the attainment of goals – which is the purpose of leadership. Such a view is no longer acceptable as followers take an increasingly active part in the leadership process. (p. 112)

This pattern of multidirectional influence and active, influential followers has continued with the emergence of e-leadership.

Understanding E-Leadership

To understand the effect that CMCs are having on leadership in higher education settings, we must first examine and understand the works that have been published regarding techniques and practices that leaders are using with regards to email or technology in general. Evans and Ward's (2007), *Leadership basics for librarians and information professionals*, pointed out that leadership in the early 21st century through the use of email is still changing and developing. They posited, "Technology-mediated environments require some adjustments in leadership behavior" (Evans & Ward, 2007, p.172).

Of particular importance is Evans and Ward's (2007), chapter entitled "E-Leadership," which focused on certain subtopics including: the challenges of e-leadership, the differences between virtual and face-to-face leadership, and e-leadership of virtual teams. Here, Evans and Ward discussed some general points about what leadership is and what accommodations must be made when the leadership is provided through technological means utilizing the Internet. Evans and Ward emphasized the importance of effective written communication. For instance, it is imperative to understand the role that tone plays in email and other web-based communications, as the following quote pointed out:

In a face-to-face environment, employees interpret more than just the words a leader uses; they draw on a variety of visual clues in making their assessment of the words.

Lacking visual clues, people depend on tone of voice and the nature of written words in e-communication. (Evans & Ward, 2007, p. 180)

Evans and Ward's (2007) work pointed out not only the benefits, but also some of the detriments or challenges of electronic communication in the workplace, such as developing collaborative work relationships and building trust. In addition, Evans and Ward pointed out some overarching points about e-leadership, such as "electronic leadership is hyperlinked rather than hierarchical," and "E-leadership can come from anywhere in the hyperlinked system" (p. 180). These statements are useful to keep in mind in light of this current study, which examines the relationships between use of email as a form of communications and the quality of the leader-member exchange. This raises certain questions, such as, "If e-leadership is 'hyperlinked,' not 'hierarchical,' are the individuals who are usually thought of as the leaders of an organization really making the critical leadership decisions and communications?"

One noted weakness of Evans and Ward's (2007) work is that it provided few specific examples or case studies of e-leadership and the way that this operates on a day-to-day basis. Mostly this work provides broad general overviews or statements that other researchers have made about e-leaders and the issues that have come up in this topic of discussion. Therefore a potential area to expound upon would be in terms of providing detailed accounts of instances where e-leadership takes place and how this occurs.

Evans and Ward's (2007) work does relate closely to the study at hand, regarding the relationships between computer-based communications and the leader-member exchange, in that it provides general statements about what to do or not do in order to create effective e-leadership.

These points will be useful as a sort of check-list to go through when examining the practices of leaders who are providing leadership direction to their followers by communicating through the use of technology, specifically, email.

Within the work by Evans and Ward (2007), their chapter on e-leadership makes reference to an article entitled, “E-leadership: Tackling complex challenges,” by Pulley and Sessa (2001). This article discussed a survey that was conducted of 546 leaders across a wide array of industries. This survey showed that:

foundational skills traditionally associated with leadership, such as having the communication skills required to unify and motivate others toward common goals, are as important as ever. However, adapting traditional leadership skills to a technologically-mediated environment adds a layer of complexity that has not existed before. (Pulley & Sessa, p. 226)

The article by Pulley and Sessa (2001) emphasized how critical e-leaders’ writing skills have become, as well as the fact that for the most part, leadership skills in this area have just developed or are yet to be developed.

Another relevant work is a book chapter in an edited work, *Improving Leadership in Nonprofit Organizations* (2004). The chapter of particular relevance is entitled, “Leadership, social work, and virtual teams,” by Pearce, Yoo, and Alavi. Like Evans and Ward (2007), these authors also emphasized the differences between technology mediated communication and face-to-face communication, and the fact that there is a lack of research in this area. As they state, “Despite the importance of the topic, there is a significant gap in the leadership and information systems literature about the role of leadership in virtual teams” (Pearce, Yoo, & Alavi, 2004, p. 181). Pearce et al. (2004) sets out to discuss “the relative influence of vertical leadership

(leadership from the designated team leader) with shared leadership (leadership emanating from the members of the team) in virtual teams in the social work sector” (p. 181). This seems to echo Evans and Ward’s (2007) point that “E-leadership can come from anywhere in the hyperlinked system,” including from the designated leader and also from the members of the team, which we can also refer to as “followers.” Pearce et al. (2004) gave a specific example in which,

Group members participated in the group decision-making process and influenced final outcomes more equally in computer-mediated environments than in face-to-face environments. . . . If we apply these findings in the context of leadership, one can argue that the traditional leadership style (heroic vertical leadership) may not be as effective in the virtual team setting as it is in face-to-face environments. (p. 185)

The article by Pulley and Sessa (2001) also pointed out that, the “heroic,” individualistic style of leadership is still a common way to think of leadership and it may still prevail in traditional, hierarchical organizations. “However, with the complex challenges facing leaders today, it is increasingly impossible for an individual or organization to be effective using such an individualistic approach” (Pulley & Sessa, p. 228).

Pearce et al. (2004) provided a theoretical overview of the general literature on leadership, and also on the specific concept of “shared leadership.” It highlights the definition of leadership set forth by Yukl (1998), as “influence exerted . . . over other people to guide, structure, and facilitate relationships in a group or organization” (p. 3). Here it is worthwhile to note that, historically, the success of an organization has been attributed to leaders (Yukl, 1998). However, this view has been changing. Smith (1996) stated that neither the leaders nor their colleagues will succeed if they continue to divide themselves mechanically into leaders and followers. There is also more evidence that the notion that changing leaders does not have a

strong effect on organizational performance and that this lack of leadership impact draws attention to the importance of the followers (Nahavandi, 1997).

Pearce et al. (2004) also set out to hypothesize about and research the question of whether vertical leadership or shared leadership is a more useful predictor of team outcomes. The results of the study showed that “shared leadership is a more useful predictor of team outcomes than vertical leadership,” while vertical leadership had little use at all in predicting team outcomes (Pearce et al., p. 195). The work was based on empirical research from a particular study rather than just general broad statements about leadership. Also, the study “provided some insight into teams that are geographically dispersed and interact primarily through technology-mediated mechanisms,” and “put the spotlight on an emerging form of leadership (shared leadership)” (Pearce et al., 2004, p. 198). According to McCaw (1999), “Shifting the focus of leadership studies from the leader to the follower and the interactive relationship between the two has helped to amplify our understanding of the followers” (McCaw, p. 1). McCaw (1999) also added that “the image of followers has evolved to individuals who at times follow and at other times lead” (p. 45).

The study by Pearce raises questions for the current study, including, “What role does ‘shared leadership’ play in the relationships between computer-based communications and leaders and followers in higher education?” Also, “How does the answer to this question vary depending on whether the followers of the designated leader are geographically dispersed?” These are some relevant questions that, in light of the work by Pearce et al. (2004), should be raised with regards to the use of technology by individuals operating in the more traditional style of “vertical leadership.”

An additional relevant work is another book chapter entitled, “Leadership in virtual teams,” by Zaccaro, Ardison, and Orvis, in an edited work, *Leader Development for Transforming Organizations* (2004). This work describes virtual teams as “likely to become an increasing reality in the operating environment of most organizations” (Zaccaro et al., 2004, p. 284). It begins by providing multiple definitions of “virtual teams” and then proceeds to discuss the essential elements of successful cooperative team-based relationships, such as trust, and certain leadership processes. Zaccaro et al. stated that these “leader actions have greater criticality because one of the most consistent findings in the virtual team literature is that members of virtual teams experience greater dissatisfaction and less cohesion than collocated or face-to-face teams” (p. 276). Perhaps this is where Pearce et al.’s (2004) “shared leadership” could serve to create change in the leadership processes that might be leading to this dissatisfaction, by allowing more leadership roles and decisions to come from the team members (followers), rather than only from the designated leader.

Pearce et al. (2004) discussed some of the challenges of leadership in virtual settings, as indicated in the following quote:

Computer-mediated communications increase the likelihood of misinterpreting affect in electronic messages. Leaders can mistake the tone of a message as overly negative or overly positive. Team members may also misinterpret communications, taking offense at a message that was intended to be innocuous. Such misinterpretations increase the likelihood of affective conflict in virtual groups. (p. 279)

This is a commonality with Evans and Ward’s (2007) work, which emphasized the importance of tone in e-communications. For these reasons, as explained by Evans and Ward, writing skills are imperative for leaders using e-communication technology in order to provide

direction to their subordinates. Not only is it known that any tone that can be correctly conveyed through good writing skills is critical, but also the introduction of symbols in written messages, known as “emoticons,” highlights the lack of and the need for both tone and other non-verbal cues such as facial expressions, which are for the most part missing in written e-communication.

One article entitled “E-leadership and the challenges of leading e-teams: Minimizing the bad and maximizing the good,” by Zaccaro and Bader (2002), (as cited in Zaccaro et al., 2004), goes into greater detail about the e-communications that may occur between leaders and team-members and the importance of trust among these individuals. It suggested that there may be significant value in retaining some face-to-face contacts, as people often feel more comfortable providing personal information about themselves (which is important for building trust) when they are able to see the facial and other non-verbal reactions of others (Zaccaro & Bader, 2002). This is important for e-leaders to keep in mind as they are providing directions and developing their leadership skills.

Zaccaro et al. (2004), like Evans and Ward (2007), provided few specific examples or case studies of e-leadership in action. However, it does provide detailed discussions of different views of leadership, and outlines several of the paradoxes, or complex challenges, that exist within e-leadership, and also how we can learn to manage these paradoxes. The work related to the study at hand by providing us with this theoretical understanding of the “complex challenges” within e-leadership, which we can apply to the data collected to determine the viability of these ideas.

Overall the main commonalities among the above works of literature seem to include the importance of written communication skills, tone, and trust among leaders and their subordinates who are communicating primarily electronically through the internet or other technology. This

literature review frames the study of the relationships between email and the leader-member exchange among leaders and followers in higher education. This study will help us better understand how current leaders in higher educational settings use email for communicating with their followers.

Leadership versus Management

Some organizations may appear to have leadership, but in actuality are engaged in a management relationship. Rost (1991) stated that

the scholars who have defined leadership as an influence relationship almost universally believe that there is a distinction between leadership and management, and the way to clear up the confusion between the two concepts is to insist that leadership is noncoercive influence. (Rost, 1991, pp. 81-82)

Rost (1991) discussed differences between leadership and management, stating that there must be something more to leadership than good management, otherwise the concept of leadership would be redundant.

If leadership is good management, the concept of leadership is superfluous because management as a construct had a lengthy and illustrious linguistic history long before people started talking and writing about leadership. . . . Leadership as a concept is relatively new, whereas the concept of authority of management is ages old. There must be something more to leadership as a concept than redundancy. (Rost, 1991, p. 145)

Management involves authority, rewards and punishments, whereas leadership encompasses voluntary followership:

Specific instances of obedience which stem from fear of punishment, the promise of reward, or the desire to fulfill contractual obligations are examples not of voluntary

followership but of subordination, and the range of free choice available to subordinates is relatively small. Appropriate labels for the person giving orders, monitoring compliance, and administering performance-contingency rewards and punishments include “supervisor” and “manager,” but not “leader.” (Graham, 1988, p. 74)

It becomes important to know the distinctions between leadership and management.

While the two terms have been used interchangeably in the past, there are some critical distinctions between them. The following quote highlights some of those distinctions.

The problem with many organizations, and especially the ones that are failing, is that they tend to be overmanaged and underled. . . . They may excel in the ability to handle the daily routine, yet never question whether the routine should be done at all. There is a profound difference between management and leadership, and both are important. “To manage” means “to bring about, to accomplish, to have charge of or responsibility for, to conduct.” “Leading” is “influencing, guiding in direction, course, action, opinion.” The distinction is crucial. *Managers are people who do things right and leaders are people who do the right thing.* The difference may be summarized as activities of vision and judgment – *effectiveness* versus activities of mastering routines – *efficiency*. (Bennis & Nanus, 1985, p. 21).

Rost (1991) set forth the definition of leadership as: “an influence relationship among leaders and followers who intend real changes that reflect their mutual purposes,” stating that “every word in that definition was carefully selected to convey very specific meanings that contain certain assumptions and values which are necessary to a transformed, postindustrial model of leadership” (Rost, 1991, p. 102).

Leaders and followers develop mutual purposes, which are “common purposes held by a community of believers” (Rost, 1991, p. 123). “Leaders and followers are constantly in the process of developing mutual purposes, and their commitment to that development makes the leadership relationship different from the management relationship” (Rost, 1991, p. 151).

Leadership happens when leaders and followers enter into a relationship that intends real changes. Effectiveness or whatever synonym is used – achievement, results, excellence, products, success, peak performance – is not an essential element of leadership. A relationship wherein leaders and followers intend real changes but are unsuccessful or ineffective, or achieve only minimum changes, is still leadership. Leaders and followers can fail to achieve real changes and still be in a relationship called leadership. (Rost, 1991, p. 116)

Rost (1991) set forth the following outline for the definition of leadership, which includes four essential elements that must be present if leadership exists or is occurring:

1. The relationship is based on influence.
 - a. The influence relationship is multidirectional.
 - b. The influence behaviors are noncoercive.
2. Leaders and followers are the people in this relationship.
 - a. The followers are active.
 - b. There must be more than one follower, and there is typically more than one leader in the relationship.
 - c. The relationship is inherently unequal because the influence patterns are unequal.
3. Leaders and followers intend real changes.

- a. *Intend* means that the leaders and followers purposefully desire certain changes.
 - b. *Real* means that the changes the leaders and followers intend must be substantive and transforming.
 - c. Leaders and followers do not have to produce changes in order for leadership to occur. They intend changes in the present; the changes take place in the future if they take place at all.
 - d. Leaders and followers intend several changes at once.
4. Leaders and followers develop mutual purposes.
- a. The mutuality of these purposes is forged in the noncoercive influence relationship.
 - b. Leaders and followers develop purposes, not goals.
 - c. The intended changes reflect, not realize, their purposes.
 - d. The mutual purposes become common purposes. (pp. 102-103)

Rost (1991) stated, “All four of these elements must be present if any relationship is to be called leadership. Three out of four are not sufficient” (p. 104). Therefore, if each of the four essential elements are present in the faculty/student relationships, then the phenomenon occurring here is leadership. Rost further explains the leadership relationship as multidirectional:

The relationship involves interactions that are vertical, horizontal, diagonal, and circular. This means that (1) anyone can be a leader and/or a follower; (2) followers persuade leaders and other followers, as do leaders; (3) leaders and followers may change places . . . in the relationship; and (4) there are many different relationships that can make up the overall relationship that is leadership. These relationships can be small and large groups,

departmental, organizational, societal, or global, and can be based on race, gender, ethnicity, family relations, clubs, political parties, and friendships, among other things. These relationships are often subsumed under or component parts of a leadership relationship. If a relationship is one-sided, unidirectional, and one-on-one, those are clear signs that the relationship is not leadership. (Rost, 1991, p. 105)

Rost (1991) then contrasts leadership with management, and defines management as “an authority relationship between at least one manager and one subordinate who coordinate their activities to produce and sell particular goods and/or services” (p. 145). He stated that there are four essential elements of management:

1. Management is an authority relationship;
 2. The people in this relationship include at least one manager and one subordinate;
 3. The manager(s) and subordinate(s) coordinate their activities;
 4. The manager(s) and subordinate(s) produce and sell particular goods and/or services
- (Rost, 1991, p. 145).

