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MESSAGE PRIORITIZATION IN COMPUTER-MEDIATED COMMUNICATION:  
A STUDY OF MOBILE DEVICE USE IN THE CLASSROOM

by

PAUL WILLS  
B.A. University of Florida, 2009

A thesis submitted in partial fulfillment of the requirements  
for the degree of Master of Arts  
in the Nicholson School of Communication  
in the College of Sciences  
at the University of Central Florida  
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## **ABSTRACT**

College students are using their mobile devices during class and this research investigates different aspects of why college students feel so inclined to use these devices during class as well as by what means are students using to participate in computer-mediated communication while simultaneously engaging in classes. This research surveyed 146 students on their perceived use of their own mobile device use during class. The study compared how often different types of devices, such as mobile phones, tablets, and laptops, and different types of social media outlets, like Facebook, Twitter, and other social media websites, were used during class. The study compares these devices and media outlets to students' perception of the levels of incivility of using these various means of communication during class and their perceptions of how they impact their ability to focus on the class. Mobile phones, Facebook, and Twitter use were negatively associated with the perception of the incivility of use in the classroom. This research found phone use was viewed as more uncivil than tablets and tablet use was viewed as more uncivil than laptop use. In addition, students' perceptions of instructors' tolerance of mobile phone and laptop use was negatively associated with their perception of the incivility of using those devices during class. All three tested mobile devices and all three tested social media outlets were positively associated with students' perception that its use affects their ability to focus on the class. This research found mobile phones use as more distracting than laptops and laptops use as more distracting than tablets.

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# CHAPTER 1: INTRODUCTION

## 1.1 Background

Computer-mediated communication is a relatively new platform of human interaction that has revolutionized the way humans exchange information as well as the way people do business at different levels. Barnes (2003) defines today's computer-mediated communication as, "a wide range of technologies that facilitate both human communication as the interactive sharing of information through computer networks, including e-mail, discussion groups, newsgroups, chat, instant messages, and Web pages" (p. 4). Powerful miniature computers containing microprocessors are now embedded in mobile phones, tablet computers, videogame systems, eBook readers, and other small personal electronics, all with the ability of Internet connectivity which makes it possible for users to communicate with each other anywhere and at anytime. Mobile technology alone is able to provide people with access to voice calls, Internet data, text messaging, and video streaming, all of which can be utilized through a multitude of interfaces with varying degrees of abilities and features. Students, especially college students, are embracing this new technology, and all of the new, instantaneous stimuli and messages that it entails (Leung, 2007; Decuyper, Masschelein, & Simons, 2012). All of this information forces people to prioritize vast numbers of stimuli in order to obtain the messages that they want to absorb and disregard the ones they do not (Emanuel et al., 2008). Students are using this new-found ability to communicate via mobile devices even in the classroom (Baker, Lusk, &



Neuhauser, 2012; Burns & Lohenry, 2010). This raises questions about how students prioritize their messages, in other words, what choices are students making in regards to where they are focusing their communicative interest while in the classroom.

CMC allows people to communicate with diverse groups of individuals all from the same device. People are able to communicate with family, friends, and coworkers. In addition, the versatility of the medium allows different levels of interactions with all these people. New push and pull technologies for mobile technologies, which are ways to send data to the user constantly or on request schedule, which can be done both manually or programmatically, allows users to receive communication directly to them from a number of different communicative outlets, such as text-messages, email, social-media, like Facebook and Twitter. Between all of the different people and all of the communicative outlets, there is a massive pool of potential stimuli for people that can be held completely in the palm of their hands, not to mention all of the stimuli going on around the person in the physical environment while they are using their cell phone. The enormous numbers of messages that are transmitted everyday have forced people to choose who they are going to interact with and how they will do this. With so many different options to choose from people are forced to prioritize their message stimuli in order to obtain and retain the content that is most important to them.

Students are at the forefront of this new technology for a variety of reasons such as their interest in maintaining social relationships (Hunt, Atkin, & Krishnan, 2012), increasing their learning development and productivity for coursework (Comeaux & McKenna-Byington, 2003), or from instructors implementing the use of technology for more effective learning environments (Althaus, 1997). This new portable technology can be a doubled-edged sword as it can be

brought into the classroom and for some can be a learning resource, but for others a distraction. Gilroy (2004) asserts that cell phones can be a distraction to not only the student who is using the cell phone, but also to the surrounding students and the instructors as well. He explains that instructors and university policies alike have tried instituting policies banning cell phone use but students tend to disregard or work around the rules in place. Gilroy presents the act of students' multitasking with their cell phone in class in a manner that is not completely conducive to that of a proper learning environment.

Others take a different approach to cell phone use in the classroom, as both researchers and instructors Brooks (2010), Byrne (2011), and Lindquist et al. (2007) have all encouraged and even implemented the use of cell phones into their classroom learning environments. They cite various reasons for doing so, including, the encouragement of learning and using new technologies to be more productive in the 21<sup>st</sup> century, the ability to collaborate with others instantaneously, the ability to reach sources of information not otherwise available to the students, and its ability to make a more interactive and encouraging learning environment for the students.

