“JUST A MINUTE, I’M E-MAILING MY PROFESSOR”:
COMPUTER-MEDIATED COMMUNICATION’S
IMPACT ON COLLEGE STUDENT’S SATISFACTION

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Master of Arts

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“JUST A MINUTE, I’M E-MAILING MY PROFESSOR”:
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CHAPTER I

INTRODUCTION

Technology creates channels for human beings to communicate. Advances in communication technologies such as e-mail, instant messaging, chat rooms and social networking sites give humans the flexibility to communicate over time and distance (Berry, 2006; Bloch, 2002). Much like verbal and non-verbal communication, computer-mediated communication (CMC) is a channel by which a sender delivers a message. Recently, communication researchers have been analyzing CMC in different contexts such as organizations (Kelleher & Miller, 2006; Simon, 2006), interpersonal (Walther, 1996), health (Shaw, McTavish, Hawkins, Gustafson, & Pingree, 2000) and education (Cummings, 2004). CMC has had a large impact on each one of these contexts, but has had a particularly interesting effect on student-teacher relationships in a university setting (Mazer, Murphy, & Simonds, 2007). It is apparent that communication technologies have significantly altered communication in an educational context because CMC has granted students the ability to send messages to their teachers and fellow students anytime, anywhere.

CMC is typically divided into two categories, synchronous and asynchronous. Synchronous is similar to face-to-face communication (FTF) in that the information
exchange happens simultaneously and immediately, including tools such as instant messaging, video conferencing, and servers that allow individuals to communicate in a synchronous nature. Recently, synchronous computer-mediated communication has also been studied regarding its impact on education (Lih-Ching Chen & Beasley, 2006; Wallace & Wallace, 2001).

Asynchronous communication is characterized by delayed feedback and a single conversation can take place over a long period of time. Much of CMC is inherently asynchronous because of the lag in feedback between the sender and receiver (Berry, 2006). An example of a computer-mediated asynchronous communication (CMAC) tool is e-mail. E-mail communication between a student and instructor has become increasingly popular (Sheer & Fung, 2007) and has become the most dominant form of student-instructor communication. Course management tools, such as WebCT and Blackboard, also allow students to communicate with instructors outside the classroom (An & Frick, 2006). Communication outside the classroom has been directly linked to increases in student satisfaction (Jones, 2008).

Student Satisfaction

Student satisfaction has become an increasingly important area of study for universities (Elliott & Shin, 2002). Liegler (1997) referred to student satisfaction as the degree to which students’ needs and expectations are met. Elliot and Shin (2002) state that studies have shown satisfaction has a positive influence on student motivation and retention. According to Goodboy, Martin, and Bolkin (2009), “Instructors should strive to create satisfying communication encounters in the classroom, but researchers need to
further identify how to create this sort of satisfaction for students” (p. 391). Areas that have been associated with increases in student satisfaction are out-of-class communication (OCC) (Aylor & Oppliger, 2003; Jaasma & Koper 2003), out-of-class support (OCS) (Jones, 2008), and teacher immediacy (Arbaugh, 2001).

Purpose

A number of studies have been performed on CMC’s influence on areas relating to student academic achievement (Yu, 2002) and student-teacher relationship (Cummings, 2004; Frymier & Houser, 2000; Vonderwell, 2003), but few on the direct impact CMC has on student communication satisfaction with their teachers. Since communicative technologies have continually increased and individuals are finding a variety of different way to communicate with one another, the intent of this study was to examine how CMC tools can influence and possibly increase areas related to student communication satisfaction. Uncertainty Reduction Theory (URT) has recently been linked to levels of communication satisfaction (Goodboy, Martin, & Bolkan, 2009; Goodboy & Myers, 2007; Neuliep & Grohsopf, 2000). For this reason, Uncertainty Reduction Theory was chosen as the theoretical framework for this study.

The purpose of this study was to extend knowledge on the student’s communicative preferences and how they might affect their overall communication satisfaction with teachers. URT has been chosen as a lens to view this particular aspect of communication because of its possible explanatory power regarding how students seek out information.
CHAPTER II

LITERATURE REVIEW

Computer-Mediated Communication (CMC)

Berry (2006) reviewed 25 years of literature on the subject of computer-mediated communication (CMC) in an organizational context and he noted that some of the biggest advantages of CMC over face-to-face communication are flexibility over time and distance and a greater time for reflection. Studies performed on differences between CMC and face-to-face (FTF) communication in educational contexts also found similar advantages, such as flexibility over time and distance (Althaus, 1996; Karsenti, 2007). Althaus declared that FTF communication gives advantages to students who are quick at devising questions and responses, but CMC can allow students to speak at their own pace. In other words, students who wouldn’t normally ask questions during class can do so using CMC tools (Collins, 1998). An and Frick (2006) noted that the students who prefer CMC over FTF are often more technologically savvy, shy, and self-directed. While it would be impossible, and undesirable, to replace FTF student-teacher interaction because it is the most natural form of communication (Simon, 2006), CMC provides an additional channel that may improve communication between students and professors, especially among more apprehensive students (An & Frick, 2006; Collins, 1998).
CMC gives college students 24 hour accessibility to college faculty (Bodzin & Park, 2000). An and Frick (2006) studied 105 residential students’ perceptions of asynchronous communication at a large university in the United States. They found that the asynchronous nature of CMC grants students, professors and faculty more time to reflect on information in a message, which should produce a more thoughtful response. Additionally, An and Frick’s study found that students believed “CMC allows a flexible work schedule, out-of-class cooperation, outside research and seeing diverse ideas in writing” (p. 493). Their findings suggested that students preferred FTF discussion over CMC for the majority of tasks, but CMC was preferred for more simple tasks.