Therefore Rost noted the following differences between leadership and management:

Leadership involves (intending) real changes. Management involves (producing and selling) goods and services. Leaders and followers join forces to attempt to really change something. Managers and subordinates join forces to produce and sell goods and/or services. When managers and subordinates join forces to really change the ways they produce and sell their goods/services, or really change the kind of goods/services they produce and sell, those managers and subordinates may have transformed their managerial relationship into a leadership relationship [if the three other elements of leadership are present]. (Rost, 1991, p. 151)

Rost (1991) stated that dyadic relationships should be excluded from the concept of leadership:

Leadership is better thought of as larger, more complex, and less intimate than a dyadic relationship typically is. The changes that leaders and followers intend are usually more involved than changing one or two persons. The mutual purposes that feed leadership relationships rarely, if ever, are limited to two people. (Rost, 1991, p. 110)

For instance, Rost (1991) described the teacher-student relationship as a dyadic relationship that is already inherently exalted, and does not need to be called leadership, as “Teachers do not have to lead their students to ennoble their calling; teachers educating their students are noble enough”, and does not need to be described as leadership “in order to make them more appealing, more workable, more developmental, and/or more interesting and exciting” (Rost, 1991, p. 110). Describing important dyadic relationships as leadership results in adding “confusion to our already confused understanding of the nature of leadership” (Rost, 1991, p. 110).

Rost (1991) stated that the trend is towards a shared or collaborative leadership, in which there are more than one leader in a leadership relationship (p. 111). In fact, followers are active, not passive, parts of the leadership process, and the “ability to change places without changing organizational positions gives followers considerable influence and mobility” (p. 109). “As the postindustrial paradigm becomes more and more accepted in mainstream thought and practice, leadership will lose its Lone Ranger or Pied Piper of Hamelin image” (Rost, 1991, pp. 111-112).

Important to the concepts of leadership and management, is an understanding of the concept of power. Rost (1991) stated, “Power is a relationship wherein certain people control other people by rewards and/or punishments” (p. 106). Rost (1991) included Jacobs’ (1970) definition of power, as “the capacity to deprive another needed satisfactions or benefits, or to

inflict ‘costs’ on him for noncompliance with an influence attempt” (Jacobs, p. 230). This indicated that in management relationships, power is held by the manager, while in leadership relationships, power is distributed among the leaders and the followers alike.

Rost (1991) explained that there has been a confusion of leadership with management, and during the industrial era, scholars and practitioners “did not distinguish between leadership and management” (p. 93). Rost (1991) stated that the leadership scholars during the industrial era used the words “leadership” and “management” interchangeably in their writings.

“Leadership and management, leader and manager were synonymous; leadership and management were the same processes; leaders and managers were the same people” (Rost, 1991, p. 93). “Their definitions of leadership were, in fact, definitions of management; and since they viewed leadership and management as the same thing, they saw no need to give a definition of leadership that clearly distinguished it from management” (Rost, 1991, p. 93).

Rost (1991) stated that the data is abundant and overwhelmingly evident and can be seen in:

book after book, author after author, for decades – indeed, for almost a century. The data are massive and point in one direction – leadership and management are the same. The number of authors who wrote differently about leadership and management up until, roughly, the 1980s can be counted on one hand. Or, at the very most, two. Despite all the different words in the definitions of leadership; despite all the different leadership models; despite all the different disciplines from which the leadership scholars came; despite all the different organizations in different countries in which leadership was practiced and studied; despite the differences in epistemological perspectives and [sic] research methodologies of the scholars; despite two world wars, severe economic depression, Communist revolutions, nuclear energy, and landing on the moon

(momentous events that could easily shake any entrenched paradigm), there was unanimity among all these scholars about one fact: Leadership is management. (p. 93)

Rost (1991) argued that the idea of synthesizing the school of leadership into “leadership is management” did not ring true for him, and “much of the literature of the late 1970s and the 1980s, particularly, seemed to be playing a different tune” (p. 93). Rost (1991) stated that “What began to make more and more sense . . . was that leadership scholars and practitioners were playing an industrial tune . . . the melody they sang was ‘Ode to Industrialism,’ wherein the central theme was the leader as good manager” (pp. 93-94).

Everyone knows that what passes for management in many organizations is not leadership. *Leadership is good management.* The basic distinction between just plain management and good management does it. It fits. This fundamental view of leadership fits the literature and makes sense to scholars and practitioners alike. . . . It also preserves the notion that management is an essential part of leadership. If just any management will not do, it is comforting to know that good management will. Leadership as good management is what the twentieth-century school of leadership is all about. Leadership as good management is the twentieth century’s paradigm of leadership. (Rost, 1991, p. 94)

The following quote explains the root of the confusion between leadership and management:

Leadership as good management is a perfect summary of what leadership has meant in the industrial era. Good management is the apex of industrial organizations, the epitome of an industrial society, the consummate embodiment of an industrial culture.

Industrialism is unthinkable without good management, and understanding leadership as good management makes perfect sense in an industrial economy. Thus, the twentieth-

century school of leadership takes on a title, a name that fits naturally and easily.

Leadership as good management is the industrial paradigm of leadership. (Rost, 1991, p. 94)

Rost (1991) discussed the industrial paradigm of leadership versus the postindustrial paradigm of leadership. Rost (1991) argued that in the postindustrial school of leadership, leadership and management are distinct processes. While many persons who hold authority positions in organizations would refer to themselves as “leader(s)”, and also may be called “leader(s)” by others, these individuals are actually managers who are “doing things right,” supervising their subordinates. The question of whether an organization includes leadership or just good management is answered by gaining an appreciation of the direction(s) of influence and the distribution(s) of power among the various individuals. A greater understanding of these roles of influence and power is achieved through the following discussion of leader-member exchange theory.

The Emergence of Leader-Member Exchange Theory

The next facet that we must consider in order to gain a better understanding of leadership and computer-based communications is the emergence of the leader-member exchange (LMX) theory (Dansereau, Graen, & Haga, 1975; Graen & Cashman, 1975; Graen & Uhl-Bien, 1991). This will lead to a better understanding of the role of the “follower,” and also the presence of “in-groups” and “out-groups” within organizational settings.

Theories of leadership have focused mostly on the leader and have indicated that the success of an organization is attributable to its leaders (Kelley, 1992; Nahavandi, 1997; Sergiovanni, 1995; & Yukl, 1998). Research on leadership being conducted in the 1990s began to recognize that focusing their studies only on the leader did not reveal the entire picture of

leadership (Kouzes & Posner, 1993; Rost, 1993). A new comprehension of the role of the “follower” completes our understanding of leadership, and brings forth a revealing piece of the notion of leadership. The Leader-Member Exchange Theory “conceptualizes leadership as a process that is centered on the *interactions* between leaders and followers” (Northouse, 2004, p. 147).

LMX Theory explains how leaders and followers develop exchange relationships, influence each other, and negotiate the subordinate’s role within the organization (Yukl, 1998). LMX recognizes that leaders establish one-on-one relationships with each follower, and each leader-follower relationship is unique in terms of quality and other differences and distinctions (Nahavandi, 1997). Liden, Sparrowe, and Wayne (1997) stated that relationships between leaders and followers include both in-group and out-group exchanges. In-group exchanges have high mutual trust, high face-to-face interaction, reciprocal influence, a sense of common fate, and favorable resource allocation (informal/high level exchange). Out-group exchanges have low personal trust, low face-to-face interaction, low sense of common fate, and low favor (formal/low level exchange). In-group followers have higher performance, lower turnover rates, and greater job satisfaction. “In addition, they are more dependable, more highly involved, and more communicative than out-group subordinates” (Northouse, 2004, p. 150; Dansereau, Graen, & Haga, 1975).

LMX Theory was operationalized by the LMX-7 instrument. “Graen and Uhl-Bien developed the LMX-7 instrument that has since been used in hundreds of scholarly research articles to measure the relationship between supervisors and their subordinates” (Clifford, 2017, p. 3). The LMX-7 provided scores that can measure employee work satisfaction, as well as work-team performance and intentions of turnover (Harris, Li, & Kirkman, 2014). LMX theory

stated that certain relationships develop between leaders and subordinates (Naidoo et al., 2011). “These dyadic relationships are characterized by (a) high frequency of communications but low in quality, (b) low frequency but high quality, (c) high frequency and high quality, or (d) low frequency and low quality” (Clifford, 2017, p. 6). “LMX theory is a dyadic relationship theory” (Clifford, 2017, p. 8). “The Leader-Member Exchange-7 (LMX-7) instrument is a tool used to quantify the strength of the LMX relationship between the leader and member in a dyadic relationship” (Clifford, 2017, p.7). LMX-7 tool is used by LMX theorists to measure the relationship between leader and subordinate (Meng & Wu, 2015). Dulebohn, Bommer, Liden, Brouer and Ferris (2012) correlated LMX-7 results to a transformational leadership style, determining that higher LMX scores are associated with leaders who have more of a transformational style. “The leader-member dyad is at peak performance (therefore highest on the LMX-7 scale) when the leader and member have high levels of trust, autonomy, and work assignments that expand and challenge the scope and capabilities of the subordinate” (Clifford, 2017, p. 9).

The intent of this chapter was to discuss relevant theories, particularly in the fields of educational leadership and computer communications, in order to set a theoretical backdrop for the current research. This included a treatment of leadership theory and an extensive discussion of leadership versus management, providing an understanding of the specifics of each of these concepts. The explanation of leader-member exchange theory is also critical for a complete understanding of current leadership theory. The following chapter presents the methodologies employed in this study.

CHAPTER THREE: Methodology

Research Design

This study used quantitative methods to understand the relationship between the use of email and the quality of the relationship between leaders and followers. Quantitative data were collected by administering two survey questionnaires, one for faculty and one for undergraduate students. A survey design was selected because it “provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population” (Creswell, 2009, p. 145). “Survey research is the type of research that most often focuses on generalizing to target populations” (Johnson & Christensen, 2004, pp. 269-70). “These methods are used in more than 95 percent of research studies in the social sciences” (Gall, Gall, & Borg, 2007, p. 174). A non-experimental method was used in this study. The method was categorized as non-experimental because the researcher made observations or measures of the variables of interest, and was not making direct manipulation and control of the variables (Cozby, 2007). Additionally, the researcher did not seek a cause and effect relationship.

Two electronic survey questionnaires were designed based on questions derived from three already existing and pretested research instruments. The first two instruments were built by Dr. Robert Costello who studied the “Uses and Perceptions of E-mail for Course-Related Communication Between Business Faculty and Undergraduates.” Costello’s questionnaires were “built on the preliminary qualitative segment [meaning the pilot focus groups and focus groups he conducted] and on the literature, and used to collect the quantitative data” (Costello, 2011, p. 48). The survey questionnaires were distributed to faculty and undergraduate students, in two respective forms. Costello wrote the following about his two survey questionnaires:

Both the faculty and the student questionnaires contained 25 items. . . . Of these, 21 questions asked about e-mail perceptions and usage for which 5-point Likert type scales were employed with endpoints ranging from (1) *strongly disagree* to (5) *strongly agree*. Two questions offered the respondents choices regarding their routine and preferred electronic communication modes, one question asked for the primary reason to use e-mail, and the final question was open-ended and asked respondent to add any additional comments pertinent to the study that had not been addressed. (Costello, 2011, pp. 55-56)

Costello explained that the key concepts and themes identified in both his faculty and student focus groups, that became the source for the questionnaire items, included:

- Routine and preferred electronic communication modes;
- Administrative and/or instructional use of e-mail;
- Efficiency, formality, and responsiveness of e-mails;
- Features and accuracy of e-mail messages; and
- Inappropriate use of e-mail. (Costello, 2011, p. 59)

For the current study, the survey instruments were also updated to include demographic questions such as age, gender and the level of education completed. The consent for the use and update of the survey was granted via email from Dr. Costello and is included at the end of this study as “Appendix C.”

The third instrument consisted of the extensively pretested leader-member exchange (LMX-7) scale for supervisors and subordinates. In the Liden et al. (1997) meta-analysis review of 48 studies, 18 studies cited the LMX-7 scale as the instrument of choice to measure LMX.

The LMX-7 questionnaire consists of seven precise questions that can apply to either a leader or a follower (see Appendix D). These questions sought to extract information about the quality of leader-member exchanges (Northouse, 2016). The LMX-7 questionnaire is:

designed to measure three dimensions of leader-member relationships: respect, trust, and obligation. It assesses the degree to which leaders and followers have mutual respect for each other's capabilities, feel a deepening sense of reciprocal trust, and have a strong sense of obligation to one another. Taken together, these dimensions are the ingredients of strong partnerships. (Northouse, 2016, p. 154)

The researcher obtained authorization from the publisher; this license agreement is included as Appendix E. The final step involved integrating the three demographic questions, the 25 questions from Costello's questionnaires and the questions from the LMX-7 questionnaire to create two 35-question survey questionnaires, one for faculty and one for undergraduate students. "Figure 3.1" explains how these questionnaires were combined to develop the two 35-question survey questionnaires. The two fully integrated survey questionnaires are included as Appendix A (faculty) and Appendix B (undergraduate students).

Figure 3.1: Survey instruments integration

Name of Instrument	Description	Variable Examined	Source of Data
Demographic questions	Questions asking for age, gender, and education level	Descriptive statistics	All participants
Costello's questionnaire	24 multiple choice questions and one open-ended question	Uses and perceptions of email	Both faculty and students
LMX-7 Scale for Supervisor (MLMX) (Scandura & Graen, 1984)	7 questions, designated for leader or follower on a 5-point Likert scale	Leader-member exchange	Faculty/students evaluate relationship with his/her subordinate or leader (dyadic exchange)

Research Question and Hypotheses

This study sought to answer the following research question:

What is the relationship, if any, between the use of email for communication and the quality of the relationship between educational leader and follower/student?

The hypothesis for this study was:

A relationship exists between the use of email for communication and the quality of the relationship between the educational leader and follower/student.

Nine null hypotheses were developed for this study based on the predictor variables defined in this chapter.

H₀ 1. There is no relationship between age and the quality of the relationship between the educational leader and follower/student.

H₀ 2. There is no relationship between gender and the quality of the relationship between the educational leader and follower/student.

H₀ 3. There is no relationship between the level of education and the quality of the relationship between the educational leader and follower/student.

H₀ 4. There is no relationship between frequency of email use and the quality of the relationship between the educational leader and follower/student.

H₀ 5. There is no relationship between responsiveness to emails and the quality of the relationship between the educational leader and follower/student.

H₀ 6. There is no relationship between timeliness of emails and the quality of the relationship between the educational leader and follower/student.

H₀ 7. There is no relationship between the number of emails initiated and the quality of the relationship between the educational leader and follower/student.

H₀ 8. There is no relationship between the importance of email protocol and the quality of the relationship between the educational leader and follower/student.

H₀ 9. There is no relationship between Benefit of email protocol training and the quality of the relationship between the educational leader and follower/student.

Population and Sample

Cozby (2007) defined the population as being composed of all individuals of interest to the researcher. The target populations were identified at two research sites selected for this study. The target populations for this study were: (a) faculty members teaching in the selected research sites, including full-time, part-time, tenured, non-tenured, regular, and adjunct faculty; and (b) full-time undergraduates. The two research sites were the University of Montana School of Business Administration Management Information Systems, Management and Marketing departments, and Penn State New Kensington Department of Communications. Both of these institutions are public universities that are similar in size, and recognize the importance of diversity in higher education. All of the faculty and undergraduate students in the Department of Management Information Systems, Management and Marketing at the University of Montana School of Business Administration and Penn State New Kensington Department of Communications were asked to participate. Faculty who taught at least one class per semester were asked to participate and were contacted as part of the leader population.

These target populations at the two research sites were identified and asked to respond to the survey questionnaires. The numbers of targeted participants from each of the populations were noted as follows:

UM MIS, MGMT and MKTG faculty (n=34);

PSNK Communications Department faculty (n=40);

UM MIS, MGMT and MKTG undergraduate majors (n=414);

PSNK Communications undergraduate majors (n=386).

The responses collected from the faculty and undergraduate students were documented.

Data Collection Procedures

Two survey questionnaires were used to target faculty and undergraduate students at the two sites. “The questionnaire is more commonly used ... in quantitative research, because its standardized, highly structured design is compatible with quantitative methods” (Gall, Gall, & Borg, 2007, p. 229). “The most positive aspects cited for the use of electronic surveys to collect data were reduction of costs, the use of electronic mail for pre-notification or follow-up purposes, and the compatibility of data with existing software programs” (Shannon, Johnson, Searcy, & Lott, 2002, p. 1).