The reach, portability, and instantaneous nature of mobile CMC opens up a wide variety of communication questions in the fields of classroom behavior, decision making, and listening. Many of these questions in regards to students' behaviors in the classroom seem to be able to be answered by understanding the way in which students prioritize their messages. Message prioritization is a term used to describe the process that people use to organize the stimuli that are presented to them in order to pick which stimuli that they want to receive, interpret, and respond to. With the advent of CMC, especially with mobile communication, there are now so

many stimuli that people face more difficult choices regarding where and to what they want to focus their communicative attention. This new-found ability forces students to make a great number of choices on where to focus their attention, listening skills, and development of feedback responses.

There is no disagreement that most of the developed world relies heavily on electronic communication that uses computer technology. Private sector businesses, government entities, schools, banks, travel agencies, as well as families and friends are communicating more and more through computers and electronic handheld devices. This reliance on CMC makes it difficult for some people, especially students in the classroom, to be able to manage the number of messages that they receive through email, text messages, instant relay chats, RSS feeds, and social networks (Bowman, Levine, Waite, & Gendron, 2010; Kolko & Reid, 1998; Nasah, 2008). This new communication also comes a great deal of decision making. With so many messages being sent via CMC and students who are interested in receiving this content there is something that inspires these students to view this content even in estranged environments. It is potentially difficult for someone to be able to accomplish work while they read, listen, comment, or respond to all sorts of communications they receive electronically on a daily basis. It can be equally difficult to maintain politeness and civility in face-to-face interactions when trying to simultaneously manage CMC from a mobile device. Being able to manage these communications requires a certain discipline and possibly some special skills. A new generation of students has grown up in a world where computer-mediated communication is common place so it is plausible to think that these students are developing a new set of skills that is more conducive to conversational multitasking. Even if people are beginning to develop skills that allow them to

manage multiple conversations this does not necessarily mean that they are able to manage multi-medium messages such as text-messaging on their cell phone and comprehending an instructor's lecture simultaneously. Determining the ways in which message prioritization leads people to comprehend multiple, fragmented, and simultaneous stimuli is going to go a long way in understanding this unknown phenomena of cell phone and other mobile devices use in the classroom. Also relevant will be understanding students' perceptions of their environment as such that they can maintain civility in both the classroom and through their CMC.

This research will investigate students' use of mobile devices in the classroom and the impact that message prioritization has on their communicative behaviors. Specifically, this research will investigate what mobile devices, such as mobile phones, notebooks, or tablets, and what types of media outlets, such as text-messages, Facebook, Twitter, or other social media outlets, students are using to seek out their communicative information with their mobile devices while in class. These factors will be analyzed in order to compare students' perception of the impact CMC has on their ability to focus between multiple communication mediums during class as well as students' perception of the level of incivility of the use of mobile devices in class. Identifying these concepts will help to begin the understanding of students' prioritization of messages and stimuli while in the classroom.

## **1.2 Statement of the Problem**

The amount of cell phone and other mobile device use is becoming overwhelming (Smith, 2011). The amount of data and messages being sent to cell phones has led to individuals

to start installing application killing task managers to close malicious apps on mobile devices and antivirus software to prevent viruses and malware from infecting the device. People have even begun backing up their cell phones configuration so that if their device is compromised they are able to restore the backup so that they are able to quickly get back to the people and content that they want to consume. Text messages and social media outlets are susceptible to spam messages, only adding to the amount of messages distributed and available for viewing. This phenomenon of the massive number of messages and stimuli being sent and received across the Internet and to mobile devices to be able to be consumed anywhere needs to be analyzed further. Message prioritization is a concept that will be used to express peoples' process for analyzing through the multitude of snap decisions that influence who and what content communication consumers choose to read and respond.

With the advent of mobile technologies, people now bring their cell phones and other portable devices with them wherever they go; including students bringing their cell phones into the classroom. With their portable device students are able to engage in communication with the entire world from the palms of their hands. With the ability to use their cell phones at any time, and from anywhere, students are using their phones and other mobile devices even in the classroom. This causes new levels of complexity in questions of students' level of comprehension and distraction during class. Wei and Wang (2010) claim that, "texting in United States classrooms has become an observable, but largely unexplained, social behavior" (p. 480). Although, text-messaging is just one form of communication that students are engaging in while in the classroom; another growing area of students' use of their cell phones is through the use of social media, like Facebook and Twitter. With the use of mobile technologies in classrooms

being a mostly unexplained behavior this means that there is opening for research and knowledge to begin to fill in these gaps of knowledge.

Students entertain multiple forms of communication while in the classroom from instructors but also simultaneously from their CMC use. The concept of differentiating between what communication stimuli to comprehend and responded to and what stimuli should be ignored or held off until other time can best be described as message prioritization, a new term coined for this research to describe this phenomena. Students are sending messages via CMC while in class, thus making deliberate message prioritization decisions, but what is not known is who these students are communicating with, what devices and media outlets are students using to send these messages, and what are the students' motivations for using CMC during class. Understanding motivations for these actions would need to look into students' perceptions of their multitasking ability with CMC and students' perceptions of the level of incivility of CMC use in the class.