CMC provides an opportunity for instructors to extend the learning environment by expanding the classroom (McComb, 1994). McComb studied the influence of CMC tools in an educational context using an early form of e-mail to increase communication with and among her students. She found that CMC worked to create a balance of power between students and instructors. McComb stated:

“Such an environment maximizes efficiency, thereby releasing time and energy for teacher/learning relationships. For, in these instructional settings, communication is not one-way from teachers to students within constraints of class and office hour time and space, but communication is multi-directional—among students and teachers” (p. 163).

Therefore, according to McComb, CMC can improve various aspects of the student-teacher interaction by increasing the availability of instructors, allowing an instructor to demonstrate caring, increasing student responsibility and initiative, and balancing power between instructors and students. Although this study was performed in the early stages of CMC development, the areas found to impact the student-teacher
interaction are still relevant for current research and improving these areas of the student-teacher interactions could lead to increases in student communication satisfaction.

Student communication satisfaction has been directly linked to positive student-teacher relationships (Frisby & Myers, 2008). If a student is shy or apprehensive, the student may be unlikely to form a relationship with the teacher, but CMC could allow the apprehensive student to form a relationship with their instructor (Bloch, 2002), which may positively influence the apprehensive student’s communication satisfaction.

Asynchronous communication allows students that may have trouble speaking, due to language differences or apprehension, to communicate with their instructor at a comfortable pace because with CMC, student-teacher interaction evolves over an elapsed time (Karsenti, 2007).

A specific form of asynchronous communication is e-mail (Jin, 2005). As highlighted before, a major advantage of asynchronous communication is additional time for students to reflect (An & Frick, 2006). Jin (2005) studied college students’ perceptions of online communication finding that e-mail allows students “time to reflect on their own ideas and improve their critical thinking in their own pace and at a convenient time” (p. 64).

Uncertainty Reduction Theory and Student Communication Satisfaction

Uncertainty Reduction Theory (URT) is attributed to Berger and Calabrese (1975). The theory posits that when people first meet, they seek to reduce uncertainty about each other. With reduced uncertainty two individuals’ relationship will improve because they know and understand each other better (Infante, Rancer, & Womack, 2003).
Seven axioms were offered to better explain the initial interactions of individuals. However, more recent research has attempted to move beyond the initial interactions and focus on ongoing relationships (Goodboy & Myers, 2007; Neuliep & Grohshopf, 2000). URT was established to help explain interactions in interpersonal relationships and the use of URT in studies centered in the instructional context have been sparse (Goodboy & Myers, 2007). Frymier and Houser (2000) likened the student-instructor interaction to that of an interpersonal relationship, so it is a logical step to extend the theory to cover student-instructor relationships.

Neuliep and Grohshopf (2000) studied the URT relating to increases in communication satisfaction. They stated that “the research on URT indicates that uncertainty reduction is associated with positive communication outcomes, while increased uncertainty is related to negative communication outcomes” (p. 69). Neuliep and Grohshopf tested the relationship between reducing uncertainty and communication satisfaction by administering Hecht’s (1978b) Com-Sat inventory to individuals communicating with someone during interactions with high uncertainty and then re-administered the Com-Sat survey the participants when uncertainty was reduced. Their study found a positive relationship between uncertainty reduction and communication satisfaction, resulting in the 9th axiom in URT that states “during initial interaction, as uncertainty decreases, communication satisfaction increases (p. 75).”

In a similar effort to extend URT, Goodboy and Myers used URT as a framework in their study of student communication satisfaction. The authors attempted to test the 9th axiom established by Neuliep and Grohshopf. Goodboy and Myers stated that:
“Based on the URT axioms, students should reduce uncertainty about an instructor for prosocial reasons. When students make proactive attributions about an instructor, they should have less uncertainty about the instructor and should report more satisfying communication encounters” (p. 3).

The findings from their study supported the 9th axiom and emphasized the importance of uncertainty reduction in the instructional process and the student-instructor relationship, but emphasized the importance of further research utilizing URT in an educational context. Since CMC creates multiple channels which students can use to reduce uncertainty about an instructor and students are generally unfamiliar with their instructors before taking a course, URT creates a theoretical framework to guide the present study. URT will be used to propose that as uncertainty is reduced through increased use of CMC; student communication satisfaction will be enhanced, which will lead to greater student perceptions of out-of-class communication (OCC) and teacher immediacy.

Since URT has been linked to communication satisfaction (Goodboy, Martin, & Bolkan, 2009; Goodboy & Myers, 2007; Neuliep & Grohshopf, 2000), it was chosen at the theoretical framework to guide this study. The reasoning for this choice was the increased use of more accessible channels of communication, such as CMC mediums, would allow a student to seek information to reduce uncertainty, which in turn would increase their overall communication satisfaction. The belief was that uncertainty will diminish and students should feel more satisfied with instructor communication when instructors increase accessibility. Uncertainty should be reduced when students have more access to their instructors.
CMC’s Impact on Student Communication Satisfaction