The survey questionnaires were submitted to the participants via the UM and the Penn State internal Microsoft Exchange email systems. The lists of the faculty and the undergraduate student participants were obtained from the database coordinator at the School of Business Administration at the University of Montana. At Penn State New Kensington, a faculty member, who acted as the researcher’s point of contact, forwarded the email to the undergraduate students and faculty. To help encourage responses from the target populations, the researcher contacted the department heads to get their initial approval and to ask them to send an initial email encouraging participation in this study. The researcher also included an incentive where participants had the option to enter their email address for a chance to win a Dell Venue. In the design phase of the survey questionnaires, the researcher made sure that the data collected from the participants and their email addresses were stored in a separate database in order to ensure anonymity.

The initial email was sent to both faculty and undergraduate students on Tuesday, March 7th, 2017 encouraging them to respond to the survey questionnaires. The initial email included a brief description of the study, and request to participate (Appendix F). The email also stated that this research was approved (Appendix G) by the Institutional Review Board at The University of Montana on January 26th, 2017. The email included a link to the survey, which was hosted by Qualtrics. This sophisticated web-based survey tool was selected because of its clarity, ease of management and navigation, and accessibility. It was also user friendly and available at no cost to the researcher. Not only did it include integrated statistic tools, it also allowed for exporting the data into multiple formats such as SPSS and Excel.

Follow-up reminder emails were sent to all the participants over the course of four weeks. A final email was sent on Monday, April 3rd, 2017 reminding the participants that they still have a chance to take the survey, and that the survey would be closing on Friday, April 7th, 2017.

Once a targeted participant clicked on the link contained within the email request, the targeted participant was provided the information and consent form (Appendix H). The consent form included the title of the research, information about the primary researcher, and the purpose of the research. The consent form also included a description of the procedure and explained the risks and benefits to the participants. The consent form went on to explain that this study was voluntary and that participants could choose to withdraw at any time. The consent form also provided contact information for the researcher, the chair of the dissertation committee, and the University of Montana-Missoula IRB.

The final piece of the consent form provided the targeted participants with the option of agreeing to the statement of consent. The targeted participant could choose from two options: 1) Yes, I have read the consent form and understand what is being asked of me. I give my consent

for my responses to be used in this study, OR, 2) No, I have not read the consent form and I do not understand what is being asked of me. I do not give my consent for my responses to be used in this study. Targeted participants who chose option one were directed to a second question to state whether they were faculty or undergraduate students. By answering this demographic question, faculty were taken to the faculty survey questionnaire (Appendix A) and the students were taken to the undergraduate student survey questionnaire (Appendix B). Targeted participants who chose option two were thanked for their time and asked to close their computer browser.

Levels of Data

The faculty and undergraduate student survey questionnaires both consisted of 35 questions. The first three questions asked for the participant's age, gender, and level of education. Collecting demographic information allowed for the comparison of subgroups. Of the next 24 questions asked, 21 questions were based on a 5-point Likert scale. Questions four and five asked the participants to choose their routinely used and preferred mode of communication and question 17 asked the participants to choose the primary reason they initiate email. Of these 24 questions, eight were categorical (question numbers 4, 5, 7, 8, 16, 17, 18, and 18) and 16 were ordinal (question numbers 6, 9, 10, 11, 12, 13, 14, 15, 20, 21, 22, 23, 24, 25, 26, and 27). Question 28 was an open-ended question, which asked the participants if they had any additional comments. Finally, the remaining seven questions (questions 28-35) were designed based on a 5-point Likert scale as well. Participant responses resulting from these last seven questions allowed the researcher to generate a score for the quality of the leader-member exchange.

Variables

The nine predictor variables assessed in this analysis were identified from the three demographic questions and from Costello's instruments. They included:

- Age (q. 1)
- Gender (q. 2)
- Level of education (q. 3)
- Frequency of email use (q. 7)
- Responsiveness to emails (q. 12)
- Timeliness of emails (q. 16, q. 18)
- The number of emails initiated (q. 15)
- The importance of email protocol (q. 26)
- Training and improvement of participant's communication (q.27)

The criterion variable was the score generated from each respondent's answers to the LMX-7 questions. This variable is a continuous numerical variable that can range from 7 to 35.

Reliability

Reliability of a measurement is the likelihood that the measurement is free from random error and that the items used in measurement are consistent in measuring the same underlying attribute. Thus, if retested, the same results would be found (Pallant, 2010). Reliability for Costello's questionnaire was determined via focus group (Costello, 2011). When granting consent for the use of his questionnaires, Costello emphasized his process for determining the reliability of his instruments (see Appendix C). The LMX-7 instrument has a coefficient alpha of internal-consistency reliability of .87 (Schriesheim & Cogliser, 2009). The combined

instruments yield an acceptable level of internal consistency, as determined by a Cronbach's alpha of .65 for the faculty survey and .67 for the undergraduate student survey questionnaires.

Validity

“Assessing content validity is one of the most critical steps in instrument development . . . content validity addresses the degree to which items in an instrument adequately represent the domain of content” (Beck & Gable, 2001, p. 201). Costello (2011), indicated that “the content validity of the questionnaires was addressed by reviewing the instruments used in similar studies, by applying the focus group findings to the questionnaire design, and by having experts review the questions ($N=3$)” (p. 56). Costello (2011) stated in his study that he used “internal consistency reliability estimation” (p. 56).

For this study, the researcher had confidence in the methods and precautions taken by Costello in his development and use of the survey questions. Costello (2011) explained that during “the instrument development phase, several factors were taken into account: personological variables, homogeneity of the questions, and the number of items” (pp. 56-57). Similarly, a high level of confidence in the LMX-7 scale is present due to the extensively pretested quality of this instrument.

Data Analysis

In analyzing the data obtained from the survey questionnaires, the researcher produced a profile of the participants responding to the faculty and undergraduate student survey questionnaires, and used descriptive statistics: frequencies, percentages, means, and standard deviations to describe the findings. An analysis of the data using Spearman's Rho correlation was used to test the relationship between the predictor variables and the criterion variable.

The following table shows the outcomes of the survey questionnaire responses, by comparing the number of responses to the survey questionnaires, to the total number of targeted participants at both research sites (Table 3.1).

Table 3.1: Faculty and Undergraduates Targeted and Respondents:

Category	Quantity	Percentage %
Targeted UM MIS, MGMT and Marketing faculty	34	
Targeted PSNK Communications faculty	40	
Total responding faculty	28	37.8%
Targeted UM MIS, MGMT and Marketing undergraduate students	414	
Targeted PSNK Comm undergraduates	400	
Total responding undergraduate students	92	11.3%

The researcher identified a total of 34 UM MIS, MGMT and MKTG faculty and 40 PSNK Communications faculty. According to the UM School of Business Administration's database coordinator, there were 143 enrolled UM Management Information Systems undergraduate students, 149 Management undergraduate students, and 156 Marketing undergraduate students. Because some students were enrolled in double majors or triple majors, the total number of students that were targeted came to 414 undergraduate students. According to the Penn State New Kensington faculty, who was assisting as the point of contact for the researcher, there were 400 enrolled undergraduate students (A. Aima, personal communication, February 7, 2017).

After checking the survey questionnaire data for errors, Excel was used to compute the necessary statistics. Additionally, the researcher reviewed and included written responses resulting from the one open-ended question.

The Effect Size

For this study to meet the level of statistical importance, the effect size (ES) must be at .40 or higher.

Apriori

This study set an alpha level for statistical significance at $< .05$ and set the level for statistical importance at $\rho \geq .4$.

Summary of Chapter

The methodology used in this study was based on a quantitative research approach. An electronic survey was designed based on questions derived from already existing and pretested research instruments. Demographic questions seeking the participants' age, gender, and level of education were also asked. The resulting survey questionnaires consisted of 35 questions.

Data were collected from faculty and undergraduate students at two public higher education institutions, of similar size. All of the faculty and undergraduate students at both sites were asked to participate.

The next chapter includes the quantitative findings of the study. The researcher first reported the data gathered, and then analyzed it using descriptive statistics and Spearman's Rho correlations between the variables.

CHAPTER FOUR: Data Analyses

This quantitative study set out with a purpose to determine the relationship between the use of email as a form of communication and the quality of the leader-follower relationship in higher education organizations. The data were collected from 92 students and 28 faculty members at the University of Montana School of Business Administration Department of Management and Marketing, and Management Information Systems, and the Penn State New Kensington Communications Department.

This chapter will present the characteristics of the data collected, using descriptive data analyses, and also provide the findings from the open-ended question. The data analyses consisted of four stages. The first stage examined the responses for each of the 34 questions and the one open-ended question. During the second stage of the analysis, the scores from the LMX-7 questionnaire were computed for each faculty and student respondent and the results were analyzed using descriptive statistics. The third stage involved a Spearman's Rho correlation analysis between the first 27 questions and the score computed from the LMX-7 questionnaire. The fourth and final stage examined the relationship between the nine defined predictor variables, and the score generated from the LMX-7 questionnaire.

An email inviting faculty and students to participate (see Appendix E) was sent in March of 2017 to faculty and undergraduate students at both the University of Montana School of Business Administration Departments of Management Information Systems, and Management and Marketing, and at Penn State New Kensington Communications Department. The email included a link to the survey questionnaire, which began with a consent form (see Appendix H). Once each targeted participant agreed to the consent, they then were taken to the survey questions. A total of 74 faculty were targeted at both campuses, 34 at the University of Montana

School of Business Administration and 40 at Penn State New Kensington. The total number of undergraduate students targeted was 814, with 414 from the University of Montana School of Business Administration, and 400 from Pennsylvania State New Kensington. Follow-up emails were sent during the following four weeks, encouraging faculty and students to participate. The last day to participate in the survey was Friday, April 7th, 2017. Qualtrics reported a total of 131 responses but upon taking a closer look at the data, only 120 of those were actually completed; 11 had no responses. A total of 28 (n=28, 37.8%) faculty and 92 (n= 92, 11.3%) undergraduate students completed the survey questionnaire.

Stage One: Examination of the Responses

A frequency analysis of the predictor variables was used to explore the results. The majority of the student respondents (76%, n=70) were between 18 and 24 years of age, followed by 17.4% (n=16) of the student respondents, who reported their age as ranging between 25 and 34 years of age. Only 6.3% (n=6) of the student respondents were over the age of 35, of which 2.1% (n=2) were over the age of 45. The student respondents included 47.8% (44) males and 46 (50%) females. There were two students (2.2%) that selected “other” as an answer to the gender question. Table 4.1 summarizes the demographic findings with respect to age, gender, and level of education for the undergraduate student respondents.

Table 4.1

Students' demographic data

Responses to Questions 1, 2 and 3

Question #	N	Description	%	(f)
Q1: Age	92	18-24 years old	76%	(70)
		25-34 years old	17.4%	(16)
		35-44 years old	4.3%	(4)
		45-54 years old	2.1%	(2)
Q2: Gender	92	Male	50%	(44)
		Female	47.8%	(46)
		Other	2.2%	(2)
Q3: Highest degree or level of education completed	92	High school graduate	16.3%	15
		Some college credit, no degree	59.8%	55
		Trade/technical/vocational training	1%	1
		Associate degree	10.9%	10
		Bachelor's degree	10.9%	10
		Master's degree	1%	1

Of the 28 faculty respondents, 15 were male (53.6%) and 12 (42.9%) were female, with one faculty member choosing to opt out of answering the three demographic questions. Using the following table to summarize the faculty's demographic information, it is clear that the age groups were almost equally split between three of the age categories, with 25% (n=7) of the faculty in the 35 to 44 years of age group, and 33.3% (n=9) in the 45 to 54 year of age group, and 29.6% (n=8) in the 55 to 64 year of age group. Therefore the majority of the faculty respondents (88.8%, n=24) were between the age of 35 and 64 years. Table 4.2 summarizes the demographic findings from the faculty respondents.

Table 4.2

Faculty demographic data

Responses to Questions 1, 2 and 3

Question #	N	Description	%	(f)
Q1: Age	27	18-24 years old	3.7%	(1)
		25-34 years old	3.7%	(1)
		35-44 years old	25.9%	(7)
		45-54 years old	33.3%	(9)
		55-64 years old	29.6%	(8)
		65-74 years old	3.7%	(1)
Q2: Gender	27	Male	53.6%	15
		Female	42.9%	12
Q3: Highest degree or level of education completed	27	Associate degree	3.7%	(1)
		Bachelor's degree	3.7%	(1)
		Master's degree	14.8%	(4)
		Professional degree	3.7%	(1)
		Doctoral degree	74%	(20)

Question #4 asked: "Which forms of electronic communication do you routinely use when communicating with faculty (students)?" All faculty respondents (n=28) and student respondents (n=92) answered this question. 100% (n=92) of the students chose email as a routinely used mode of communication with faculty. 16% (n=15) of students indicated that they also use texting, in addition to email. 10.8% (n=10) of the students reported that they also use Facebook in addition to email when communicating with faculty. Finally, 4.3% (n=4) of students said that they also use video conferencing tools such as Skype and FaceTime, in addition to email, to communicate with faculty.

All faculty respondents (n=28) chose email as a routinely used mode of communication with students. In addition, 32% (n=9) of the faculty stated that they also used texting, 17.8% (n=5) stated that they also use instant messaging, and 17.8% (n=5) stated that they also use social networking such as Facebook or Twitter to communicate with students in addition to email.

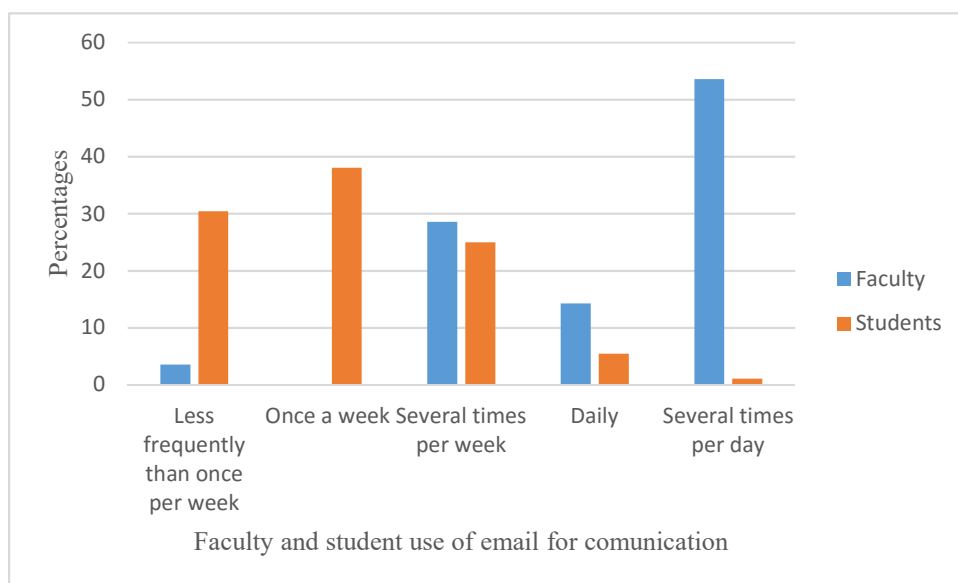
Question #5 asked: “What is your preferred mode of electronic communication with faculty (students)?” The majority of the student respondents, 94.5% (n=87), stated that email is their preferred mode of communication with faculty, while 5.5% (n=5) stated that they prefer texting.

All but one faculty chose email as their preferred mode of communication with their students. The lone faculty chose instant messaging as her preferred method of communication.

Question #6 asked respondents if they would prefer using another electronic communication medium, other than email, to correspond with their faculty (students) regarding course-related matters. A clear minority of the students 17.4% (n=16) strongly agreed or agreed with that statement. 21.8% (n=6) of the faculty responded strongly agreed or agreed with the statement that they would prefer to use another electronic medium to correspond with their students.