Message prioritization plays a major role in students' decision making when using their cell phones during class. Understanding message prioritization will help to reveal the listening techniques used by students to better understand the levels of comprehension and communicative engagement with both the classroom environment and with whom they are engaged with on their mobile device. Research in message prioritization in the classroom would help to determine what makes students choose to use their mobile device in class or the engage in full concentration with the instructor and classroom, while also finding out more about their perceived ability to focus on multiple sources to find out if students believe they are able to comprehend multiple simultaneous stimuli of differing mediums. An understanding of message prioritization will also

shed some light on determining potential influential factors in decision making, most specifically, what engages students to read and respond to messages that they receive during class from their mobile devices. Potential explanations for this behavior could be related to the different types of outlets or mobile devices they are using, their perceptions in the level of incivility of mobile device use in the classroom, or in their belief in their own ability to maintain proper focus allowing them to properly manage multiple simultaneous stimuli. There seems to be an apparent lack of research or evidence of research that focuses on these factors, and this study contributes to the exploration of this important topic.

### **1.3 Purpose of the Study**

The purpose of this research is to ascertain factors that influence message prioritization in computer-mediated communication in the classroom. Specifically, to understand how students prioritize the messages that they receive via mobile technology-based devices while in the classroom environment and why students engage in the behavior of using their mobile devices and social media during class. This research will look into the perceived ability of students to multitask to find out if students believe that they are able to juggle their focus between both classroom and mobile device stimuli simultaneously and be able to properly absorb their desired information. Furthermore this research will also be able to help determine students' perception as to if they believe that texting on their phones and interacting through social networks in class is an uncivil behavior and how this factor impacts their message prioritization behaviors. Understanding how these different aspects of message prioritization impact students' classroom

communicative behaviors could help to provide a foundation for students and faculty to usher in a new generation of the classroom environment that uses technology to supplement education and learning, rather than deter from it.

#### **1.4 Significance of the Study**

This study could provide critical data that may help educators and researchers understand the mindset of a new generation of students who engage in mobile communication with the outside world when they are in the classroom. The result of the study could be a starting point in trying to bridge the gap between different mindsets in the matter of prioritization and civility. Also, the data could be used as a preliminary basis that will look to improve the use of CMC for students, teachers, and those with whom students are conversing via mobile devices. This study will help people better understand the prioritization process for students and their use of mobile devices. This study will also look into understanding the motivations for students' behaviors that students are engaging in through CMC during class.

This research will be just one small portion in addressing the need to move to the proper use of message prioritization in CMC. This research will help in the understanding of what information is important to college students and how they distinguish between the valuable things they would like to be a part of and the malicious, petty content that they are to discard. People will be able to form closer relationships and have more enjoyable communicative experiences if they learn to properly organize all of the information available to them in the classroom, or anywhere else where they are affected by multiple, simultaneous stimuli. While



this research will strive to achieve as much of this as possible it is going to take much more work in a variety of fields in order to obtain ideal understanding of CMC and message prioritization.

## **CHAPTER 2: REVIEW OF LITERATURE**

Both computer-mediated communication and message prioritization can take on broad definitions, which is why for this research these terms will need to be narrowed down in order to be properly analyzed. CMC will be focused on interpersonal communication through the use of mobile technologies that utilize text messaging and social media networks. Mobile devices will be limited to cell phones, laptops or notebooks, and tablets. Media outlets will be limited to text-messaging, Facebook, Twitter, and other social media websites. Message prioritization will be understood as the process in which students determine the communicative stimuli they choose to listen to and potentially respond to in the classroom.

### **2.1 Lack of Interpersonal Communication Due to CMC**

Interpersonal communication in virtual environments can open up new pathways of interaction between people allowing for the free flow of information; although, due to the very nature of CMC there are pitfalls that can lead to miscommunication if people are without the proper message prioritization. Kolko and Reid (1998) point out the vastness of virtual environments and how this can cause information to become broken up and lost in the large abyss of the Internet. Large amounts of communication and understanding can become lost or damaged from their original intention due to the multitude of users, social outlets, and messages within CMC and this loss can be detrimental to a community. Polkosky (2008) identifies three

components that make up interpersonal communication that can conflict with technology-enhanced communication: “(1) both interactants are human (persons); (2) interpersonal is a separable form of communication, distinct from other types (e.g., mass, impersonal, intrapersonal); and (3) the primary goal of communication is relationship building or maintenance” (p. 39). Polkosy explains how within technology based communication these lines are being blurred and not as clear cut as they have been with face-to-face communication, but also that as technology continues to advance these lines are becoming less blurred and the gap between face-to-face communication and computer-mediated communication is continuing to shrink. While the gap is becoming closer, more work still needs to be done to fully make the transition. Now in order to continue this move, understanding context and reading comprehension, through peoples’ message prioritization, will need to play a key role in interpersonal communication and relationship building.