As previous mentioned studies have indicated that using CMC tools, such as e-mail, increases the accessibility of professors (Bodzin & Park, 2000), eliminate areas of apprehension for many students (Althaus, 1996), and allows more time for professors and students to reflect while forming thoughtful responses (An & Frick, 2006; Jin, 2005). Also, both asynchronous and synchronous CMC tools can provide a record that can be saved by students and instructors to reflect back on when needed (Lih-Ching Chen & Beasley, 2006; McComb, 1994). Since student satisfaction is the degree to which students’ needs and expectations are met (Liegler, 1997) and URT emphasizes an individual’s need to seek out information when uncertainty is high, CMC’s improvements on areas related to student-professor communication should help students fulfill their needs and expectations, therefore increasing student satisfaction, which leads to the first hypothesis:

**H1: Increased use of computer-mediated communication by an instructor will lead to greater student satisfaction.**

Teacher Immediacy

Immediacy behaviors have been widely attributed to improving student-teacher relationships (Frymier & Houser, 2000). Immediacy behaviors are verbal and nonverbal behaviors that demonstrate feelings of warmth, closeness and involvement with another person (Infante, Rancer & Womack, 2003). Immediacy behaviors have been shown to improve student learning on the college level (Gorham, 1988). Gorham’s research also
revealed that as class sizes increased, verbal immediacy behaviors such as use of students’ names and feedback decreased. Research has suggested that verbal immediacy behaviors can be performed in CMC and virtual environments even though they are not FTF (Arbaugh, 2001). According to Arbaugh (2001), “An instructor could still use humor, encourage discussion and feedback, or address students by name through the use of text-based ‘discussion,’ emoticons, and/or audio clips” (p. 44).

Incorporating immediacy behaviors in CMC has been referenced as “mediated immediacy” (O’Sullivan, Hunt & Lippert, 2004), which O’Sullivan et al. describe as communicative cues in mediated channels that influence perceptions of psychological closeness between two people. O’Sullivan et al. conducted three studies on college students testing mediated immediacy’s effect on student motivation and perceptions of instructors. Their “results provide preliminary guidance for educators about the importance of understanding and applying knowledge of mediated immediacy for shaping student motivation and perceptions of instructors” (p. 485).

CMC’s Impact on Teacher Immediacy

The literature on teacher immediacy behaviors demonstrates the impact immediacy can have on a student’s experience with a professor. Since college courses can be very large, verbal and nonverbal immediacy may be tough to accomplish (Gorham, 1988). However, mediated immediacy could prove to be significant for instructors to demonstrate approachability, allowing students the freedom to ask questions and communicate frustrations to meet their needs. Teacher immediacy’s relationship to student satisfaction (Arbaugh, 2001) leads to the second hypothesis:
H2: Increased uses of computer-mediated-communication by an instructor will increase students’ perception of teacher immediacy.

Out-of-Class Communication (OCC)

Out-of-class communication (OCC) has recently become a popular area of study for communication and education scholars (Aylor & Oppliger, 2003; Dobransky & Frymier, 2004; Jaasma & Koper, 1999; Jones, 2008). OCC refers to communication happening outside the classroom situation, either informally, in the hall or on campus or formally, e-mail or phone conversation (Aylor & Oppliger, 2003). Many studies have associated OCC with developing student-teacher relationships (Dobransky & Frymier, 2004), improving student satisfaction (Aylor & Oppliger, 2003; Jones, 2008) and increasing student motivation (Jaasma & Koper, 1999; Jones, 2008).

Jones (2008) studied social support via OCC, stating OCC fulfilling a student’s social support need is considered out-of-class support (OCS). The purpose of Jones’ study was to investigate OCS’s relationship to student satisfaction and motivation to learn. Jones conducted his research on almost 600 undergraduate students by manipulating levels of OCS and then administering a modified version of Hecht’s Interpersonal Communication Satisfaction Inventory (Com-Sat Inventory) in order to measure student satisfaction. Jones’ results indicated that OCS increased student satisfaction and motivation. Similarly, while studying 274 college students, Jaasma and Koper (1999) found a positive correlation between frequency of OCC and student motivation. Elliot and Shin (2002) found student motivation to be associated with student satisfaction.
Out-of-Class Communication (OCC): CMC vs. FTF

The majority of the studies on OCC and OCS have focused on both face-to-face communication and CMC. Many students can be apprehensive when communicating face-to-face with their instructors, but CMC has been shown to increase student-teacher interaction among apprehensive students (Anderson, Anderson, VanDeGrift, Wolfman & Yasuhara, 2003), so it can be assumed CMC should be an alternative, or perhaps even a preferred medium for students to engage in OCC or seek out OCS. Due to large class loads, many instructors may be more likely to use CMC in answering student questions outside of the classroom environment. URT suggests that students will seek information in uncertain situations, such as course inquiries. Since instructors can be more accessible through CMC channels, this study will explore students’ preference between FTF and CMC regarding their OCC because increases in OCC have been positively correlated with student satisfaction (Aylor & Oppliger, 2003; Jones, 2008). This correlation is cause for this research question:

*RQ*: What are students’ attitudes and desires regarding CMC vs. FTF when seeking out-of-class communication?