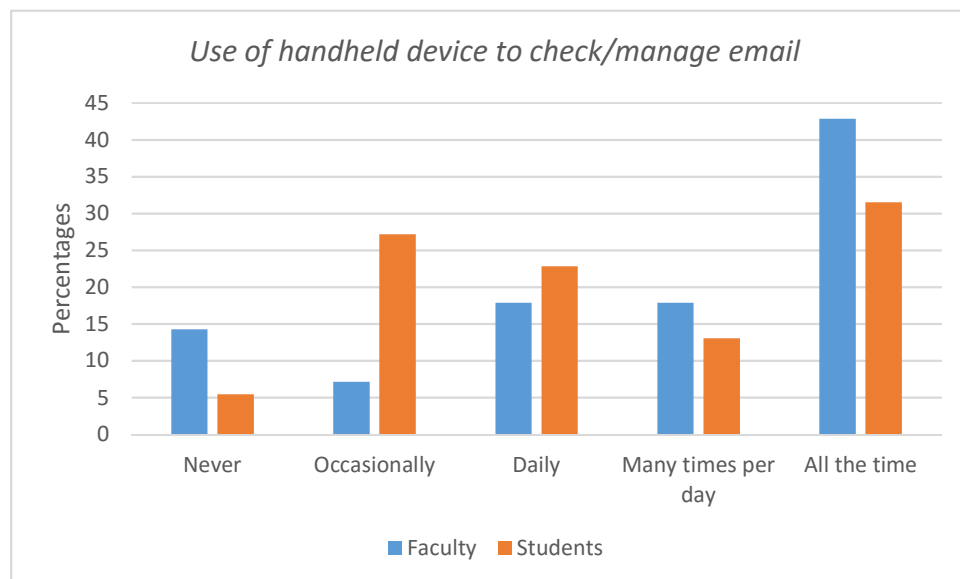
Question #7 asked: In general, how often do you send email to a student/faculty member? Of the 92 student respondents, 69% (n=75) sent email to faculty at least once a week. Of the 28 faculty respondents, 96% (n=27) sent email to students at least several times per week. It is also worth noting that 53% (n=15) of the faculty emailed students several times per day. The following graph (Figure 4.1) summarizes the data findings for this question.

Figure 4.1

Frequency of email use

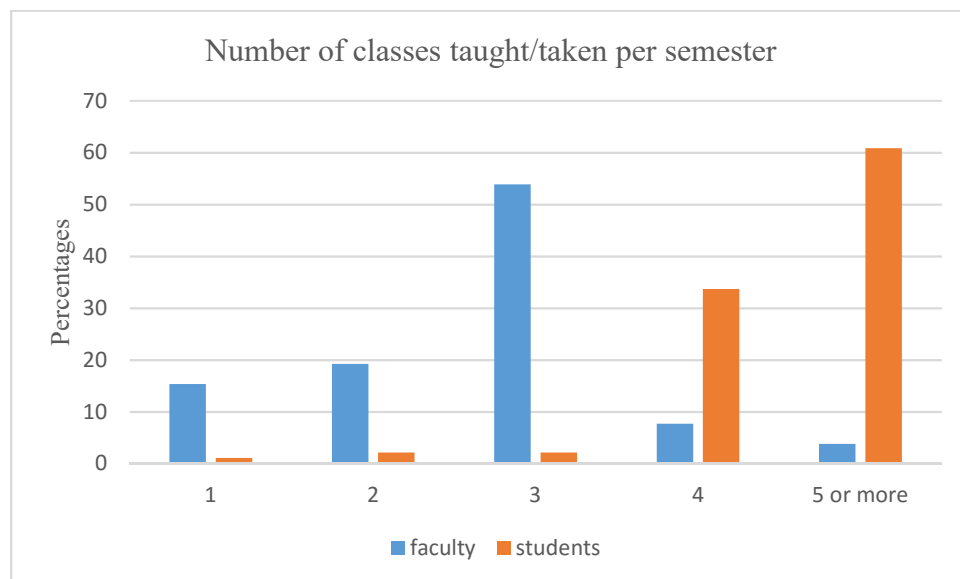
Question #8 asked: Do you use a handheld device to check/manage student (faculty) email? Of the 92 student respondents, only 5.4% (n=5) stated that they never use handheld devices to communicate with faculty. Only four out of the 28 faculty respondents stated that they never use handheld devices to communicate with students. The following graph (Figure 4.2) summarizes the findings for this question.

Figure 4.2



Question #9 asked: On average, how many on-campus undergraduate courses do you teach (take) each semester? Of the 92 student respondents, two students took one class, two students took two classes, and two students took three classes. The rest of the respondents 93.5% (n=86) took an average of four or more classes each semester. Of the 26 faculty respondents, 53.8% (n=14) said that they teach an average of three classes per semester. 19.2% (n=5) of the faculty respondents said that they teach two classes, and 7.7% (n=2) said that they teach four classes. 15.4% (n=4) said that they teach one class, and only one faculty member stated that he teaches five or more classes per semester. The following graph (Figure 4.3) summarizes the data findings regarding the average number of classes taken/taught per semester.

Figure 4.3



Question #10 asked the respondents about how they view email with their faculty or their students. Of the total faculty and student respondents, none viewed email as an informal means of communication. Over 72% of the students and 78% of the faculty respondents viewed email as either somewhat formal or formal. The Table 4.3 summarizes the results from this question.

Table 4.3

Participant's view of email

Question 10		Faculty (f)	Faculty %	Students (f)	Students %
Do you view email with faculty (students) as	Informal	0	0%	0	0%
	Somewhat informal	4	14.30%	6	6.50%
	Neither formal or informal	2	7.10%	14	15.20%
	Somewhat formal	18	64.30%	51	55.50%
	Formal	4	14.30%	21	22.80%
	Total	n=28	100%	n=92	100%

Questions Seeking Level of Agreement

Questions 11, 12, 13, 14, 20, 21, 22, 24, 25, 26, and 27 were based on a five-point Likert scale that ranged from Strongly Disagree, Disagree, Neutral, Agree, to Strongly Agree. These questions sought to measure the level of agreement among the faculty and undergraduate student respondents, with the statements below:

Q11: Generally, you find e-mail to be an efficient, effective, and clear means of communication with faculty.

Q12: In general, faculty members are responsive to your e-mail messages.

Q13: In general, you are encouraged by faculty to contact them by e-mail.

Q14: On course-related matters, you, rather than faculty, are most often the initiator of an e-mail.

Q20: Usually, you add a descriptive subject to the subject line in your e-mails to faculty.

Q21: Usually, you proofread your e-mail messages before sending them to faculty.

Q22: In general, you learn more when you communicate with faculty members by e-mail.

Q24: Students judge a professor's academic competency by the way he or she uses e-mail.

Q25: You learn more when faculty members use e-mail to exchange examples and outlines of course-related material.

Q26: Proper e-mail protocol is important in the workplace.

Q27: You would benefit from e-mail protocol training.

Of the 92 student respondents, one student chose not to respond to Q26, and one student chose not to respond to Q27, and thus the $n=91$ for those two questions. The majority of the student respondents (over 80%) agreed that email is an efficient, effective, and clear means of

communication with faculty. Also, over 87% of student respondents agreed that faculty members are responsive to their email messages, and 95% agreed that they are encouraged by faculty to contact them by email. Over 90% of student respondents agreed that they add a subject line and proofread email before sending them to their faculty. On the other hand, only 28% agreed with the statement that they learn more when they communicate with faculty members by email, and only 32% agreed with the statement that they learn more when faculty members use email to exchange examples and outlines of course-related material. Of the 91 student respondents, 96% (n=87) agreed that email protocol is important, but only 58% (n=52) agreed that they would benefit from email protocol training. Of the 92 student respondents to Q14, 57% (n=53) of the student respondents either agreed or strongly agreed with the statement that they were the initiator of email communication with their faculty. Of the 92 student respondents to Q24, just less than half (46%, n=42), agreed or strongly agreed that students judge academic competency based on how faculty use email. Table 4.4 summarizes the student respondents' answers to the questions seeking their level of agreement:

Table 4.4

Responses to level of agreement questions (students)

Level of agreement		S. Disagree		Disagree		Neutral		Agree		S. Agree		
Q	Question Description	n	%	(f)	%	(f)	%	(f)	%	(f)	%	(f)
11	Email is efficient, effective	92	0%	0	2%	2	18%	17	60%	55	20%	18
12	Responsiveness to email	92	0%	0	2%	2	11%	10	65%	60	22%	20
13	Encouraged to use email	92	0%	0	1%	1	4%	4	49%	45	46%	42
14	Students initiate email	92	2%	2	11%	10	29%	27	42%	39	15%	14
20	Importance of email subject	92	0%	0	0%	0	10%	9	52%	48	38%	35
21	Proofread email	92	0%	0	4%	4	5%	5	32%	29	59%	54
22	Learn more from using email	92	4%	4	13%	12	54%	50	23%	21	5%	5
24	Judging academic competency	92	4%	4	17%	16	33%	30	33%	30	13%	12
25	Learn more by receiving course info	92	5%	5	22%	20	40%	37	29%	27	3%	3
26	Importance of email protocol	91	0%	0	0%	0	4%	4	44%	40	52%	47
27	Benefit from email training	91	5%	5	10%	9	27%	25	40%	36	18%	16

All of the 28 faculty responded to the 11 questions asking for their level of agreement. The majority of the faculty (89%, n=25) agreed or strongly agreed that email is an efficient, effective, and clear means of communication with students. Also, 68% (n=19) agreed or strongly agreed that students are responsive to their email messages, and 54% (n=15) agreed or strongly agreed that they are encouraged by students to contact them by email. All the faculty respondents (100%) agreed or strongly agreed that they add a subject line, and 98% (n=27) proofread email messages before they send them to students. On the other hand, only 36% (n=10) agreed or strongly agreed with the statement that they learn more when they communicate with students by email, and only 33% (n=9) agreed or strongly agreed with the statement that they learn more when students use email to exchange examples and outlines of course-related material. Of the 28 faculty respondents, 96% (n=27) agreed or strongly agreed that email protocol is important, but only 29% (n=8) agreed that they would benefit from email protocol training. Of the 28 faculty respondents, only 47% (n=13) agreed or strongly agreed with the statement that faculty initiate email with their students. Finally, 64% (n=18) agreed or strongly agreed that faculty judge academic competency of their students based on how the students use email. Table 4.5 summarizes the faculty answers to the questions seeking their level of agreement.

Table 4.5

Responses to level of agreement questions (faculty)

Level of agreement		S. Disagree		Disagree		Neutral		Agree		S. Agree	
Q	Question Description	%	(f)	%	(f)	%	(f)	%	(f)	%	(f)
11	Email is efficient, effective	0%	0	4%	1	7%	2	68%	19	21%	6
12	Responsiveness to email	0%	0	11%	3	21%	6	61%	17	7%	2
13	Encouraged to use email	0%	0	18%	5	29%	8	50%	14	4%	1
14	Faculty initiate email	0%	0	14%	4	39%	11	36%	10	11%	3
20	Importance of email subject	0%	0	0%	0	0%	0	25%	7	75%	21
21	Proofread email	4%	1	0%	0	0%	0	36%	10	61%	17
22	Learn more from using email	4%	1	14%	4	46%	13	32%	9	4%	1
24	Judging academic competency	4%	1	21%	6	11%	3	50%	14	14%	4
25	Learn more by sending course info	4%	1	14%	4	50%	14	29%	8	4%	1
26	Importance of email protocol	0%	0	0%	0	4%	1	57%	16	39%	11
27	Benefit from email training	18%	5	21%	6	32%	9	25%	7	4%	1

Question #15 asked: On average, how many email messages per faculty member (student) do you initiate during a semester? Of the 92 student respondents, 49% (n=45) stated that they initiate one to five messages to faculty during the semester, and 25% (n=23) stated that they initiate six to 10 messages during the semester. Finally 26% (n=24) stated that they initiate 11 or more email messages during a semester.

Of the 28 faculty respondents, 32% (n=9) stated that they initiate one to five messages to students during a semester, and 25% (n=7) stated that they initiate six to 10 messages during the semester. Finally 43% (n=12) of the faculty stated that they initiate 11 or more messages during a semester. Table 4.6 summarizes the findings.

Table 4.6

Number of messages initiated per semester

Question 15:	# of emails	Faculty (f)	Faculty %	Students (f)	Students %
On average, how many email messages per faculty member (student) do you initiate during a semester?	0	0	0%	0	0%
	1-5	9	32%	45	49%
	6-10	7	25%	23	25%
	11-15	3	11%	14	15%
	More than 15	9	32%	10	11%
	Total	28	100%	92	100%

Question #16 asked: After emailing a faculty member (student), in general, how long before you receive a response? Of the 92 student respondents, 69% (n=63) stated that they receive a response within a day, with 10% (n=9) of those respondents stating that they receive a response within one to four hours. About 28% (n=26) of the total student respondents stated that they receive a response from a faculty within one to three days.

Of the 28 faculty respondents, 40% (n=11) stated that they received a response within a day, with one faculty stating that that she received a response within one to four hours. About 39% (n=11) of the total faculty respondents stated that it took students between 1 to 3 days before they respond to their emails. Table 4.7 summarizes the findings.

Table 4.7

Time before receiving a response

Question 16:	Response time	Faculty (f)	Faculty %	Students (f)	Students %
After emailing a faculty member (student), in general, how long before you receive a response?	Within 1-4 hours	1	4%	9	10%
	Within 24 hours	10	36%	54	59%
	1-3 days	11	39%	26	28%
	More than 4 days	0	0%	0	0%
	It depends on the nature of the email	6	21%	3	3%
	Total	28	100%	92	100%

Question #17 asked participants to select a choice for the primary reason faculty (students) initiate an email message to them. Of the 92 student respondents, nearly half (43%, n=40) chose lecture clarification, and 24% (n=22) chose advice. About 21% (n=19) of the student respondents chose other reasons. The most common of those reasons were:

- Class updates and announcements.
- Assignment verification/ submission or group project updates
- Reminders and clarifications
- Employer event updates and recruiting information

Of the 28 faculty respondents, about 25% (n=7) chose advice as the primary reason why students initiated email with them. Another 21% (n=6) of the faculty chose absenteeism/tardiness/class cancellation or missed assignments as the primary reason why students initiated email with them. Only 7% (n=2) chose lecture clarification as a response. About 25% (n=7) of the faculty respondents chose other reasons for students initiated emails. Some of these reasons included:

- Clarification of assignment
- Questions about projects
- All kinds of reasons
- Anything negative, which they avoid saying face-to-face.

The next Table 4.8 summarizes the findings for Question 17.

Table 4.8

Primary reason for initiating email

Question 17:	Reason for email	Faculty (f)	Faculty %	Students (f)	Students %
The primary reason faculty (student) initiate an email message to you is... (select choice)	Advice	7	25%	22	24%
	Absenteeism/tardiness/class cancellation	6	21%	7	8%
	Missed assignments	6	21%	4	4%
	Lecture clarification	2	7%	40	43%
	Other (please specify)	7	25%	19	21%
	Total		28	100%	92

Question #18 asked: After receiving an email from a faculty member (student), how long does it usually take you to respond? Of the 92 student respondents, only 30% (n=28) chose within one to four hours. Over half of the students respondents (51%, n=47) chose that they usually respond within 24 hours, and 8% (n=7) said that it could take one to three days for them to respond. None of the students chose more than four days as an answer.

Of the 28 faculty respondents, only 21% (n=6) chose within one to four hours. The majority of the faculty respondents (68%, n=19) chose that they usually respond within 24 hours, and 11% (n=3) said that it could take one to three days to respond to students. None of the faculty respondents chose more than four days as an answer. Table 4.9 summarizes the findings.