## **2.2 CMC Based Classroom Incivility**

Mobile device usage during class is often times seen as a form of incivility and creates an interesting dynamic in the field of message prioritization as students seem to be putting a greater emphasis on their outside class interactions even while in class and after making a deliberate choice to attend said class. Bjorklund and Rehling (2010) investigated students’ perceptions of classroom incivilities, giving a significant focus to text messaging. On a five point Likert-type scale (one being not uncivil at all to five being extremely uncivil) text messaging was rated at a mean of 3.3 (s.d. 1.22), or about moderately uncivil. Although in regards to the level of

frequency observed, also on a five point Likert-type scale (one being never to five being frequently), text messaging was at a mean of 4.00 (s.d. 1.16), or a rather frequent behavior. In fact, text messaging was the most frequent uncivil behavior tested. The study even suggests that moderating frequently occurring moderate-level incivilities, like text messaging, could be one of the best ways for instructors to handle classroom incivility. This research makes it clear that cell phone usage is a common occurrence in the classroom despite its perception of being uncivil.

Similarly, Galbraith and Jones (2010) address issues of incivility, with their focus shifted in regards to the virtual classroom. In their culmination of surveys of college instructors, “using a cell phone during class, using a computer in class for non-class purposes, sending the instructor inappropriate emails” (p. 3) are just some of the behaviors instructors deem uncivil. In order to curb disorderly behaviors Galbraith and Jones suggest that as education begins to evolve in to a more digital environment, instructors need to create a culture within their virtual classrooms that focuses on addressing incivility. Instructors and students who do develop this new educational culture, that embraces positive technology usage and eliminates negatively influencing technology usage, must develop a communication etiquette that supports and enhances these new cultural ideals. In order to do this, instructors must set and adhere to the guideless for their students as to how they wish to develop their classroom environment.

### **2.3 Mobile Communication Etiquette**

Mobile communication has become such an emergent form of communication that standard cultural etiquettes are beginning to form throughout the world. Shuter and

Chattopadhyay (2010) examine differences between text messaging etiquette, or textiquette, between college students from India and the United States. The results show significant differences between the two cultures which include where people send and receive their text messages (out in public or in private), the people who occupy the surrounding area of the texter (friends and family or strangers and acquaintances), and varying levels of reported impolite texting infractions. This indicates that different textiquette cultures have already begun emerging and that these cultures play a role into the comprehension of these text messages.

Malala (2006) analyzes the use of acronyms, a key component of textiquette and the emerging texting culture. Malala believes that establishing a standard SMS lexicon will have the benefits of speed and reliability while also improving conversational understanding. The article also points out that this need for a universal texting language is something that does not appear like it will become obsolete anytime in the near future. A new standard lexicon for mobile devices would have the potential to influence message prioritization as it would change the entire dynamic of what is said, how it is being interpreted, and the speed at which decisions are made allowing for communication can flow more freely.

Although for students, there are other factors that must be considered while developing this new mobile culture and lexicon. One thing to consider, Summers, Bergin, and Cole (2009) tested classroom community and interactive learning as moderating factors of classroom incivility in environments of collaborative learning. The study found interesting results in that instructors who provide more support to students predicted intolerance of incivility when using group work. The study hypothesizes that the allowance of group work gives students a higher feeling of support from their instructor thus giving them higher classroom satisfaction.

Simultaneously, instructors become less tolerant of incivility because of their own perceived loss of control by allowing students more power through collaboration in the classroom. Virtual environments encourage the role of collaboration, which this article shows to play a part in classroom incivility. Understanding this give and take of control could allow instructors to provide students more collaboration under the expectation of students maintaining high levels of civility which could create a more favorable classroom environment. Another piece of research to keep in mind when building a better classroom culture through CMC, Stephens, Houser, and Cowan's (2009) "findings support the view that overly casual email messages sent to instructors cause the instructor to like the student less, view them as less credible, have a lesser opinion of the message quality, and make them less willing to comply with students' simple email requests" (p. 318). These findings indicate that this new educational culture and etiquette must still maintain a level of professionalism so to not alienate instructors lest students run the risk of marginalization.

#### **2.4 Students' CMC Multi-Tasking Ability While in Class**

The impact that mobile communication can have on students' comprehension of course material is research that has been met with conflicting results. Common belief with logic would lead most to believe that mobile communication during a lecture would hinder full comprehension but some research indicates that this is not necessarily the case. Ellis, Daniels, and Jauregui (2010), tested whether undergraduate college-level business students' grades were affected by their use of text messaging in class. Two groups of college students, from the same

class, where given instructions: one group was told to text during class while the other group was forbidden. A quiz was given to all participants on the lectured material and there was a significant difference between the test scores of the two groups. Those who were encouraged to text did significantly worse on the quiz than did those students who were not allowed to use their cell phones during the lecture. This means that those students who text messaged during class were not able to comprehend to the level as those who did not message, meaning students were unable to retain all of their course materials while trying to multitask in the classroom with a mobile device.

In a similar study, Froese et al. (2012) first asked students in a survey how much they thought they would be distracted by texting during a lecture and followed that up with an experiment that would determine how much quiz scores declined between texting during the quiz and not. The results state, “the real score declines (27%) approximated the expected declines (33%)” (p. 329). These results correspond with the previous study that students are unable to properly comprehend lecture materials while they are simultaneously engaged in mobile communication. Alternatively to those two studies, Nasah (2008) was unable to find any statistically significant differences between students who were subject to text messaging and those who were not subject to text messaging during an academic lecture. While students who were subject to texting during this study did report they were distracted from the content due to their text-messaging they did no worse on the comprehending the material that was presented to them.