Summary

This compilation of literature and research suggests that CMC influences areas relating to student satisfaction such as student-teacher relationships, out-of-class communication, teacher immediacy and student motivation. This particular study intended to measure the extent to which CMC influences areas relating to college student communication satisfaction. The results should provide valuable information for
university’s professors and faculty to better utilize CMC tools in order to help improve areas related to the overall student communication satisfaction. Also, this research is guided by the principles of Uncertainty Reduction Theory and should be particularly useful in extending the theory. URT will be incorporated in analysis of the data gathered in hopes to provide a lens through which to look at this particular area of communication. The goal is to provide a glimpse into the evolving communicative practices of students and their instructors through the perceptions of students to create a better overall learning environment. Increases in student satisfaction should in turn improve student performance and retention (Aitken, 1982), which is beneficial to instructors, students and the universities.
CHAPTER III

METHOD

Participants

The sample was comprised of 84 undergraduate students, 40.5% males and 59.5% females enrolled in seven communication courses at a large university. Courses ranged from public relations to organizational communication and were conducted during summer session. Participants had a mean average of 82.17 credit hours, but ranged from new freshman to graduating seniors (See Table 1 and Table 2 below). The non-probability sample was chosen out of convenience. However, the use of strictly communication courses ensured some consistency in characteristics of the sample and students enrolled in these courses may have a greater knowledge of communication and communicative practices. Also, instructors of these courses may be more skilled communicators because of their experience within the communication discipline, which may provide richer data.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>34</td>
<td>40.5</td>
<td>40.5</td>
<td>40.5</td>
</tr>
<tr>
<td>Female</td>
<td>50</td>
<td>59.5</td>
<td>59.5</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 2. Descriptive Statistics for Credit Hours Taken Total and Current Semester

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total credit hours</td>
<td>76</td>
<td>137</td>
<td>3</td>
<td>140</td>
<td>82.17</td>
<td>40.287</td>
</tr>
<tr>
<td>Credit hours semester</td>
<td>80</td>
<td>15</td>
<td>3</td>
<td>18</td>
<td>9.25</td>
<td>4.303</td>
</tr>
</tbody>
</table>

Procedure

This study took a quantitative approach, which used a survey data gathering technique to test two hypotheses and explore one research question. A five part questionnaire was constructed with the purpose of testing the relationships between the variables within this study. The questionnaire consisted of 30 questions, including frequency scales, semantic differentials and Likert type scales (See Appendix B). The questionnaire was distributed by the researcher to seven different communication courses with the permission of the course instructors. Once data was collected, results were entered into Statistical Package for Social Science (SPSS) to analyze the data.

Student Perceived Amount of Computer-Mediated Communication (CMC)

The first part of the questionnaire asked the participants six questions encouraging them to rate the frequency of instructor’s use of various forms of CMC vs. FTF about course related information and discussion on a 7-point Likert-scale from (1) Never to (7) Always. In order to test hypothesis one, questions 2, 3, and 8 were grouped together to create a score for student’s perceptions of their instructor’s use of CMC. The total score for measuring a student’s overall perception face-to-face (FTF) communication was created by grouping together participants’ responses to questions 5, 6, and 7 together.
Teacher Immediacy

The second part of the questionnaire measured respondents’ perceptions of instructor immediacy by asking the respondents to rate the approachability, warmth, and perceived closeness to their professor on a nine item, 7-point semantic differential type scale. The chosen measure was Andersen’s (1979) Generalized Immediacy Scale (GI). This measure was chosen because it is a broader measure of students’ perceptions of teacher immediacy than other, perhaps more popular, immediacy measures. Also, this scale was chosen because previous research as shown the measure to be reliable with a Cronbach alpha of .90 (Andersen, 1979). The scale utilized an interval level of measurement with possible answers ranging from 9 to 63. Scores 36 and below are generally considered a negative view of teacher immediacy and scores 37 and higher were a more positive view of teacher immediacy. Teacher immediacy was used as a dependent variable in the measurement of hypothesis two.

Out of Class Communication (OCC)

The third part of the questionnaire began by measuring amounts of OCC by asking participants to score their OCC with their professor on a scale from (1) Almost Never to (7) Very Often and then asking the participants to score how much OCC they desired on a scale from (1) Almost None to (7) A Large Amount. To further explore the research questions, students were given various statements gauging their attitude toward OCC conversations through FTF or through CMC on a seven point Likert-scale ranging from (1) Strongly Disagree to (7) Strongly Agree. Questions from this section were created by the researcher and each question was treated as its own variable.
Student Communication Satisfaction (SCSS)

The fourth part of the questionnaire was implemented to measure overall student communication satisfaction. These questions were based on an 8-item Student Communication Satisfaction Scale (SCSS) developed by Goodboy, Martin, and Bolkan (2009), which they based on Hecht’s (1978b) Com-Sat inventory. Goodboy et al. originally constructed a longer version of the SCSS but found that “given that the 8-item version provides a better goodness of fit and is more parsimonious, future research should use this version instead of the longer version” (p. 390). The authors performed three separate studies to validate the SCSS and found it to be “highly reliable,” with a Cronbach alpha of .98. The SCSS was used rather than the popular, but older, Hecht’s Com-Sat inventory in order to further test the use of the newer SCSS and help provide a greater assessment of a student’s communication satisfaction. Student’s communication satisfaction was measured by grouping the responses from the 8-item Student Communication Satisfaction Scale (SCSS) developed by Goodboy, Martin, and Bolkan (2009), which was part four of the questionnaire. The Cronbach alpha obtained for this particular measure used in this study was .88 (See Table 3 below). Student communication satisfaction was used a dependent variable in the measurement of hypothesis one.