Table 4.9

Time before responding

Question 18:	Response time	Faculty (f)	Faculty %	Students (f)	Students %
After receiving an email from a faculty member (student), how long does it usually take you to respond?	Within 1-4 hours	6	21%	28	30%
	Within 24 hours	19	68%	47	51%
	1-3 days	3	11%	7	8%
	More than 4 days	0	0%	0	0%
	It depends on the nature of the email	0	0%	10	11%
	Total		28	100%	92

Question #19 asked respondents to select the most frequent reason they choose the mode of email when communicating with faculty (students). The majority of responding students (63%, n=58) cited convenience as the most frequent reason for choosing email when communicating with faculty. Less than a quarter (21%, n=19) of the student respondents chose documentation of the exchange. The rest of the student respondents were divided equally (5%, n=5) among the three other options: 1) it is less intimidating than a face to face meeting, 2) communicate to a group or forward the information to others, and 3) to organize your thoughts.

The majority of the responding faculty (57%, n=16) stated the most frequent reason why they choose email is because it is less intimidating than a face-to-face meeting. The other 29% (n=8) of the faculty chose documentation of the exchange, and 14% (n=4) chose the ability to communicate to a group or forward the information to others as an answer. Noticeably, none of the faculty respondents chose convenience or to organize their thoughts as the most frequent reason for using email when communicating with students. Table 4.10 summarizes the findings.

Table 4.10

Reason for choosing email

Question 19:	Reason	Faculty (f)	Faculty %	Students (f)	Students %
The most frequent reason you choose the mode of email when communicating with faculty (students) is	Convenience	0	0%	58	63%
	It is less intimidating than a face to face meeting	16	57%	5	5%
	Documentation of the exchange	8	29%	19	21%
	Ability to communicate to a group or forward the information to others	4	14%	5	5%
	To organize your thoughts	0	0%	5	5%
	Total	28	100%	92	100%

Question #23 asked: When corresponding with faculty members (students) about a course-related issue, how many email messages do you send back and forth before you switch your mode of communication? Over half of the faculty and student respondents to this question chose that it depends upon the situation. Noticeably, 32% (n=9) of the faculty and only 12% (n=11) of the students chose that they would switch their mode of communication after two email messages. Table 4.11 summarizes these findings.

Table 4.11

Number of emails sent before switching mode of communication

Question 23:	# of emails	Faculty (f)	Faculty %	Students (f)	Students %
When corresponding with faculty members about a course-related issue, how many email messages do you send back and forth before you switch your mode of communication?	1	1	4%	1	1%
	2	9	32%	11	12%
	3	2	7%	22	24%
	4 or more	2	7%	6	7%
	It depends upon the situation	14	50%	52	57%
	Total	28	100%	92	100%

Question #28 was an open-ended question, which asked: Is there any additional information that you would like to add about email or other electronic communication with faculty (students)? About one quarter of the student respondents (n=24), and about half of the faculty respondents (n=13) chose to answer this question. The most common themes were that faculty required students to use email and that Slack was also used as an alternative. The comments written by the students in response to the open-ended question included the followings:

- I find the e-mail is a great way to communicate quickly. Especially with smartphones, since you can e-mail on the go. But I do feel that e-mail will become replaced with a more efficient communication/collaborative tool such as "Slack" just to name one, because of it's better organization and ability to seamlessly share files and edit them.
- E-mail is the required form of communication with a lot of faculty. If you try to contact them a different way, or even from a non UM email, they won't respond.
- I do not feel students need additional training about email, but rather to be informed that email should be treated as a formal communication means. In the business field, where I have worked previously, email is not used as an informal communication. Students just need to be made aware that email should be professional - they should already know how to make it so.
- Most professors tell you that they either prefer or are required to communicate over email, so it's the first channel I go to if I have a question outside of class.
- Higher ease of communication. Lower amount of information. Email is frequently abused by teachers, sending upwards of 2 to 3 important emails per day for a single class. Teachers would do better to aggregate all information people need into their moodle

rather than mass emailing their students. This inability to distinguish between what goes on moodle and what goes in email is extremely distracting for me.

- I use email typically for the convenience. As for professionalism of the email, I start out with professional formatting, then however the professor responds, I use that same stand point (i.e., keep professional, or switch to casual formatting/wording).
- I think email is the most efficient and effective form of communication outside of in person interaction in class and office-hours.
- I primarily use email to try and schedule a time to meet in person. I love email because it is fast and efficient, but to clarify questions I would rather meet in person (if time allows).

The comments written by the faculty in response to the open-ended question included the followings:

- e-mail is no substitute for face to face interaction.
- Asynchronous communication is primarily for convenience both for the student and the faculty member. Most face-to-face communications with students takes place before and after class. Office hours are for more extended help sessions.
- Slack
- I am very curious about trying to use Slack rather than email
- I have been using Slack this semester and greatly prefer it.
- I use email as the first way to contact students. If I really need to hear from them and they don't respond to my email, I send them a text message to their cell phone, and then call them on their cell phone.

The last seven questions of the survey were based on the LMX-7 questionnaire. Question 29 asked: Do you know where you stand with your leader (faculty)... [and] do you usually know how satisfied your leader (faculty) is with what you do? Of the 92 student respondents, 18 % (n=17) chose that they very often know where they stand with their faculty and 41% chose that they fairly often know. Only 5% (n=5) chose that they rarely or occasionally know where they stand with their faculty and how satisfied the faculty are with what they do.

The majority of the faculty respondents (86%, n=24) indicated that they fairly often know where they stand with their students, and that they know how satisfied their students are with what they do. The other four faculty chose sometimes as an answer. Table 4.12 summarizes the findings.

Table 4.12

Answers to LMX-7 question 1

Question 29		Faculty (f)	Faculty %	Students (f)	Students %
Do you know where you stand with your leader/follower	Rarely	0	0%	2	2%
	Occasionally	0	0%	3	3%
	Sometimes	4	14%	32	35%
	Fairly often	24	86%	38	41%
	Very often	0	0%	17	18%
Total		28	100%	92	100%

Question #30 asked: How well does your leader/follower understand your problems and needs? Of the 92 student respondents, 11% (n=10) chose “a great deal” as their answer, 38% (n=35) chose “quite a bit”, and 34% (n=31) chose “a fair amount”. The rest of the students (17%, n=16) chose “a little” as their answer. None of the students chose “not a bit”. Of the 28 faculty respondents, only 7% (n=2) chose “a great deal” as an answer, and 18% (n=5) chose “quite a bit”, and 11% (n=3) chose “a fair amount”. Over 64% (n=18) of the faculty respondents chose that students understand “a little” or “not a bit” of their problems and needs. Table 4.13 summarizes the findings.

Table 4.13

Answers to LMX-7 question 2

Question 30		Faculty (f)	Faculty %	Students (f)	Students %
How well does your leader/follower understand your problems and needs	Not a bit	2	7%	0	0%
	A little	16	57%	16	17%
	A fair amount	3	11%	31	34%
	Quite a bit	5	18%	35	38%
	Great deal	2	7%	10	11%
Total		28	100%	92	100%

Question #31 asked: How well does your leader/follower recognize your potential? Of the 92 student respondents, 14% (n=13) chose “full,” 43% (n=40) chose “mostly,” and 30% (n=28) chose “moderately” as their answer. Only 12% (n=11) of the student respondents chose “a little” as their answer, and none chose “not at all.” Of the 28 faculty respondents, one faculty chose “full,” 32% (n=9) chose “mostly,” and 54% (n=9) chose “moderately” as their answer. Only 11% (n=3) chose “a little,” and none chose “not at all.” Table 4.14 summarizes the findings.

Table 4.14

Answers to LMX-7 question 3

Question 31		Faculty (f)	Faculty %	Students (f)	Students %
How well does your leader/follower recognize your potential?	Not at all	0	0%	0	0%
	A little	3	11%	11	12%
	Moderately	15	54%	28	30%
	Mostly	9	32%	40	43%
	Full	1	4%	13	14%
	Total	28	100%	92	100%

Question #32 asked: Regardless of how much formal authority your leader (faculty) has built into his or her position, what are the chances that your leader/follower would use his or her power to help you solve problems in your work? Of the 92 student respondents, 21% (n=19) chose “very high,” 37% (n=34) chose “high,” and 33% (n=30) chose “moderate” as their answer. Only 8% (n=7) chose “small,” and the other 2% (n=2) chose none as an answer. Of the 28 faculty respondents, 7% (n=2) chose “very high”, 21% (n=6) chose “high,” and 29% (n=8) chose “moderate” as their answer. A higher number of the faculty respondents (32%, n=9) chose “small”, and 11% (n=3) chose “none” as an answer. Table 4.15 summarizes the findings.

Table 4.15

Answers to LMX-7 question 4

Question 32		Faculty (f)	Faculty %	Students (f)	Students %
Regardless of how much formal authority your leader/follower has built into his or her position, what are the chances that your leader/follower would use his or her power to help you solve problems in your work?	None	3	11%	2	2%
	Small	9	32%	7	8%
	Moderate	8	29%	30	33%
	High	6	21%	34	37%
	Very High	2	7%	19	21%
	Total	28	100%	92	100%

Question #33 asked: Again, regardless of the amount of formal authority your leader/follower has, what are the chances that he or she would “bail you out” at his or her expense? Of the 92 student respondents, none chose “very high” as an answer to the chances that a faculty would bail them out at his or her own expense. Only 7% (n=6) of the student respondents chose “high” as an answer. Most of the student respondents ranged in the middle, with 37% (n=34) choosing “moderate,” and 41% (n=38) choosing “small.” Finally, about 15% (n=14) of the student respondents chose “none” as an answer.

Of the 28 faculty respondents, none chose “very high” as an answer to the chances that a student would bail them out at his or her own expense. Only 7% (n=2) of the faculty respondents chose “high” as an answer. The majority of the faculty respondents ranged in the middle with 21% (n=6) choosing “moderate” and 46% (n=13) choosing “small.” About 25% of the faculty respondents (n=7) chose “none” as an answer. Table 4.16 summarizes the findings.

Table 4.16

Answers to LMX-7 question 5

Question 33		Faculty (f)	Faculty %	Students (f)	Students %
Again, regardless of the amount of formal authority your leader/follower has, what are the chances that he or she would "bail you out" at his or her expense?	None	7	25%	14	15%
	Small	13	46%	38	41%
	Moderate	6	21%	34	37%
	High	2	7%	6	7%
	Very High	0	0%	0	0%
Total		28	100%	92	100%

Question #34 asked: I have enough confidence in my leader/follower that I would defend and justify his or her decision if he or she were not present to do so. Of the 92 student respondents, 12% (n=11) strongly agreed with the statement. Only 8% (n=7) of the student respondents disagreed, and 1% (n=1) strongly disagreed with the statement. Of the 28 faculty respondents, (11%, n=3) strongly agreed. The majority of faculty respondents (39%, n=11) agreed and (36%, n=10) chose neutral. Only 11% (n=3) of the faculty disagreed and one faculty strongly disagreed with the statement. Table 4.17 summarizes the findings.

Table 4.17

Answers to LMX-7 question 6

Question 34		Faculty (f)	Faculty %	Students (f)	Students %
I have enough confidence in my leader/leader that I would defend and justify his or her decision if he or she were not present to do so.	Strongly disagree	1	4%	1	1%
	Disagree	3	11%	7	8%
	Neutral	10	36%	36	39%
	Agree	11	39%	37	40%
	Strongly agree	3	11%	11	12%
Total		28	100%	92	100%

Question #35 asked: How would you characterize your working relationship with your leader/follower? Of the 92 student respondents, 10% (n=9) chose extremely effective, 34%

(n=31) chose better than average, and 55% (n=51) chose average. Only one student respondent chose worse than average and none chose extremely ineffective as an answer. Of the 28 faculty respondents, over 7% (n=2) chose extremely effective, over 71% (n=20) chose better than average, and over 21% (n=6) chose average. None of the faculty respondents chose worse than average or extremely ineffective as an answer. Table 4.18 summarizes the findings.

Table 4.18

Answers to LMX-7 question 7

Question 35		Faculty (f)	Faculty %	Students (f)	Students %
How would you characterize your working relationship with your leader/follower?	Extremely ineffective	0	0%	0	0%
	Worse than Average	0	0%	1	1%
	Average	6	21.40%	51	55%
	Better than Average	20	71.40%	31	34%
	Extremely Effective	2	7.10%	9	10%
Total		n=28	100%	n=92	100%

Stage Two: LMX-7 Score Calculation

The second stage of the data analyses involved the calculation of the score from the LMX-7 questionnaire for each of the student and faculty respondents. Table 4.19 shows the descriptive statistics for the LMX-7 scores for all 92 students and 28 faculty generated from the data collected. The highest score was 33 for students and 32 for faculty, and the lowest score was 15 for both faculty and students.

The mean of 23.8 for the students and 21.96 for the faculty and median of 24 and 21.5 indicates that the overall scores were moderate. The standard deviation, 4.41 for the students and 3.9 for the faculty, indicates that the scores deviated from low on the lowest end to very high on the high end. The skewness of 0.121 for students and .65 for faculty indicates that the responses had a short tail on the upper end.

According to Northouse (2016), the LMX-7 is designed to measure three dimensions of leader-member relationship: respect, trust, and obligation. Northouse stated that the score from the LMX-7 can be interpreted as follows: very high = 30-35, high = 25-29, moderate = 20-24, low = 15-19, and very low = 7-14. Northouse also explained that scores in the upper range indicate a higher quality leader-member exchange (in-group members), while scores on the lower end indicate a lower quality leader-member exchange (out-group members). Of the 92 student respondents, 17 students scored in the 15-19 range, which indicates a low quality leader-member exchange, 35 students scored in the 20-24 range, which indicates a moderate quality leader-member exchange, 31 scored in the 25-29 range, which indicates a high quality of leader-member exchange, and nine scored in the 30-35 range, which indicates a very high quality leader-member exchange.

Of the 28 faculty respondents, six faculty scored in the 15-19 range, which indicates a low quality leader-member exchange, 15 faculty scored in the 20-24 range, which indicates a moderate quality leader-member exchange, five faculty scored in the 25-29 range, which indicates a high quality leader-member exchange, and two faculty scored in the 30-35 range, which indicates a very high quality leader-member exchange. The next table (Table 4.19) summarizes the findings for both faculty and student respondents.

Table 4.19

Descriptive Statistics for LMX-7 Scores

	Faculty	Students
Mean	21.96	23.8
Standard Error	0.74	0.45
Median	21.5	24
Mode	20	23
Standard Deviation	3.92	4.41
Sample Variance	15.36	19.45
Kurtosis	0.74	-0.54
Skewness	0.65	0.121
Range	17	18
Minimum	15	15
Maximum	32	33
Count (n)	28	92

Stage Three: Survey Questions Correlations Calculation and Analysis

During this stage of the analysis, a Spearman's Rho correlation was computed between the three demographic questions, the 24 questions from Costello's questionnaire, and the scores generated from the LMX-7 questionnaire. "Table 4.20" displays the calculated correlation coefficient (ρ) for each of the 27 questions.

Table 4.20

Correlation coefficient

Question #	Question description	Faculty Spearman's rho	Student Spearman's rho
Q1	Age	0.07 (n=27)	0.06
Q2	Gender and LMX Score	-0.31 (n=27)	-0.20
Q3	Highest education Degree achieved	-0.17 (n=27)	0.19
Q4	Form of communication routinely used	0.29	0.19
Q5	Preferred mode of communication	0.24	0.11
Q6	Other preferred mode of communication	0.15	-0.13
Q7	how often do you send and receive e-mail	0.06	0.17
Q8	Hand held device usage	0.17	0.25
Q9	Number of course taught/taken per semester	0.089 (n=26)	0.01
Q10	view e-mail as informal or formal	0.09	0.01
Q11	find e-mail to be an efficient, effective, clear	0.05	0.21
Q12	Responsiveness to your e-mail messages	0.23	0.36
Q13	Encouragement to use email	0.35	0.15
Q14	Who initiate email communication	0.04	-0.18
Q15	# of e-mails messages initiated per semester	0.01	0.15
Q16	How long before you receive a response	-0.20	-0.01
Q17	Primary reason for initiating e-mail	0.18	0.08
Q18	How long before you respond to e-mail	-0.21	-0.07
Q19	The most frequent reason you choose the mode of e	0.26	-0.01
Q20	Usually, you add a descriptive subject to the subject	0.19	0.39
Q21	Usually, you proofread your e-mail messages before	-0.19	0.18
Q22	In general, you learn more when you communicate v	0.16	0.20
Q23	When corresponding with students about a course-re	0.01	0.13
Q24	Faculty members judge academic competency by the	0.21	-0.01
Q25	Your students learn more when they use e-mail to ex	0.238	0.10
Q26	Proper e-mail protocol is important in the workplace	0.37	0.32 (n=91)
Q27	You would benefit from e-mail protocol training.	0.42	0.23 (n=91)

According to Salkind (2017), the correlation coefficient (ρ) is used to reflect the degree of the relationship between the two variables. Salkind (2017) suggested five categories to describe the correlation coefficient. The relationship between the two variables is considered very strong when the correlation coefficient resides between .8 and 1. The relationship is considered strong

when the correlation coefficient is between .8 and .6, and the relationship is considered moderate when the correlation coefficient is between .6 and .4. The relationship is considered weak when the correlation coefficient is between .4 and .2, and the relationship is considered very weak when the correlation coefficient is between .2 and 0. The same interpretation applies for negative correlation coefficients (Salkind, 2017).