Another study was conducted to find if students who were reading could also bear the burden of multitasking by instant messaging either before or simultaneous to their reading.

Students who were forced to respond to instant-messages while reading a passage took a significantly longer time to read the passage than did those who did not need to instant message during their reading. Notable is that, time spent reading and responding to the instant message was not counted as time reading the passage. Even after this deduction it took the students who had to multitask with instant-messaging 22-59% longer than those who did not need to multitask. Although, reading comprehension was not significantly affected by students' who were selected to instant message during their reading (Bowman, Levine, Waite, & Gendron 2010). With all of this conflicting literature on if students are able to properly multitask between coursework and personal communication simultaneously the question still remains: how well are students able to juggle message prioritization in these situations and are they able to devote the deeper interpersonal skills required for full understanding? Full understanding of interpersonal communication requires deeper levels of comprehension such as accounting for factors like silence and emotion, both of these concepts will be further developed in this context in future literature as they play interesting roles in the message prioritization process. It is plausible that students whose message prioritization behaviors has them multitasking between multiple simultaneous stimuli are not able to account for these deeper-level interaction nuances because of how much mobile and external stimuli students receive throughout the day.

## **2.5 College Students Usage of Text Messaging**

The importance of this research in computer-mediated communication can be attributed to the amount of growth and utilization of digital communication among college students.



Unsurprisingly, college students utilize a great deal of online communication. Smith's (2011) research shows that 83% of Americans own a cell phone and 73% of those owners use the text messaging function on their phone. Interestingly, 31% of cell phone users prefer to be contacted by text rather than by talking on the phone and another 14% say their preferred method of contact is based on the situation. For American cell phone users the mean number of texts sent and received per day is 41.5 messages. For specific demographics like ages 18-29 year olds, race/ethnicity being black/non-Hispanic, and education level at less than high school those numbers rise even higher to near or well above 70 messages per day. In fact, 18-24 year olds exchange an average of 109.5 text messages per day with the median of this statistic at 50 texts per day. This vast use of text messaging makes cell phone technology an interesting new form of communication for young adults, and is only one of the numerous communicative features available.

Junco, Merson, and Salter (2010) produced a study on college students' examining the effects of gender, ethnicity and income on their use of communication technologies with one emphasis being on text messaging. Demographic indicators to the greater number of text messages sent, as compared to their counterparts, include those students of a higher economic family standing (multiple bracketed variables between \$100,000-\$200,000+), being of the female gender, and being of the African-American ethnicity. This information provides additional details in regards to the college student demographics most impacted by their use of cell phone text messaging.

## 2.6 Impact of Mobile Device CMC on Students

With college students using so much communication from mobile devices it is important to also understand the impact that all of this added stimulus is having on these students. Harman and Sato (2011) compared college students' use of text messages against their total Grade Point Average, GPA, and found varying results. Contrary to their prediction students that were more comfortable text messaging in class reported a higher GPA than those students who reported not being comfortable text messaging in class. It is concluded that these results could be due to the students with higher GPAs are also more comfortable learning the material on their own, outside of class, and not need to devote full attention to the class lecture. A second conclusion on the finding believes students with higher GPAs are better able to, "discriminate between instructors and class circumstances that will or will not influence their grade if they use their cell phones" (p. 547-548). Opposingly, and more in line with the studies' hypotheses, students who reported higher levels of total texting reported lower GPA scores. The study authors believe that students that are less preoccupied with text messaging have more time to focus on their coursework and have more time to contemplate their studies throughout the day. This research points out the interesting dynamics between the varying levels of success for students, in regards to their GPA due to their use of cell phones in class.

Stern and Messer (2009) investigated the modes of communication family members use to maintain their relationships, finding cellular telephone use is the primary means of relationship building among families physically separated from one another. For many college students this is their first time not living with their family and for the first time there is a great physical distance

between them and their family. This makes cell phone technology not just the primary means for relationship building, but also a lifeline back to their family and friends with whom they are apart from for the first time.

## **2.7 Varying Instructor Views of Mobile Use in the Classroom**

Different instructors have taken varying views on mobile device use in the classroom. Many instructors feel disdain, or even forbid, the use of mobile devices during class while others promote and even encourage the use of mobile devices during class. This varying opinion by instructors could impact the message prioritization behaviors of their students as well as shape students' perception on the level of incivility for mobile device use in the classroom. Nworie and Haughton (2008) discuss the consequences, both intended and unintended, of new technologies in the classroom and students' life. Negative consequences for cell phone use addressed include the answering of calls during class, disruptive noises from cell phones, and cheating on exams with their phones. "A common problem in educational institutions in the adoption of technologies or innovations is to ignore or to leave the existing system in its original form while adding to that system" (p. 56). Failing to adapt to the new technologies could cause unforeseen rifts in the field of education causing instability and dissention. Proper planning, communication and early adoption to new technologies on the part of educators are issued as important players in avoiding negative consequences and promoting the positive related new technologies.