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.883</td>
<td>.892</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 3. Cronbach’s Alpha Reliability for SCSS
Demographics

The fifth part of the questionnaire was intended to gain an insight on a few characteristics of the respondents. Respondents were asked to indicate the amount of credit hours they have taken up to this point of their college career, their gender, and how many credit hours they were taking that particular semester. These questions were chose to gauge the overall level the respondents are at in their college career, their current workload, and any gender differences.
CHAPTER IV

RESULTS

Relationship between CMC and Satisfaction

The first hypothesis proposed that increased use of computer-mediated-communication will lead to greater student satisfaction. The intention was to test the relationship between computer-mediated communication (CMC) vs. face-to-face (FTF) communication and student communication satisfaction. In order to test this hypothesis, a correlation was run between the three variables: respondents’ perceptions of CMC, perceptions of FTF, and student communication satisfaction.

The results of the correlation test showed that neither perception of CMC nor perception of FTF had a significant correlation with student communication satisfaction (See Table 4 Below). In other words, these results indicate that a student’s perceptions of CMC and FTF do not have any bearing on their overall communication satisfaction. Therefore the first research hypothesis cannot be confirmed and the null hypothesis is accepted.
Relationship between CMC and Teacher Immediacy

The second hypothesis predicted that increased uses of CMC would lead to an increase in a student’s perception of instructor immediacy. First, this hypothesis was measured by gaining a student’s perception of teacher immediacy using Andersen’s (1979) Generalized Immediacy Scale (GI). Once again, the variables indicating students’ perceptions of CMC and FTF communication created to test the first hypothesis were used to measure the second hypothesis. A correlation test was performed using these three variables.

The results of the correlation testing the second hypothesis demonstrated that perceptions of CMC had no relationship with instructor immediacy, but did show a significant positive correlation between perceptions of FTF communication and instructor immediacy. The results indicated that there is a slight positive correlation between instructor immediacy and perceptions of FTF communication, $r(75) = .255$, $p < .05$ (See Table 5 below). However, there is not enough evidence to support the second hypothesis or reject the null hypothesis.
Student’s Preferences in OCC

The research question posed in this study asked what students’ attitudes were toward CMC vs. FTF when engaging in out-of-class communication. Students preferences toward either communication medium was measured through a series of 8 statements that gauged their attitude by asking them to indicate their level of agreement with each statement on a 7-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (7). Since each item was viewed as its own variable, descriptive statistics for each statement were run and analyzed (See Table 6 below). Also, a correlation matrix was run using the responses to all 10 items in section 3 of the questionnaire (See Table 7 below).

Based on an analysis of the means, the three items that obtained the highest mean were “Out of class communication with my instructor is generally through e-mail (OCC 8)” (M = 5.26, SD = 1.563), “In general, I prefer to speak with my instructor face-to-face rather than through computer-mediated technologies such as e-mail and Springboard (OCC 4)” (M = 4.99, SD = 1.725), and “I find face-to-face conversations with my instructor to be the most effective for out of class communication (OCC 7)” (M = 4.90,

<table>
<thead>
<tr>
<th></th>
<th>CMC</th>
<th>FTF</th>
<th>Instructor immediacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMC</td>
<td>-</td>
<td>.023</td>
<td>-.014</td>
</tr>
<tr>
<td>FTF</td>
<td>.023</td>
<td>-</td>
<td>.255*</td>
</tr>
<tr>
<td>Instructor immediacy</td>
<td>-.014</td>
<td>.255*</td>
<td>-</td>
</tr>
<tr>
<td>N</td>
<td>75</td>
<td>75</td>
<td>76</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
SD = 1.655). While these means are not statistically significant, they provide some evidence that students find OCC to be most effective through FTF. However, students do seem to perceive most of their OCC to be through e-mail, a CMC tool.

<table>
<thead>
<tr>
<th>Table 6. Descriptive Statistics for OCC Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCC Received</td>
</tr>
<tr>
<td>OCC Desired</td>
</tr>
<tr>
<td>I prefer speaking with my instructor through e-mail rather than in person about issues regarding class assignments (OCC 1)</td>
</tr>
<tr>
<td>I prefer speaking with my instructor through e-mail rather than in person regarding exams (OCC 2)</td>
</tr>
<tr>
<td>I prefer speaking with my instructor through e-mail rather than in person about issues regarding absences (OCC 3)</td>
</tr>
<tr>
<td>In general, I prefer to speak with my instructor FTF rather than through CMC (OCC 4)</td>
</tr>
<tr>
<td>I enjoy speaking with my instructor through CMC (OCC 5)</td>
</tr>
<tr>
<td>I find that e-mail and Springboard are the best ways for my instructor to speak with me (OCC 6)</td>
</tr>
<tr>
<td>I find FTF conversations with my instructor to be the most effective for OCC (OCC 7)</td>
</tr>
<tr>
<td>OCC with my instructor is generally through e-mail (OCC 8)</td>
</tr>
</tbody>
</table>

The correlation matrix provided some significant results regarding students’ OCC preferences. The correlations demonstrated a trend that student either preferred the OCC to be through CMC or FTF. The statement “In general, I prefer to speak with my instructor face-to-face rather than through computer-mediated technologies, such as e-mail and Springboard (OCC 4)” was negatively correlated to “I enjoy speaking with my instructor through computer-mediated tools, such as e-mail and Springboard (OCC 5),” \( r = -0.358, p < .01 \). This demonstrates that as their attitude toward OCC through FTF
increases, their attitude toward OCC through CMC decreases. The correlation matrix shows that most statements indicating a preference toward OCC through CMC has a significant negative correlation with statements indicated a preference toward OCC through FTF. This demonstrates that students either prefer OCC through CMC or their OCC through FTF.