The above table (Table 4.20) reveals that responses to 21 of the student questions had a very weak (r between 0 and .2) relationship to the LMX-7 score, and responses to 6 questions had a weak (r between .2 and .4) relationship to the LMX-7 score. The faculty data revealed a very weak (r between 0 and .2) relationship for 16 of the questions, and a weak (r between .2 and .4) relationship to the LMX-7 score for 10 of the questions. Only one question (q.27) had a correlation coefficient $\rho = .4209$ for faculty, which can be interpreted as a moderate relationship. In stage four of the analyses, the researcher examined the statistical findings for each one of the nine predictor variables defined in Chapter Three.

Stage Four: Variables Correlation Analyses

The fourth stage of the data analyses included a thorough examination of the relationship between the nine defined predictor variables in Chapter Three and the score generated from the LMX-7 questionnaire for each one of the faculty and student respondents.

Predictor One: Age

The first question asked the respondents to report their age. The analysis of the student data revealed that the average LMX-7 score was almost identical for the first two age groups, with an average LMX-7 score of 23.64 for the students between 18 and 24 years of age, and an average score of 23.68 for the students between 25 and 34 years of age. The five students between 35 and 44 years of age had an average LMX-7 score of 22.5, while the two students

above 45 years old had an average score of 33. The correlation coefficient for the student respondents ($\rho = .061$) indicates a very weak relationship between the age of the respondents and the quality of the leader-member exchange. The following tables (Table 4.21.1 and 4.21.2) describe the statistical findings based on age for undergraduate students, and also display the Age/LMX-7score correlation findings.

Table 4.21.1

Descriptive statistics by age group for students

Age	18-24	25-34	35-44	45 or older
Mean	23.64	23.69	22.5	33
Standard Error	0.49	1.25	1.94	0
Median	23.5	24	23.5	33
Mode	28	23	#N/A	33
Standard Deviation	4.12	4.99	3.87	0
Sample Variance	17.02	24.90	15	0
Kurtosis	-0.66	-0.36	2.36	#DIV/0!
Skewness	0.08	0.01	-1.38	#DIV/0!
Range	17	18	9	0
Minimum	15	15	17	33
Maximum	32	33	26	33
Sum	1655	379	90	66
Count	70	16	4	2

Table 4.21.2

Students Age/LMX-7 correlation coefficient

Spearman's Rho:	0.06
Degrees of freedom:	90
P-value:	0.56

The correlation coefficient for faculty respondents ($r = .072$) also indicates a very weak relationship between the age of the respondents and the score from the LMX-7. The analysis revealed that the average scores of faculty respondents did not vary much over their reported

ages. The following tables (Table 4.22.1 and 4.22.2) describe the statistical findings based on faculty age, and also display the Age/LMX-7 score correlation findings for faculty.

Table 4.22.1

Descriptive statistics by age group for faculty

Age	18-24	25-24	35-44	45-54	55-64	65-74
Mean	22	25	22	21.3	22.75	20
Standard Error	0	0	1.77	1.7	0.82	0
Median	22	25	20	20	22.5	20
Mode	#N/A	#N/A	20	15	20	#N/A
Standard Deviation	-	-	4.34	5.38	2.31	-
Sample Variance	-	-	18.80	28.90	5.36	-
Kurtosis	-	-	2.28	0.27	-0.86	-
Skewness	-	-	1.66	0.81	0.40	-
Range	0	0	11	17	6	0
Minimum	22	25	19	15	20	20
Maximum	22	25	30	32	26	20
Sum	22	25	132	213	182	20
Count	1	1	6	10	8	1

Table 4.22.2

Faculty Age/LMX-7 correlation coefficient

Spearman's Rho:	0.07
degrees of freedom:	25
P-value:	0.72

Predictor Two: Gender

The Spearman's Rho correlation analysis between the gender of the respondents and their score on the LMX-7 questionnaire, showed a negative correlation. For the faculty, the correlation coefficient was at -.3 and for the students it was at -.2. These two correlation coefficients would indicate a weak negative relationship. The Table 4.23 and 4.24 describe the

statistical findings based on gender, and also display the gender/LMX-7 score correlation findings for students for both faculty and students.

Table 4.23

Descriptive statistics by gender for faculty and students

	Male faculty descriptive LMX scores	Female faculty descriptive LMX scores	Male students descriptive LMX scores	Female students descriptive LMX scores
Mean	23.07	20.66	24.66	23.28
Standard Error	1.15	0.86	0.64	0.64
Median	23	20	24.5	23
Mode	20	20	26	28
Standard Deviation	4.45	2.99	4.26	4.35
Sample Variance	19.78	8.96	18.18	18.92
Kurtosis	0.13	0.41	-0.29	-0.59
Skewness	0.40	0.12	0.13	0.14
Range	17	11	18	18
Minimum	15	15	15	15
Maximum	32	26	33	33
Sum	346	248	1085	1071
Count	15	12	44	46

Table 4.24

Faculty and student gender/LMX-7 correlation coefficient

Q.2	Faculty	Students
Spearman's Rho:	-0.31	-0.20
degrees of freedom:	25	90
P-value:	0.11	0.05

Predictor Three: Level of Education

The Spearman's Rho correlation analysis (Table 4.25) between the level of education of the respondents and their score on the LMX-7 questionnaire showed a very weak negative

relationship for faculty, and a very weak positive relationship for undergraduate students. There were 27 faculty who chose to respond to this question.

Table 4.25

Level of education correlation coefficients

Q.3	Faculty	Students
Spearman's Rho:	-0.17	0.19
Degrees of freedom:	25	90
P-value:	0.40	0.07

Predictor Four: Frequency of Email Use

Question 7 asked the participants how often they send and receive email to/from their faculty/student counterparts. The correlation coefficients (Table 4.26) of $\rho = .05$ for faculty and $\rho = .16$ for student respondents, although positive, indicate a very weak relationship between how often respondents send and receive email and the score generated from the LMX-7 questionnaire.

Table 4.26

Frequency of email use correlation coefficients

Q.7	Faculty	Students
Spearman's Rho:	0.06	0.17
degrees of freedom:	26	90
P-value:	0.77	0.11

Predictor Five: Responsiveness to Emails

Question 12 asked participants for their level of agreement with the following statement: “In general, faculty is (students are) responsive to your email messages.” The correlation coefficients of $\rho = .023$ for faculty and $\rho = .357$ for student respondents, although positive, indicate a weak relationship between the respondents level of agreement to question 12 and the score generated from the LMX-7 questionnaire. Table 4.27 summarizes the findings.

Table 4.27

Responsiveness to emails correlation coefficients

Q.12	Faculty	Students
Spearman's Rho:	0.23	0.36
degrees of freedom:	26	90
P-value:	0.23	0.0004

Predictor Six: Timeliness of Emails

Questions 16 and 18 sought to obtain information regarding the timeliness of email.

Question 16 allowed for an assessment of whether there is a correlation between the time before a participant receives an email response and the score from the LMX-7 questionnaire. The Spearman's Rho correlation analysis between responses the question 16 and their score on the LMX-7 questionnaire, showed a negative correlation. For the faculty, the correlation coefficient was at -.19 and for the students it was at -.01. These two correlation coefficients would indicate a very weak negative relationship. Table 4.28 summarizes the findings.

Table 4.28

Timeliness of emails correlation coefficients

Q.16	Faculty	Students
Spearman's Rho:	-0.19	-0.01
Degrees of freedom:	26	90
P-value:	0.31	0.89

Question 18 was also related to timeliness of emails, as it sought to determine the length of time it takes a participant to respond to an email, and how it relates to the LMX-7 questionnaire score. The Spearman's Rho correlation analysis between responses the question 16 and their score on the LMX-7 questionnaire, showed a negative correlation. For the faculty, the correlation coefficient was at -.207 and for the students it was at -.073. These two correlation

coefficients would indicate a weak negative relationship for faculty and a weak negative relationship for students. Table 4.29 summarizes the findings.

Table 4.29

Time before responding correlation coefficient

Q.18	Faculty	Students
Spearman's Rho:	-0.21	-0.07
Degrees of freedom:	26	90
P-value:	0.29	0.48

Predictor Seven: Number of Emails Initiated

Question 15 asked the participants about the number of emails initiated during a semester. The correlation coefficients of $\rho = .005$ for faculty and $\rho = .14$ for student respondents, although positive, indicate a very weak relationship between the number of emails initiated during a semester and the score generated from LMX-7 questionnaire. Table 4.30 summarizes the findings.

Table 4.30

Number of emails initiated correlation coefficients

Q.15	Faculty	Students
Spearman's Rho:	0.005	0.14
Degrees of freedom:	26	90
P-value:	0.97	0.15

Predictor Eight: Importance of Email Protocol

Question 26 sought to find the importance of proper email protocol. The correlation coefficients of $\rho = .371$ for faculty and $\rho = .319$ for undergraduate student respondents, although positive, indicate a weak relationship between how each respondent felt about the importance of

proper email protocol and the score generated from the LMX-7 questionnaire. Table 4.31 summarizes the findings.

Table 4.31

Importance of email correlation coefficients

Q.26	Faculty	Students
Spearman's Rho:	0.37	0.31
Degrees of freedom:	26	89
P-value:	0.05	0.001

Predictor Nine: Perceived Benefit of Email Protocol Training

Question 27 sought to find how the respondents felt about whether they would benefit from email protocol training. The correlation coefficient of $\rho = .420$ for faculty indicates a moderate relationship between how respondents felt about whether they would benefit from email protocol training, and the score generated from the LMX-7 questionnaire. On the other hand, $\rho = .233$ for undergraduate students indicates a weak relationship. Table 4.32 summarizes the findings.

Table 4.32

Benefit of email protocol training correlation coefficients

Q.27	Faculty	Students
Spearman's Rho:	0.42	0.23
Degrees of freedom:	26	89
P-value:	0.02	0.026

Summary of Chapter

Through the use of a survey questionnaire and descriptive statistics to analyze the collected data, this quantitative research study sought to determine whether there is a relationship between the use of email as a form of communication and the quality of the leader-follower relationship in higher education organizations. Data were collected from 28 faculty and 92

undergraduate students at two higher education public institutions in the United States. The data analyses were conducted over four stages.

In the first stage, the researcher reported the summary findings from each of the 35 survey questions asked. For each of the 35 questions, the number of the faculty and undergraduate student respondents (n) was provided. Of the 92 student respondents, one student chose to skip question 26 and another student chose to skip question 27. Of the 28 faculty respondents, one faculty chose to skip to answer all three demographic questions (q.1, q.2, and q.3) and two faculty chose to skip question 9. In stage two of the analyses, the researcher calculated scores from the LMX-7 questionnaire for the student and faculty respondents. Following the instructions set forth by Northouse (2016), the researcher presented a descriptive analysis of the scores for both faculty and undergraduate students. In stage three, Spearman's Rho function was used to calculate the correlation coefficients between the three demographic questions, the 24 questions from Costello's questionnaire, and the scores generated from the LMX-7 questionnaire. In stage four, the researcher examined the relationship between the nine defined predictor variables and the scores generated from the LMX-7 questionnaire. In Chapter Five, an interpretation of the findings of the research will take place, followed by recommendations for future research.

CHAPTER FIVE: Discussion, Conclusions, and Recommendations

The purpose of this quantitative study was to identify any relationship between the use of email as a form of communication and the quality of the leader-follower relationship in higher education organizations. Through the use of a survey questionnaire, data were collected from 92 students and 28 faculty at the University of Montana School of Business Administration, and Penn State New Kensington Department of Communications. This chapter presents a summary of the findings from this study.

This study highlights the importance of email among faculty and undergraduate students in that the use of email is their most widely used, and favored communication tool. Responses from both faculty and student questionnaires support that statement. The vast majority of the student and faculty respondents indicated that email was the most common and the most preferred means of communication within the educational environment. However, leadership through the use of email is still changing and developing, and research on e-leadership has been described as “thin” when compared to research on the topic of leadership in general (Evans & Ward, 2007). Thus, the research contained herein is an informative and useful contribution to the body of literature related to leadership through CMC, and more specifically email.

This chapter will discuss the findings from each of the nine predictor variables with relation to the score from the LMX-7 questionnaire and offer some reflections within the context of the literature review.

Interpretation of the Findings

For the analysis of the findings, the researcher examined the correlation between the predictor variables and the criterion variable originally defined in Chapter Three. The predictor variables included age, gender, level of education, frequency of email use, responsiveness,

timeliness, the number of emails initiated, the importance of email protocol, and the perceived benefit of email protocol training. The criterion variable was defined as the score generated from the LMX-7 questionnaire. The section below includes a discussion of the findings for each of the identified predictor variables and how they relate to the LMX-7 score.

Predictor One: Age

Null Hypothesis One stated that there is no relationship between age and the quality of the relationship between the educational leader and follower/student. The results of the data analysis indicated that the majority (76%) of the undergraduate student respondents were under the age of 24. Most of the faculty respondents were equally divided over three age groups. The correlation coefficients between the age of each participant and the score generated from the LMX-7 indicated a very weak relationship. This study also found that two older students (non-traditional students) had a higher score. This interpretation of this score points to a stronger, higher-quality leader-member exchange, and would be considered in-group members. The correlation coefficient for undergraduate students was below the threshold for statistical importance set at $\rho \geq .4$ and, with $p > .05$, the statistical significance was not met. Therefore, this study failed to reject Null Hypothesis One (H_{01}). The correlation coefficients for faculty was below the threshold for statistical importance set at $\rho \geq .4$, and with $p > .05$, the statistical significance was not met. Therefore, this study also failed to reject Null Hypothesis One (H_{01}) for faculty.

Predictor Two: Gender

Null Hypothesis Two stated that there is no relationship between gender and the quality of the relationship between the educational leader and follower/student. This study generated responses that were almost equally divided by gender for both faculty and undergraduate

students. This study also found a weak relationship between the gender and the score generated from the LMX-7 questionnaire for both faculty and undergraduate students. Further analysis of the data showed that the average score for male students was 1.37 higher than that of female students. There were also two students who chose not to specify their gender, choosing “other,” but without any specifications. Both scores for these two students was 17.

The correlation coefficient for undergraduate students was below the threshold for statistical importance set at $\rho \geq .4$, and with $p > .05$, the statistical significance was not met. Therefore, this study failed to reject Null Hypothesis Two (H_{02}) for undergraduate students. For faculty, the correlation coefficient ($\rho = -.309$) was below the threshold for statistical importance set at $\rho \geq .4$, and with $p > .05$, the statistical significance was not met. Therefore, this study failed to reject Null Hypothesis Two (H_{02}) for faculty.

Although the researcher was not able to find any evidence of a strong relationship between gender and the score generated from the LMX-7, it is worth noting that the analysis of LMX-7 scores based on faculty genders revealed that the average score for male faculty respondents was about 2.4 points higher than that of female faculty respondents. The lowest score for both male and female respondents was 15, but the highest male faculty respondent score was 32, six points higher than that of female faculty.