Wei and Wang (2010) examine the potential for college-level instructors' use of immediacy behaviors, or signs of closeness in relationship, as deterrents towards students' use of

text-messaging in class. The researchers found that students' gratification from, and habitual use of, text messaging played a larger role in their classroom texting than did their relationship with their instructor. While instructors' use of immediacy did have corresponding relationship to moderating text-messages in class, the results of this were not significant. These two results lead Wei and Wang towards a multi-dimensional explanation to student's use of text messages while in class where all dimensions could not be addressed or accounted for in a single study.

Instructional responses to the use of mobile devices vary. For those who dislike their use they forbid the use of mobile devices during class, but that is not always the case. Other teachers allow, promote, and even encourage the use of mobile devices in the classroom. Brooks (2010) uses a constructivist approach to look at incorporating both traditional means of communication and digital environments for college instructors in order to create a strong support program for the twenty-first century. Byrne (2011), as a high school social studies teacher, encourages students to use their cell phones in class even against the school policy which forbids the practice. They do so in order to promote classroom interactivity and involvement such as through class polls where students are able to text in their vote or through collaborating with other people outside of class, like their parents, through text-messaging about the course materials. Gaer (2011) goes even further and teaches proper communication techniques in adult education classes such as use of the camera, text messaging, Google Voice, and interactive collaboration. They mention, however, that the first lecture before starting these activities focuses on the proper usage, norms, politeness and overall etiquette of cell phone usage. Kinsella (2009) discusses the use of mobile technology where in large lecture classes students can send anonymous messages via mobile device to a computer program that is received by the instructor who can then display

the messages to the entire class. This program works as a form of class collaboration and a way to direct the class based on their needs. This is an orderly way for large classes to post questions, participate in quizzes, answer questions, and even provide additional insight and comedy. The program was met with overall favorable reviews from both the instructor and from students.

## **2.8 Use of Silence in CMC**

Historically, students that are in class are communicatively unavailable to anyone outside of the classroom, but this idea has now taken a dramatic change with new mobile technologies. The perception and interpretation of silence can take on a variety of meanings and with the instantaneous nature of CMC some people are expectant of instant communicative gratification and response. Students now have the ability to avoid this silence to the outside world depending on their message prioritization behaviors while in class. Students' compulsory behaviors to avoid silence and utilize the instantaneousness of mobile technologies are likely major factors of message prioritization in the classroom. Tannen (1985) explains silence is seen as something that is both positive and negative because it can be both "a failure of language" and "a chance for personal exploration" (p. 94). The complexities of silence continue to stem from this dialectical tension.

Literature about the impact of silence in computer-mediated communication is scarce. Zembylas and Vrasidas (2007) analyze the use of silences in text-based CMC. The results indicated that text-based silences can be interpreted in a multitude of different ways such as: "(1) silences as 'non-participation'; (2) silence as confusion; (3) silence as marginalization; and (4)

silence as thoughtful reflection” (p. 10). Silence plays an interesting role in message prioritization because once a person chooses and receives the content they would like they must make a choice in how to respond, if at all. In CMC people have control over when and how they would like to respond. Silences can be viewed in a multitude of different ways which might result in miscommunication. While in class, students are forced to make a decision to either use mobile devices to communicate with their relationship or invoke the communicative behavior of silence during the entirety of their class; this decision making process and the resulting behavior are two things that make up the profile of a person’s message prioritization profile.

## **2.9 Use of Emotion in CMC**

Current research also analyzes factors in regards to the process of understanding messages with additional meanings, such as comprehending emotions or antisocial behaviors which can be strong influencing factor in message prioritization. Rooksby (2003) analyzed empathy in computer-mediated communication and explains how digital transmission allows for improved dialogue over other forms of text-based communication, making it more conducive to proper empathy. Rooksby points out that there is a lacking of higher level understanding due to fewer context clues that are available in face-to-face communication. For students using their mobile devices in class they are most likely going to be using text-based communication to minimize any disturbance they may cause to the rest of the class which makes proper emotional connections more difficult than traditional means of communication. The role of emotions in virtual environments plays an important part in many factors of this research such as the uses and

gratifications of students, the types of reaction and responses to messages, and the social etiquette norms for conversation; the same can also be said for analyzing antisocial behaviors.

In emotional contrast, Douglas (2008) looks at the destructive behaviors that occur online. For example, “The study of cyberostracism examines the negative impact of being ignored in cyberspace” (p. 203). Negative behaviors, like cyberostracism, still conveys a message that can be analyzed to understand more about the person that is committing these emotionally-charged acts. Ignoring a person online in-and-of-itself can relay a message that can be interpreted as malicious and lead to anger, depression, and/or loneliness by the ostracized. This research shows the importance, power, and complexities of communicating in virtual communities. All of this communication and underlying meanings associated within can all be taken into account when people are prioritizing messages. People outside of class with whom students are communicating with have the potential of feeling ostracized if their communicative expectations are not properly met in regards to such things as timely responsiveness or quality of the response. The intricacies of trying to analyze emotion simultaneously in CMC and the classroom could pose to be very difficult. Understanding message prioritization could help students organize their messages so that they can be more receptive and understanding to the intricacies of text-based emotion, both on their mobile devices and in the classroom.