<table>
<thead>
<tr>
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<th>OCC Desired</th>
<th>OCC 1</th>
<th>OCC 2</th>
<th>OCC 3</th>
<th>OCC 4</th>
<th>OCC 5</th>
<th>OCC 6</th>
<th>OCC 7</th>
<th>OCC 8</th>
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<td>-</td>
<td>.548***</td>
<td>.144</td>
<td>.661***</td>
<td>.536***</td>
<td>.463***</td>
<td>.441***</td>
<td>.359***</td>
<td>.338***</td>
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<td>-</td>
<td>.154</td>
<td>.530***</td>
<td>.428***</td>
<td>.477***</td>
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</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The correlations also showed that as students desire for OCC increased, so did their general preference toward OCC through CMC channels. The question asking respondents to indicate how much OCC they desired had a slight positive correlation with the statements “I find that e-mail and Springboard are the best ways for my instructor to speak with me (OCC 6)” r = .245, p < .05 and “I enjoy speaking with my instructor through computer-mediated tools, such as e-mail and Springboard (OCC 5),” r = .242, p < .05.
In order to answer the research question, students seemed to generally have a more positive attitude toward OCC through FTF than through CMC. Correlation tests showed that students seemed to prefer either one channel or the other without much middle ground. However, as students’ desire for OCC increased, so did their preference for CMC. While the preference for FTF wasn’t overwhelming, the means tended to skew toward the side of FTF.

These findings are unsuccessful in confirming either hypothesis. The results indicate that uses of CMC have no significant effect on student communication satisfaction and students find instructor who use more FTF communication to be more immediate. Investigation of the research question was successful in opening up further areas of possible research by possibly exploring how student’s desires for information may affect their choice of communication media.
CHAPTER V

DISCUSSION

The main purpose of this study was to examine the relationship between college students’ perceptions of an instructor’s use of computer-mediated communication (CMC) and their communication satisfaction. Two hypotheses and one research question were constructed in order to gain a greater understanding of how an instructor’s use of CMC may impact the college context, more specifically communication satisfaction of a student with their instructor.

The two hypotheses proposed that a student’s perception of increased use of CMC would have a positive impact on areas, such as teacher immediacy and communication satisfaction. In addition to the hypotheses, a research question was posed to gain an insight on how students viewed out-of-class communication (OCC) through face-to-face (FTF) communication and CMC. Teacher immediacy and OCC were included because both have been shown to have an impact on a student’s communication satisfaction. An analysis of the data did not provide evidence that would lead to accepting either hypothesis. Exploration of the research question provided some groundwork for future studies, but the results did not indicate a significant preference for FTF or CMC regarding OCC.
The findings suggested the CMC had no bearing on a student’s level of communication satisfaction. This study based its predictions on previous research exploring the impact CMC has had on the student-teacher relationship (Cummings, 2004; Frymier & Hauser, 2000; Vonderwall, 2003). The belief was that if CMC has shown to positively impact areas related to communication satisfaction, then perhaps it could have a direct impact. The concept was important to test because previous studies have indicated that in certain classroom situations, such as group interactions with other classmates, students have shown a greater satisfaction with FTF over CMC (Ocker & Yaverbaum, 1999). However, this study showed that neither FTF nor CMC was significantly correlated with a student’s communication satisfaction. This could possibly indicate that a student’s communication satisfaction doesn’t necessarily rely on the communication medium (CMC vs. FTF), but more on the relationship with their instructor, overall experience in the course, or some other variable.

The test of the second hypothesis showed that students who perceive a greater use of FTF had an increase in their perception of instructor immediacy. The correlation was slight, but still was positive at a significant level. While these findings were in opposition of the proposed hypothesis, it is interesting to find that in an age of persistent increases the use of technology that participants of this study still perceived their instructors to be more intimate when perceptions of FTF increased.

The lack of correlation could be attributed to the absence of nonverbal behaviors that are present in all FTF interactions. According to McCroskey, Sallinen, Fayer, Richmond, and Barraclough, (1996), “nonverbal messages are believed to be the stimuli which are primarily responsible for affective communication” (p. 200). Thus, the more
one engages in FTF with an instructor, the more nonverbal messages that are received, which could relate to their perception of immediacy. Perhaps this lack of correlation could be altered if instructor’s focused on using more “mediated immediacy” (O'Sullivan, Hunt & Lippert, 2004), which is the use of communicative cues in computer mediated channels that influence perceptions of psychological closeness between two people. Use of “mediated immediacy” could also prove to be a significant factor in student-teacher communication in online courses. Regardless, it may be relieving and uplifting to note that this sample of students still find more immediacy in FTF interactions. Even with the overall increased uses of CMC and technologies over the past two decades, FTF still provides the richest and most immediate form of communication.

The most significant finding during this study may have been the negative correlation between students’ preference of CMC over FTF and students’ preference of FTF over CMC. This suggests that students tend to either prefer CMC or FTF. As students’ preference for CMC increases, their preference for FTF decreases and vice versa. These results suggest that there are two types of students, ones that prefer CMC and then ones that prefer FTF. However, the comparing of means showed that while there are generally more students who prefer FTF than CMC, those who did favor CMC preferred it over FTF. A potential explanation for this is that some students may be more technologically savvy or possibly more apprehensive in face-to-face situations. Prior studies have indicated that CMC tools can be very useful to more apprehensive students (Althaus, 1996; Bloch, 2002). In contrast, students who don’t deal with apprehension or may be less technologically savvy prefer the more traditional FTF.
Also, exploration of the research question uncovered some evidence that as a student’s desire for OCC increased so did their preferences for CMC. This correlation may be attributed to aspects of Uncertainty Reduction Theory. A student’s desire for OCC could lead to an assumption that they have higher levels of uncertainty and as uncertainty is increased, they begin to seek out various channels of communication to reduce that uncertainty. Thus, the 24 hour accessibility of an instructor through CMC grants students the ability to reduce their uncertainty with greater ease.