Predictor Three: Level of Education

Null Hypothesis Three stated that there is no relationship between the level of education and the quality of the relationship between the educational leader and follower/student. The correlation coefficients for both faculty and undergraduate students indicate a very weak relationship. One difference between the two is that the faculty correlation coefficient was negative, while the correlation coefficient for undergraduate students was positive.

The correlation coefficients were below the threshold for statistical importance set at $\rho \geq .4$, and with $p > .05$, the statistical significance was not met. Therefore, this study failed to reject Null Hypothesis Three (H_{03}) for both faculty and undergraduate students.

Predictor Four: Frequency of Email Use

Null Hypothesis Four stated that there is no relationship between frequency of email use and the quality of the relationship between the educational leader and follower/student. This study found that there is a very weak positive relationship between how often participants send and receive email, and the score generated from the LMX-7 questionnaire. The correlation coefficients for this variable were below the threshold for statistical importance set at $\rho \geq .4$. With $p < .05$, the statistical significance was met for the undergraduate students only. Therefore this study failed to reject Null Hypothesis Four (H_{04})

Predictor Five: Responsiveness to Emails

Null Hypothesis Five stated that there is no relationship between responsiveness to emails and the quality of the relationship between the educational leader and follower/student. The computed correlation coefficient findings indicated a weak positive relationship between responsiveness to email and the score generated from the LMX-7 score. The correlation coefficients for question 12 were below the threshold for statistical importance set at $\rho \geq .4$. Statistical significance ($p < .05$) was met for undergraduate students only. Therefore this study failed to reject Null Hypothesis Five (H_{05}).

Predictor Six: Timeliness of Emails

Null Hypothesis Six stated that there is no relationship between timeliness of emails and the quality of the relationship between the educational leader and follower/student. Questions 16 and 18 assessed the timeliness of email by the participants. The computed correlation coefficient

findings indicated either a weak or very weak negative relationship with the score generated from the LMX-score. The correlation coefficients for question 16 were below the threshold for statistical importance set at $\rho \geq .4$. With $p > .05$, statistical significance was not met for both faculty and undergraduate students. Based on the statistical findings from these two questions, this study failed to reject Null Hypothesis Six (H_{06}).

Predictor Seven: Number of Emails Initiated

Null Hypothesis Seven stated that there is no relationship between the number of emails initiated and the quality of the relationship between the educational leader and follower/student. Question 15 asked the participants about the number of emails they initiate during a semester. The analysis of the data found that there was a very weak positive relationship between the amount of emails initiated and the score generated from the LMX-7 questionnaire for both faculty and undergraduate students. The correlation coefficients were below the threshold for statistical importance set at $\rho \geq .4$. With $p > .05$, the statistical significance was not met. Therefore, this study failed to reject Null Hypothesis Seven (H_{07}).

Predictor Eight: Importance of Email Protocol

Null Hypothesis Eight stated that there is no relationship between the importance of email protocol and the quality of the relationship between the educational leader and follower/student. Question 26 sought to determine the importance of proper email protocol. The correlation coefficient findings indicated a weak relationship between how respondents felt about the importance of proper email protocol, and the score generated from the LMX-7 questionnaire for both faculty and undergraduate student respondents. The correlation coefficients were below the threshold for statistical importance set at $\rho \geq .4$. With $p < .05$, the statistical significance was not met for the faculty. Therefore this study failed to reject Null Hypothesis Eight (H_{08}).

Predictor Nine: Perceived Benefit of Email Protocol Training

Null Hypothesis Nine stated that there is no relationship between Benefit of email protocol training and the quality of the relationship between the educational leader and follower/student. Question 27 sought to determine how the respondents feel about email protocol training. The correlation coefficient findings indicated a moderate relationship between how respondents feel about the importance of email training, and the score generated from the LMX-7 questionnaire for faculty respondents, and a weak relationship between how respondents feel about the importance of email training, and the score generated from the LMX-7 questionnaire for undergraduate student respondents.

The correlation coefficient for faculty was above the threshold for statistical importance set at $\rho \geq .4$. The correlation coefficient for undergraduate student respondents was below the threshold for statistical importance set at $\rho \geq .4$. With $p < .05$, the statistical significance was met for both faculty and undergraduate student respondents. Therefore this study rejects Null Hypothesis Nine (H_{09}) for faculty, but fails to reject Null Hypothesis Nine (H_{09}) for undergraduate students.

Discussion of the Findings Regarding the Research Question

The research question for this study sought to answer the following question: What is the relationship, if any, between the use of email for communication and the quality of the relationship between educational leader and follower. This study failed to reject eight out of the nine null hypotheses.

Based on the analyses of predictors four, five, six, and seven, this study failed to find any relationship between the frequency of use of email, responsiveness, timeliness, and number of emails initiated, and the scores generated from the LMX7 questionnaire. Therefore, this study

was not able to determine any significant relationship between the use of email and the quality of the leader-member exchange.

On the other hand, this study was able to find statistical significance with regards to the faculty respondents' perceived benefit of the importance of email protocol training. More specifically, the correlation coefficient for the last predictor variable (predictor nine: perceived benefit of email protocol training) for the faculty, was $\rho > .4$, which was above the threshold for statistical importance, and with $p = .025$, statistical significance was met. What this means is that faculty who would acknowledge that they would benefit from email protocol training are more likely to also have a stronger leader/follower partnership based on mutual respect, strong trust, and meaningful sense of obligation in relation to their students.

Recommendations for Future Research

The results from this study showed a very weak to a weak relationship for eight out of the nine predictor variables. Because Spearman's Rho correlation coefficients measure only monotonic relationships, we need to be cautious in our interpretation of the findings. There is a possibility that a meaningful relationship may still exist between the variables.

The results from this study also showed that a moderate relationship exists between how faculty respondents feel about the importance of email training and the score generated from the LMX-7 questionnaire. These findings should spark some curiosity for future researchers to look more in depth at how email protocol training is connected to each one of the three dimensions of the leader-member relationships: respect, trust, and obligation. Future research could also look more specifically at how in-group versus out-group members use email.

The instrument used for this research could be expanded to collect data that would measure performance or job (academic) satisfaction for faculty, and GPA and graduation rates

for students. The findings could contribute to the field of education and perhaps would serve to provide advice and recommendations for what to do and what not to do with regards to email use in academia, in order to prepare both faculty and students to be successful.

Future researchers could also consider collecting data that would link students to a specific faculty and perhaps encourage students to complete the LMX-7 questionnaire multiple times. This would allow for a more targeted analysis of the relationship between students and a specific faculty member.

The researcher also recognizes that this study was non-experimental and no manipulation of variables took place. Future researchers may consider conducting this study as an experiment. Future research could consider collecting initial data, then introducing faculty and students to email protocol training, and then collecting follow-up data. Alternatively, future researchers may consider comparing two groups over the course of a semester, where one group receives email protocol training and another group does not.

Finally, the researcher realizes the limited scope of this study. Expanding this study to include other types of higher education institutions, such as community colleges across the nation, or possibly universities in other countries, would increase the research capabilities and broaden the extent of the findings.

Discussion

Taking the literature review of Chapter Two as a foundation for this research (Boote & Beile, 2005), what might this research contribute to the field of leadership and technology? The results of the quantitative research reports and findings yield some useful contributions.

Considering the media richness theory of communication, the findings regarding the faculty in this study support Costello's (2011) assertion that email is closer to bulk mail in terms of the

continuum of effectiveness of communication. In the responses to the one open-ended question, one faculty seemed to emphasize the shortcomings of email and the benefits of face-to-face communication, writing that “e-mail is no substitute for face to face interaction.”

Costello (2011) suggested that faculty might consider exploring with students the media choice/selection for the particular nature of the inquiry. The findings from this study indicate that while email is preferred among faculty and students, likely due to its convenience, it is not likely to connect faculty and undergraduate students to higher or lower leader-member exchange scores.

Interestingly, more of the faculty recognized the potential benefits of email protocol training. The fact that it is left to the faculty, rather than the higher education institutions, to establish their own practices and policies for email use (Costello 2011), shows the intentions for faculty to create change, as active leaders in education. Therefore, colleges and universities would do well to provide faculty with guidelines and advice for solving email protocol issues and challenges. If academic institutions truly are in the business of educating students and providing an environment conducive for faculty to teach and shape students, higher education institution administrators should fulfill that commitment in the areas of technology as well. Otherwise, one possible impact that CMC is having on leadership within higher education settings is a potential weakening, rather than strengthening, of the relationships between faculty and undergraduate students. This, along with the three inherent characteristics that Costello (2011) mentioned can play into the improper or problematic use of email (broadcasting capabilities, perpetual retention, and susceptibility to abuse). This sentiment is felt in the faculty’s responses indicating interest in and preference of using Slack as a tool for communication.

This study set out to contribute information and perspective regarding how and where e-leadership occurs. The intent was to help fill a gap that exists regarding the relationship between computer based communication technologies within specific work environments or among various types of individuals. The fact that this research was not able to determine meaningful relationships between the use of email and the quality of the leader-member exchange supports the assertion that there are “complex challenges” associated with using email in leadership environments.

The faculty’s responses regarding the presence of potential benefit of email protocol training points to the importance of written communication skills, when developing leader-member exchanges, via email. Most viewed email with their faculty/student counterparts as more formal than informal, and therefore a better understanding and development of the appropriate skills and protocols regarding email use, including tone, professionalism, responsiveness, timeliness, and frequency, would potentially lead to even higher scores of leader-member exchange. Costello (2011) also emphasized the impact that even a minimal amount of time put towards protocol training can have towards enhancing the effective use of email between faculty and their students.

It was interesting to note that there was one potential indication of an in-group, which was between the non-traditional students and the faculty. These contemporaries grew up without the existence of email, so perhaps are more likely to share similar viewpoints about and practices regarding email, in a higher education setting. This may lead them to attain standing as in-group members. Based on their high LMX-7 scores, these in-group followers are more dependable, more highly involved, and more communicative than their younger student counterparts. This makes sense considering the non-traditional students inevitably have more life experiences to

draw upon, and potentially more motivation driving them to be involved and more communicative than their millennial or even younger student counterparts.

It is impossible from the findings in this study, given the anonymity utilized for the responses, to determine whether each of these dyadic relationships would be characterized by high or low frequency, or high or low quality, or whether the higher LMX scores are associated with transformational style leaders. However, the higher LMX scores do show that among some of the faculty and undergraduate students, there exists high levels of trust, and challenges that help expand and shape the capabilities of the students. This is indicative of a transactional leadership model, in which individuals take the initiative in contacting the others for purposes of social exchanging of valued information or things. The comment from one of the students, about faculty who overuse/abuse the email avenue of communication, emphasizes the importance of faculty also attaining skill in protocol of email, and the importance of making sure that there is value within each exchange.

Because the concept of leadership is relational (Hollander, 1978), the undergraduate students who are being influenced by the faculty must be responsive in order for leadership to exist. The faculty and undergraduate students at the UM School of Business Administration, and the Penn State New Kensington higher education institutions are influencing each other, as well as their respective institutions, and society at large. These schools are creating and shaping future successful and professional business people, public relations professionals, journalists, and other professional workers, and are therefore engaged in shaping and improving our current and future societal norms and expectations.

While Abdelhafex (2007) used the terms “managed” and “supervisory” when referring to the relationship between instructors and students, the findings of this study indicate that the

relationship between faculty and undergraduate students at two higher education institutions does resemble a leadership style relationship. Because leadership is or involves “noncoercive influence” (Rost, 1991) and “voluntary followership” (Graham, 1988), whereas management involves subordination, rewards and punishments, and a small range of free choice available to subordinates, the relationship between faculty and undergraduate students most closely fits our understanding of leadership, not management.

These leaders and followers do intend real changes that reflect their mutual purposes. Their purposes are to create educated, proactive, resourceful, citizens to improve these two institutions, and our society. The faculty and students, who are continuously developing mutual purposes, and their commitment to that development, makes their relationship leadership rather than management. However, those faculty and students (likely those who did not respond to the survey questionnaire) who are not there intending to create or inspire real change, but merely for the purpose of maintaining the status quo, are likely more in the authority type relationships of managers and subordinates. If the students are only on the receiving end of a one-sided unidirectional authority influence, this makes it even clearer that what is occurring in those relationships is management, not leadership.

Finally, it seems there is some amount of fluidity between management and leadership and vice versa, as managers and subordinates do have the ability to transform a managerial relationship into a leadership relationship (Rost, 1991). We must also consider who holds the power in the student/faculty relationships. Power is distributed among both the leaders and the followers in leadership relationships. In the faculty/student relationships, while power is not equal, it is not just held by the faculty. Students also have the power to influence their faculty

counterparts. This further supports the assertion that at least some of the relationships between faculty and students are leadership rather than management.

As with the modern day workplace environment, the higher education institutions will also continue to put email, and other CMC channels, to the test in their ability to enhance relationships and leader-member exchanges. Processing information and communicating effectively is critical for organizations and individuals, including higher education institutions and their faculty. It is important that higher education institutions do not take lightly the impact email and other CMC has and will continue to have on relationships within the institutions, and on the effectiveness and future success of each institution.

Conclusion

The findings of this research demonstrate that there is a very weak to a weak relationship between age, gender, level of education, frequency of email use, responsiveness to emails, timeliness of emails, the number of emails initiated, and the importance of email protocol, and the score generated from the LMX-7 questionnaire. The findings also demonstrate that there is a moderate relationship between how faculty felt about the benefits of training, and the score generated from the LMX-7 questionnaire. Findings from this study provide grounds for building future inquiries into relationships between the use of email and the quality of the leader-member exchange. Email has both benefits and draw backs, and has the potential to enhance and facilitate the educational experience in colleges and universities. For educational leaders to provide a setting that will enable faculty and students to create real changes they are intending, a realistic understating and expectation of email use is essential. This study can serve to provide greater awareness with regards to key factors in relationships between technology and leader-member exchanges.

In closing, despite the predominance and prevalence of social media networks in current times, the importance of email communication remains great. The survey conducted in this study resulted in findings showing that for the overwhelming majority of undergraduate student and faculty respondents, email is their preferred mode of communication.

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Appendix A

Faculty Survey Questionnaire

Q1 What is your age?

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 65-74 years old
- 75 years or older

Q2 What is your gender?

- Male
- Female
- Other (please specify) _____

Q3 What is the highest degree or level of school you have completed?

- Some high school, no diploma
- High school graduate, diploma or the equivalent (for example: GED)
- Some college credit, no degree
- Trade/technical/vocational training
- Associate degree
- Bachelor's degree
- Master's degree
- Professional degree
- Doctoral degree

Q4 Which forms of electronic communication do you routinely use when communicating with students?
(select all that apply)

- E-mail
- Texting
- Instant messaging, such as AIM
- Social networking, such as Facebook or Twitter
- Video calls such as Skype or FaceTime

Q5 What is your preferred mode of electronic communication with students?

- E-mail
- Texting
- Instant messaging, such as AIM
- Social networking, such as Facebook or Twitter
- Video calls such as Skype or FaceTime

Q6 You would prefer using another electronic communication medium, other than e-mail, to correspond with students regarding course-related matters.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Q7 In general, how often do you send and receive e-mail from students?

- Less frequently than once per week
- Once a week
- Several times per week
- Daily
- Several times per day

Q8 Do you use a hand held device to check/manage student e-mail? e.g. a smart phone, such as a Blackberry, Droid or iPhone/iPad.

- Never
- Occasionally
- Daily
- Many times per day
- All the time

Q9 On average, how many on-campus undergraduate courses do you teach each semester?

- 0
- 1
- 2
- 3
- 4
- 5 or more

Q10 Do you view e-mail with students as:

- Informal
- Somewhat informal
- Neither formal or informal
- Somewhat formal
- Formal

Q11 Generally, you find e-mail to be an efficient, effective, and clear means of communication with your students.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q12 In general, students are responsive to your e-mail messages.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Q13 In general, you are encouraged by students to contact them by e-mail.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q14 On course-related matters, you, rather than students, are most often the initiator of an e-mail.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q15 On average, how many e-mail messages per students do you initiate during a semester?