## **2.10 Research Questions**

Message prioritization in computer-mediated communication should be given more attention in research because of how vital it is in understanding the comprehension, response,

and feedback processes in response to stimuli. Prioritizing technologically based messages is critical to understanding and comprehending messages as it determines what a person chooses to listen to and what response route the person will take. With so many stimuli for people to choose from there is a plethora of more research yet to be discovered. Advancement and understanding in message prioritization can help students both inside and outside the classroom.

The number of CMC messages college students absorb has grown so large that people are being bombarded with messages even in class. With so many messages, college students are forced to decide if they will use the classroom environment as a means to read and respond to their messages and in doing so are taking into consideration the impact of the perception of the incivility of their actions before taking part in them. It will be curious to discover if students' perception of their ability to, and actual ability to, multitask and focus in regards to being able to properly comprehend all of the materials needed for the growth of their classroom knowledge while simultaneously being able to properly prioritize and understand important information in their mobile communications. Direct exploratory research needs to be done on this topic to discover what skills are being utilized and how they are being implemented in such a unique environment.

In order to understand the dynamics of message prioritization in computer-mediated communication, specifically those that are related to mobile device use in the classroom, the study will investigate the following research questions:

RQ 1: What is the association of students' frequency of use of mobile devices in class and their perception of how uncivil use of that device is?



RQ 2: What is the association of students' frequency of use of social media outlets in class and their perception of how uncivil use of that outlet is?

RQ 3: What differences are there in how much students perceive various mobile devices as being uncivil?

RQ 4: What is the association between students' perception of instructors' tolerance of various mobile devices and their perception of those devices being uncivil?

RQ 5: What is the association of students' frequency of use of mobile devices in class and their perception of how that effects their ability to focus?

RQ 6: What is the association of students' frequency of use of social media outlets in class and their perception of how that effects their ability to focus?

RQ 7: What differences are there in students' perceptions of how various devices effect their ability to focus?

## **CHAPTER 3: METHOD**

### **3.1 Procedure**

In order to examine the presented research questions a survey was developed to be presented to college students who attend classes. The questionnaire was developed by the researcher with guidance from the research advisor overseeing the project and with additional input from other colleagues of the research advisor. The development of the survey questions focused on developing results for the research questions and used influences from similar research studies that were presented in the literature review. The questionnaire had 40 questions. The questionnaire introduced the research by asking the participants to offer their opinions on the questions presented, informing them this research was anonymous, voluntary, and should not harm them for answering the questions honestly. The introduction also gave a brief overview to the research, researcher, and a way to contact the researcher if they had any concerns. The first question verified students were taking the survey of their own free will and that they would answer the question honestly and to the best of their abilities. The next five questions were in regards to demographic information. The remaining 34 questions were multiple choice questions with two, three, or five responses with only one selection being able to be taken. It was estimated to take participants approximately 10-15 minutes to complete the online survey. The survey was entered into Qualtrics, an online survey taking tool.

Once the questionnaire's content was validated by the research advisor to be able to properly address the research questions presented the questionnaire was submitted to the Institutional Review Board, IRB, for approval. The submission to IRB was given the Approval of Exempt Human Research.

The research advisor was able to contact a colleague who was an instructor of a large undergraduate course and who was willing to present this survey to their students. The instructor of this course wanted to provide extra credit to students who participated in the research study, so a secondary survey was created in Qualtrics that asked four questions as dictated by the instructor to determine who participated in this survey. The link to this survey was presented upon the successful completion of the research survey. Any information provided from Qualtrics from this survey that might relate a student to their copy of the initial survey, such as time of completion or ip address, was disallowed and not recorded to the database. This database was presented to the participating instructor in the form of a Microsoft Excel document so that they could provide extra credit at their discretion.

Upon approval from the participating instructor the link to the survey was presented to the instructor and the survey was opened for submissions. The participants had one week from the time it was presented to them during class to the conclusion of the research period. After that time frame expired the survey was closed and would no longer accept submissions. The results of the research survey were exported to a SPSS file format, .sav, and subsequently imported into SPSS Student Version 16 for Windows for data analysis.

### 3.2 Sample

The intended population for this research is college level students who attend class via the traditional classroom setting. College students were identified as the population of this research due to the observed behavior of their texting, mobile device, and social media use during class. Testing this observed behavior requires college students be the primary focus of the sample. The tested sample population came from a convenience sample of students enrolled in a large southeastern United States university taking an undergraduate communication course. All of the participating students were enrolled in the same course and as such were all provided the same time frame, introduction, and opportunities to complete the survey. The response from the class yielded 146 completing participants. In regards to gender of the sample females reported approximately 12.2 percent higher than the approximate national average of 57 percent (Marlein, 2005; U.S. Census Bureau, 2012; U.S Department of Education, 2011). In regards to the current classification of the students reported predominantly being towards the middle of their undergraduate college careers, with most reporting as either sophomores or juniors. The age demographic reports that these college students are mostly young students between the ages of 18 to 24. The ethnicity testing of the sample demonstrates a diversity of backgrounds (see Table 1).