Limitations

This study was not without limitations. First, the study took a non-probability sample and participants were chosen out of convenience, using intact groups, rather than at random. Typically, probability, or random selection, is the preferred method of sampling in quantitative methods because everyone in the population has an equal chance of being selected. Intact groups are usually somewhat unique; therefore it is often better to choose groups that are not already intact. Second, the data was collected during summer sessions. These summer classes were 5 weeks long as opposed to 15 weeks, which is the length of a majority of fall and spring courses. Also during summer courses, students spend more time in the classroom with the instructor per week. For example, these courses tend to meet 4 or 5 days a week, where the same course in fall semester would meet only 2 times a week. This could have decreased the student’s perceptions of CMC because of the amount of time they spent with their instructor face-to-face. Finally, the findings showed that the majority of students had a high level of communication satisfaction. This may be attributed to the use of communication courses. Instructors of
these courses may exhibit more positive communicative behaviors due to their field of study and understanding of the communication process. More variation in the communication satisfaction of the students could have led to more significant findings in either direction. Also, it could have been insightful to include a PRCA-24 test of communication apprehension (McCroskey, Beatty, Kearney, & Plax, 1985) on the survey to create an additional variable and possibly another correlation test. While these limitations do not nullify findings during this study, they are important to note when interpreting the data.

Future Research

A suggestion could be to gear further research toward testing student’s communication satisfaction in online courses using different tactics and computer-mediated tools as independent variables. As computer mediated technologies in the classroom continues to increase, research and studies should continue to examine how it effects education. Effective communication between students and their instructors is typically imperative for success in a college context, so continued research on the effects of different computer mediated technologies could prove to be useful. Recent studies have attempted to study the use of the communicative phenomenon of Facebook and its potential use by instructors (Hewitt & Forte, 2006; Mazer, Murphy, & Simonds, 2007). A suggestion would be to explore the area of student’s and instructor’s perceptions of Facebook use for course related conversations and information giving.

It is possible that the results of this study may have been altered because the sample of students may have been less apprehensive, which may be attributed to the
sample of communication focused students. If apprehensive individuals are starting to lean toward computer mediated mediums to ease apprehension, it becomes imperative that more research be done in the area of communication apprehension and the use of CMC in any context. It would be important to further test these findings by comparing student’s preference for FTF or CMC based on their levels of communication apprehension.

Another possible area of study could investigate instructor’s attitudes toward CMC in the classroom. Studies have shown that CMC increases the accessibility of an instructor and this 24 hour accessibility may contribute to job burnout, even among instructors. The use of FTF or CMC is typically the decision of an instructor. For this reason, it becomes important to gauge why an instructor chooses to use higher or lower levels of CMC or FTF and what effects this may have on student perceptions and satisfaction.

Conclusion

This study attempted to add to the increasing body of research on computer-mediated communication technologies. The classroom is just one particular context in which computer-mediated communication has impacted. While the results of this study provide little evidence to the actual effect CMC has on a student’s overall communication satisfaction, it does provide groundwork for future studies to build upon. As society progresses toward more computer-mediated based conversations, the classroom will continue to change. Online courses and universities are becoming more and more prevalent and popular. Understanding the effect of computer-mediated technologies in a
classroom context should be a popular area for researchers because it allows an instructor to better utilize the communicative tools at their disposal to increase the satisfaction and overall experience of a student
REFERENCES


APPENDICES
APPENDIX A

IRB APPROVAL

NOTICE OF APPROVAL

May 14, 2016

Joshua Volchok
400 E. 2nd Drive
Stow, Ohio 44224

From: Shawna McWhorter, IRB Administrator

Re: IRB Number 20100540 "Lost & Found: "I'm a Mastering My Professor" Computer Based Communication's Impact on Student's Communication Satisfaction"

Thank you for submitting your IRB application for Review of Research Involving Human Subjects for the referenced project. Your application was approved on May 14, 2016. Your protocol represents minimal risk to subjects and matches the following federal category for exemption:

☐ Exemption 1 - Research conducted in established or commonly accepted educational settings, involving normal educational procedures.
☐ Exemption 2 - Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior.
☐ Exemption 3 - Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior not exempt under category 2, but subjects are elected or appointed public officials or candidates for public office.
☐ Exemption 4 - Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens.
☐ Exemption 5 - Research and demonstration projects conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine public programs or services.
☐ Exemption 6 - Taste and food quality evaluation and consumer acceptance studies.

Annual continuing applications are not required for exempt projects. If you make changes to the study's design or procedures that increase the risk to subjects or include activities that do not fall within the approved exemption category, please contact me to discuss whether or not a new application must be submitted. Any such changes or modifications must be reviewed and approved by the IRB prior to implementation.