- 0
- 1-5
- 6-10
- 11-15
- More than 15

Q16 After e-mailing a student, in general, how long before you receive a response?

- Within 1-4 hours
- Within 24 hours
- 1-3 days
- More than 4 days
- It depends on the nature of the e-mail

Q17 The primary reason your students initiate an e-mail message to you is . . .

- Advice
- Absenteeism/tardiness/class cancellation
- Missed assignments
- Lecture clarification
- Other (please specify) _____

Q18 After receiving an e-mail from a student, how long does it usually take you to respond?

- Within 1-4 hours
- Within 24 hours
- 1-3 days
- More than 4 days
- It depends on the nature of the e-mail

Q19 The most frequent reason you choose the mode of e-mail when communicating with students is:

- Convenience
- It is less intimidating than a face to face meeting
- Documentation of the exchange
- Ability to communicate to a group or forward the information to others
- To organize your thoughts

Q20 Usually, you add a descriptive subject to the subject line in your e-mails to students.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q21 Usually, you proofread your e-mail messages before sending them to students.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q22 In general, you learn more when you communicate with students by e-mail.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q23 When using e-mail to correspond with students about a course-related issue, how many e-mail messages do you send back and forth before you switch your mode of communication?

- 1
- 2
- 3
- 4 or more
- It depends upon the situation

Q24 Faculty members judge academic competency by the way students use e-mail.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q25 Your students learn more when they use e-mail to exchange examples and outlines of course-related material.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q26 Proper e-mail protocol is important in the workplace.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q27 You would benefit from e-mail protocol training.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q28 Is there any additional information that you would like to add about e-mail or other electronic communication with students?

LMX 7 Questionnaire Instructions: This questionnaire contains items that ask you to describe your relationship with your subordinates (students). For each of the items, indicate the degree to which you think the item is true for you by choosing one of the answers that appear below the item.

Q29 Do you know where you stand with your follower (student)... [and] do you usually know how satisfied your follower (student) is with what you do?

- Rarely
- Occasionally
- Sometimes
- Fairly Often
- Very often

Q30 How well does your follower (student) understand your job problems and needs?

- Not a bit
- A little
- A fair amount
- Quite a bit
- A great deal

Q31 How well does your follower (student) recognize your potential?

- Not at all
- A little
- Moderately
- Mostly
- Fully

Q32 Regardless of how much formal authority your follower (student) has built into his or her position, what are the chances that your follower (student) would use his or her power to help you solve problems in your work?

- None
- Small
- Moderate
- High
- Very High

Q33 Again, regardless of the amount of formal authority your follower (student) has, what are the chances that he or she would “bail you out” at his or her expense?

- None
- Small
- Moderate
- High
- Very High

Q34 I have enough confidence in my follower (student) that I would defend and justify his or her decision if he or she were not present to do so.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q35 How would you characterize your working relationship with your follower (student)?

- Extremely Ineffective
- Worse than Average
- Average
- Better than Average
- Extremely Effective

Appendix B

Student Survey Questionnaire

Q1 What is your age?

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 65-74 years old
- 75 years or older

Q2 What is your gender?

- Male
- Female
- Other (Please Specify) _____

Q3 What is the highest degree or level of school you have completed?

- Some high school, no diploma
- High school graduate, diploma or the equivalent (for example: GED)
- Some college credit, no degree
- Trade/technical/vocational training
- Associate degree
- Bachelor's degree
- Master's degree
- Professional degree
- Doctoral degree

Q4 Which forms of electronic communication do you routinely use when communicating with faculty?
(select all that apply)

- E-mail
- Texting
- Instant messaging, such as AIM
- Social networking, such as Facebook or Twitter
- Video calls such as Skype or FaceTime

Q5 What is your preferred mode of electronic communication with faculty?

- E-mail
- Texting
- Instant messaging, such as AIM
- Social networking, such as Facebook or Twitter
- Video calls such as Skype or FaceTime

Q6 You would prefer using another electronic communication medium, other than e-mail, to correspond with faculty regarding course-related matters.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Q7 In general, how often do you send and receive e-mail from a faculty member?

- Less frequently than once per week
- Once a week
- Several times per week
- Daily
- Several times per day

Q8 Do you use a hand held device to check/manage your e-mail, e.g. a smart phone, such as a Blackberry, Droid or iPhone/iPad when communicating with faculty members?

- Never
- Occasionally
- Daily
- Many times per day
- All the time

Q9 On average, how many on-campus undergraduate courses do you take each semester?

- 1
- 2
- 3
- 4
- 5 or more

Q10 Do you view e-mail with faculty members as:

- Informal
- Somewhat informal
- Neither formal or informal
- Somewhat formal
- Formal

Q11 Generally, you find e-mail to be an efficient, effective, and clear means of communication with faculty.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q12 In general, faculty members are responsive to your e-mail messages.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q13 In general, you are encouraged by faculty to contact them by e-mail.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q14 On course-related matters, you, rather than faculty, are most often the initiator of an e-mail.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q15 On average, how many e-mail messages per faculty member do you initiate during a semester?

- 0
- 1-5
- 6-10
- 11-15
- More than 15

Q16 After e-mailing a faculty member, in general, how long before you receive a response?

- Within 1-4 hours
- Within 24 hours
- 1-3 days
- More than 4 days
- It depends on the nature of the e-mail

Q17 The primary reason faculty initiate an e-mail message to you is . . .

- Advice
- Absenteeism/tardiness/class cancellation
- Missed assignments
- Lecture clarification
- Other (please specify) _____

Q18 After receiving an e-mail from a faculty member, how long does it usually take you to respond?

- Within 1-4 hours
- Within 24 hours
- 1-3 days
- More than 4 days
- It depends on the nature of the e-mail

Q19 The most frequent reason you choose the mode of e-mail when communicating with faculty is:

- Convenience
- It is less intimidating than a face to face meeting
- Documentation of the exchange
- Ability to communicate to a group or forward the information to others
- To organize your thoughts

Q20 Usually, you add a descriptive subject to the subject line in your e-mails to faculty.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q21 Usually, you proofread your e-mail messages before sending them to faculty.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q22 In general, you learn more when you communicate with faculty members by e-mail.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q23 When corresponding with faculty members about a course-related issue, how many e-mail messages do you send back and forth before you switch your mode of communication?

- 1
- 2
- 3
- 4 or more
- It depends upon the situation

Q24 Students judge a professor's academic competency by the way he or she uses e-mail.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q25 You learn more when faculty members use e-mail to exchange examples and outlines of course-related material.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q26 Proper e-mail protocol is important in the workplace.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q27 You would benefit from e-mail protocol training while in college.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q28 Is there any additional information that you would like to add about e-mail or other electronic communication with faculty?

LMX 7 Questionnaire Instructions: This questionnaire contains items that ask you to describe your relationship with your leader (Faculty). For each of the items, indicate the degree to which you think the item is true for you by choosing the one of the answers that appear below the item.

Q29 Do you know where you stand with your leader (faculty)... [and] do you usually know how satisfied your leader (faculty) is with what you do?

- Rarely
- Occasionally
- Sometimes
- Fairly Often
- Very often

Q30 How well does your leader (faculty) understand your problems and needs?

- Not a bit
- A little
- A fair amount
- Quite a bit
- A great deal

Q31 How well does your leader (faculty) recognize your potential?

- Not at all
- A little
- Moderately
- Mostly
- Fully

Q32 Regardless of how much formal authority your leader (faculty) has built into his or her position, what are the chances that your leader (faculty) would use his or her power to help you solve problems in your work?

- None
- Small
- Moderate
- High
- Very High

Q33 Again, regardless of the amount of formal authority your leader (faculty) has, what are the chances that he or she would “bail you out” at his or her expense?

- None
- Small
- Moderate
- High
- Very High

Q34 I have enough confidence in my leader (faculty) that I would defend and justify his or her decision if he or she were not present to do so.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Q35 How would you characterize your working relationship with your leader (faculty)?

- Extremely Ineffective
- Worse than Average
- Average
- Better than Average
- Extremely Effective

Appendix C

Consent to use survey

Haddouch, Reda

From: Bobc62 <bobc62@aol.com>
Sent: Thursday, March 21, 2013 11:40 AM
To: Haddouch, Reda
Subject: Re: Permission request

Reda,

Thanks for contacting me and for your kind words. I was interested to read that you are researching CMC in the context of relationships and you are welcome to use my survey. If modifications are necessary to some of the questions to better fit your research, you have my consent.

I worked closely with my advisor and professor when choosing internal consistency as the reliability test for my study. This test was selected because the reliability of the instrument estimates how well the items reflect the same construct yielding similar results. We considered how consistent the results would be for different items for the same construct within the measure. I hope that this helps.

My best to you as you prepare your proposal.

Kindly,

Dr. Robert Costello

Appendix D

LMX-7 Questionnaire

Instructions: This questionnaire contains items that ask you to describe your relationship with either your leader or one of your subordinates. For each of the items, indicate the degree to which you think the item is true for you by circling one of the responses that appear below the item.

1. Do you know where you stand with your leader (follower) ... [and] do you usually know how satisfied your leader (follower) is with what you do?

Rarely	Occasionally	Sometimes	Fairly often	Very often
1	2	3	4	5

2. How well does your leader (follower) understand your job problems and needs?

Not a bit	A little	A fair amount	Quite a bit	A great deal
1	2	3	4	5

3. How well does your leader (follower) recognize your potential?

Not at all	A little	Moderately	Mostly	Fully
1	2	3	4	5

4. Regardless of how much formal authority your leader (follower) has built into his or her position, what are the chances that your leader (follower) would use his or her power to help you solve problems in your work?

None	Small	Moderate	High	Very high
1	2	3	4	5

5. Again, regardless of the amount of formal authority your leader (follower) has, what are the chances that he or she would "bail you out" at his or her expense?

None	Small	Moderate	High	Very high
1	2	3	4	5

6. I have enough confidence in my leader (follower) that I would defend and justify his or her decision if he or she were not present to do so.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

7. How would you characterize your working relationship with your leader (follower)?

Extremely ineffective	Worse than average	Average	Better than average	Extremely effective
1	2	3	4	5

Appendix E

License to use LMX-7 Questionnaire

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Jul 01, 2015

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Appendix F

Email to Participants

Email to Faculty:

Dear Dr. Name here,

I am currently a doctoral student at the University of Montana working on my dissertation in educational leadership and technology. The purpose of my research study is to determine the relationship between the use of email as a form of communication and the quality of the leader-follower relationship in organizations. This survey will take less than 7 minutes to complete. Please give just a few minutes of your time by clicking on the link below to answer the survey questions. At the end of the survey, you will have the option to click on another link where you can go to enter your email address for a drawing to win a Dell Venue. This survey is anonymous and there will be no identifying characteristics that could link a survey to the individual who completed it. A similar survey catered for students was sent to all Management, Marketing, and Management Information Systems undergraduate majors this morning. Please help me get a good return by encouraging your students to participate.

This research has been approved by the Institutional Review Board at The University of Montana on 1/26/2017. Please do not hesitate to contact me at reda.haddouch@mso.umt.edu if you have questions or concerns. You are also welcome to contact the chair of my dissertation committee, Dr. Frances L. O'Reilly, at 406-243-5608. I will be happy to send follow up information if you are interested in the results of the study.

Thank you in advance for your time on this endeavor. The link is:

https://umt.co1.qualtrics.com/SE/?SID=SV_00XhYEeCFvJxjNP

Best regards,
Reda M. Haddouch

Email to students:

Dear undergraduate Student,

I am currently a doctoral student at the University of Montana working on my dissertation in educational leadership and technology. The purpose of my research study is to determine the relationship between the use of email as a form of communication and the quality of the leader-follower relationship in organizations. This survey will take less than 7 minutes to complete. Please give just a few minutes of your time by clicking on the link below to answer the survey questions. At the end of the survey, you will have the option to click on another link where you can go to enter your email address for a drawing to win a Dell Venue. This survey is anonymous and there will be no identifying characteristics that could link a survey to the individual who completed it.

This research has been approved by the Institutional Review Board at The University of Montana on 1/26/2017. Please do not hesitate to contact me at reda.haddouch@mso.umt.edu if you have questions or concerns. You are also welcome to contact the chair of my dissertation committee, Dr. Frances L. O'Reilly, at 406-243-5608. I will be happy to send follow up information if you are interested in the results of the study.

Thank you in advance for your time on this endeavor. The link is:

https://umt.co1.qualtrics.com/SE/?SID=SV_00XhYEEeCFvJxjNP

Best regards,

Reda M. Haddouch

Appendix G

IRB Approval




INSTITUTIONAL REVIEW BOARD

for the Protection of Human Subjects in Research

FWA 00000078
 Research & Creative Scholarship
 Interdisciplinary Science Building 104
 University of Montana
 Missoula, MT 59812
 Phone 406-243-6672

Date: January 26, 2017

To: Reda M. Haddouch, Educational Leadership
 Dr. Frances L. O'Reilly, Educational Leadership

From: Paula A. Baker, IRB Chair and Manager 

RE: IRB #20-17: "The Relationship Between the Use of Emails for Communication and the Quality of the Relationships Between Educational Leaders and Followers"

Your IRB proposal cited above has been **APPROVED** under the **Exempt** category of review by the Institutional Review Board in accordance with the Code of Federal Regulations, Part 46, section 101. The specific paragraph which applies to your research is:

X (b)(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

University of Montana IRB policy does not require you to file an annual Continuation Report for exempt studies, as there is no expiration date on the approval. However, you are required to notify the IRB of the following:

Amendments: Any changes to the originally-approved protocol must be reviewed and approved by the IRB **before** being made (unless extremely minor). Requests must be submitted using [Form RA-110](#).

Unanticipated or Adverse Events: You are required to timely notify the IRB if any unanticipated or adverse events occur during the study, if you experience an increased risk to the participants, or if you have participants withdraw from the study or register complaints about the study. Use [Form RA-111](#).

Please contact the IRB office with any questions at (406) 243-6672 or email irb@umontana.edu.

Appendix H

Information and Consent Form

Title of Research Study: The relationship between the use of email and the quality of leader member exchange.

Investigator: Reda M. Haddouch, Doctoral Student, College of Education and Human Sciences, The University of Montana

Purpose: The purpose of this research study is to determine the relationship between the use of email as a form of communication and the quality of the leader-follower relationship in organizations. This survey will take less than 7 minutes to complete.

Procedures: You will complete the survey, which includes questions about your use and perception of email, your relationships with either your faculty or students, and some demographic questions. The survey will take less than 7 minutes to complete. Please note that many questions are similar, but there are subtle differences in the questions. As a faculty, you are encouraged to complete the questionnaire in regards to relationships you have with your students. As a student, you are encouraged to complete the questionnaire in regards to your current faculty.

Risks: You will have the option to submit your email address at the end of this study to enter in the drawing for a Dell Venue. Your email address will not be associated with your answers to the survey questions.

Benefits: Your participation with this study will help the researcher to better understand your perception of the use of email for communication within a higher education setting.

Confidentiality: Your records for the drawing will be kept private and will not be released without your consent except as required by law. Only the researcher will have access to your identity for the drawing and your identity will be kept confidential. All responses to the survey questions will be done anonymously and not linked to your identity for the drawing.

Voluntary Participation/Withdrawal: You may withdraw from the study at any time. Participation in the study has no effect on your academic performance.

Questions: If you have any questions about the research now or during the study, please contact me at (406)243-2482, or the chair of my dissertation committee, Dr. Frances L. O'Reilly, at (406)243-5608. If you have any questions regarding your rights as a research subject, you may contact the Chair of the Institutional Review Board (IRB) through The University of Montana Research Office at (406)243-6670.

Statement of Consent: I have read the above description of this research study. I am 18 years old or older. I realize that no harm will come to me and that this information will be used for

research purposes only. I have been informed of the risks and benefits involved. Furthermore, I have been assured that a member of the research team will answer any of my future questions. I voluntarily agree to take part in this study and understand that I may withdraw at any time.