Please retain this letter for your files. If the research is being conducted for a master's thesis or doctoral dissertation, the student must file a copy of this letter with the thesis or dissertation.

cc: Heather Winter - Adviser
    cc: Stephanie Woods - IRB Chair

Office of Research Services and Sponsored Programs
Akron, OH 44325-2102
330 972-7696 - 330 972-6281 Fax

Approved consent form/s enclosed

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APPENDIX B

STUDENT CMC SATISFACTION QUESTIONNAIRE

Student Computer Mediated Communication Satisfaction Questionnaire

I. Computer-mediated Communication with instructor

Instructions: Communication with your instructor comes through either in-person conversations, face-to-face communication, or through other computer-mediated channels, such as e-mail and Springboard. The purpose of this portion is to gauge the amount of computer-mediated communication technologies that your instructor uses to distribute information about course related material compared to information given through face-to-face conversations with your instructor.

Please indicate how often you communicate with your instructor.

1 = Never    2 = Very Seldom    3 = Seldom    4 = Sometimes
5 = Often    6 = Very Often    7 = Always

1. How often do you communicate with your instructor?

   □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7

Please indicate how often you communicate with your instructor through each communication medium by circling the appropriate number.

2. E-mail

   □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7

3. Springboard

   □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7

4. Telephone

   □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7

5. Face-to-Face in instructors office

   □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7

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6. Face-to-face with instructor before and after class

For the next set of questions please indicate your level of agreement by circling the appropriate number.

1 = Strongly disagree  2 = Disagree  3 = Slightly disagree  4 = Indifferent
5 = Slightly agree  6 = Agree  7 = Strongly agree

7. I believe my instructor uses more face-to-face communication than computer-mediated communication.

8. I believe my instructor uses more computer-mediated communication than face-to-face communication.

II. Instructor Immediacy

Instructions: This section will measure the closeness and warmth you feel toward your instructor, through what we call immediacy. The more immediate a person is, the more a person is to communicate at close distances, smile, engage in eye contact, use direct body orientations, use overall body movements and gestures, touch others, relax, and be vocally expressive. Immediate individuals are generally more friendly, warm, and approachable.

Please circle the numbers that corresponds to the word that best describes your agreement with the following statement:

In your opinion, the teaching style of your instructor is very immediate.

Agree  1  2  3  4  5  6  7  Disagree
False  1  2  3  4  5  6  7  True
Incorrect  1  2  3  4  5  6  7  Correct
Wrong  1  2  3  4  5  6  7  Right
Yes  1  2  3  4  5  6  7  No
Please circle the numbers that corresponds to the word that best describes the teaching style of your instructor:

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<th>2</th>
<th>3</th>
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<td>7</td>
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<td>3</td>
<td>4</td>
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<tr>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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III. Out of class communication with instructor

Instructions: This portion of the questionnaire is designed to measure levels of out of class communication with your instructor. Out of class communication is considered any communication that happens outside of the schedule class times. This could include office hours, e-mails, Springboard, times before and after class, or any other conversations you may have that exist outside of the classroom.

For the first set of questions in this section, you will be asked to rate how much out of class communication you have with your current instructor and how much you desire. Please circle the number closest to the word that best describes the answer to the following questions.

9. How much out of the classroom communication do you receive from your instructor?

   Almost none 1 2 3 4 5 6 7 A large amount

10. How much out of the classroom communication do you desire from you instructor?

    Almost none 1 2 3 4 5 6 7 A large amount

For the next set of questions please indicate your level of agreement by circling the appropriate number.

1 = Strongly disagree 2 = Disagree 3 = Slightly disagree 4 = Indifferent
5 = Slightly agree 6 = Agree 7 = Strongly agree

11. I prefer speaking with my instructor through e-mail rather than in-person about issues regarding class assignments.

    1 2 3 4 5 6 7

12. I prefer speaking with my instructor through e-mail rather than in-person about issues regarding exams.

    1 2 3 4 5 6 7
13. I prefer speaking with my instructor through e-mail rather than in-person about issues regarding absences.

14. In general, I prefer to speak with my instructor face-to-face rather than through computer-mediated technologies, such as e-mail and Springboard.

15. I enjoy speaking with my instructor through computer-mediated tools, such as e-mail and Springboard.

16. I find that e-mail and Springboard are the best ways for my instructor to speak with me.

17. I find face-to-face conversations with my instructor to be the most effective for out of class communication.

18. Out of class communication with my instructor is generally through e-mail.

IV. Student Communication Satisfaction

Instructions: In this section you will be asked to rate your overall satisfaction of the communication with your instructor. Communication satisfaction is an important measure of your satisfaction with your communication with your instructor.

Please indicate your level of agreement by circling the appropriate number.

1 = Strongly disagree  2 = Disagree  3 = Slightly disagree  4 = Indifferent
5 = Slightly agree  6 = Agree  7 = Strongly agree

19. My communication with my teacher feels satisfying.

20. I dislike talking with my teacher.

21. I am not satisfied after talking to my teacher.
22. Talking with my teacher leaves me feeling like I accomplished something. 1 2 3 4 5 6 7

23. My teacher fulfills my expectations when I talk to him/her. 1 2 3 4 5 6 7

24. My conversations with my teacher are worthwhile. 1 2 3 4 5 6 7

25. When I talk to my teacher, the conversations are rewarding. 1 2 3 4 5 6 7

26. My teacher makes an effort to satisfy the concerns I have. 1 2 3 4 5 6 7

V. Demographic Questions

27. Please indicate how many credit hours you have to date __________

28. Biological sex (Circle one)  Male  Female

29. How many credit hours are you taking this semester __________