Table 1: Descriptive Statistics of the Sample

	Frequency	Percent
<b>Gender</b>		
Male	45	30.8
Female	101	69.2
<b>Current Classification</b>		
Freshman	1	.7
Sophomore	54	37
Junior	62	42.5
Senior	29	19.9
<b>Age Group</b>		
18-24	137	93.8
25-30	7	4.8
31-35	1	.7
36 and above	1	.7
<b>Ethnicity</b>		
White / Caucasian	78	53.4
Hispanic / Latino	38	26
Black / African American	25	17.1
Asian / Pacific Islander	2	1.4
Other	2	1.4
No Response	1	.7
<b>Total</b>	<b>146</b>	<b>100</b>

Note. N=146

### 3.3 Measures

The first five questions, after the participant agreed to participate in the research, of the survey were presented to identify the demographics of the sample. The remaining 34 questions of the survey are the questions that are used as the basis of the measures of this research. All of

these questions are multiple choice, with predominantly Likert-type responses, and focus on answering the research questions presented in this research.

### **3.4 Data Analysis**

Research questions one, two, four, five, and six were analyzed by using Pearson's Correlations. Research questions three and seven were analyzed by using one-way repeated measures ANOVAs.

## CHAPTER 4: RESULTS

### 4.1 Descriptive Statistics

Descriptive statistics from the amount of reported use of various devices and social media outlets during class is presented in Table 2. Descriptive statistics for various levels of students' perceptions of using CMC during class is presented in Table 3.

Table 2: Frequency Table for Use of Mobile Devices and Social Media Outlets in Class

	Mean	sd
<b>Frequency of Use of Mobile Device</b>		
Mobile Phone	3.24	1.033
Tablet	1.44	.947
Laptop or Notebook	2.47	1.453
<b>Frequency of Use of Social Media Outlet</b>		
Facebook	2.47	1.155
Twitter	2.01	1.181
Another Social Media	2.21	1.230

Note. All variables measured on a 5 point scale with Never = 1, Rarely = 2, Occasionally = 3, Frequently = 4, and All of the Time = 5.

Table 3: Frequency Table for Various Students' Perception Levels

	Mean	sd
<b>Perception of Level of Incivility by Device or Outlet</b>		
Mobile Phone	1.98	.616
Tablet	1.52	.667
Laptop or Notebook	1.40	.593
Facebook	2.34	.688
Twitter	2.34	.707
Another Social Media	2.32	.694
<b>Perception of Teachers' Tolerance of Devices</b>		
Mobile Phone	2.68	1.225
Tablet	3.42	1.230
Laptop or Notebook	3.93	.966
<b>Perception of Effect of Device or Outlet on Ability to Focus</b>		
Mobile Phone	2.66	1.086
Tablet	1.35	.827
Laptop or Notebook	2.03	1.156
Facebook	2.27	1.245
Twitter	1.94	1.322
Another Social Media	2.07	1.317

Note. All variables measured on a 5 point scale with Never = 1, Rarely = 2, Occasionally = 3, Frequently = 4, and All of the Time = 5.

## 4.2 Research Question One

Research question one asks, what is the association of students' frequency of use of mobile devices in class and their perception of how uncivil use of that device is? Results of the Pearson's Correlations used to test this research question can be found in Table 4. Frequency of mobile phones use was negatively associated with the perception of how uncivil its use is in the



classroom. In other words, the more students used mobile phones the less uncivil it was perceived to be by the students. Contrastingly, the less students use mobile phones in class the more uncivil it use is perceived.

Table 4: Correlations Between Frequencies of Use of Mobile Devices and Student Perceptions of How Uncivil it is to Use Them in Class

	<i>r</i>	<i>p</i>
<b>Mobile Phone</b>	-.20	.016
<b>Tablet</b>	-.16	.059
<b>Laptop</b>	-.12	.178

### 4.3 Research Questions Two

Research question two asks, what is the association of students' frequency of use of social media outlets in class and their perception of how uncivil use of that outlet is? Results of the Pearson's Correlations used to test this research question can be found in Table 5. Frequency of Facebook and Twitter use was negatively associated with the perception of how uncivil its use is in the classroom. Frequency of Facebook and Twitter use was negatively associated with the perception of how uncivil its use is in the classroom. In other words, the more students used these two social media outlets the less uncivil it was perceived to be by the students. Contrastingly, the less students use these two outlets in class the more uncivil it use is perceived.

Table 5: Correlations Between Frequencies of Use of Social Media Outlets and Student Perceptions of how Uncivil it is to Use Them in Class

	<i>r</i>	<i>p</i>
<b>Facebook</b>	-.32	.000
<b>Twitter</b>	-.24	.004
<b>Other Social Media</b>	-.16	.062

#### 4.4 Research Question Three

Research question three asks, what differences are there in how much students perceive various mobile devices as being uncivil? Mauchly's test indicated sphericity could not be assumed, therefore the Greenhouse-Geisser test was used. The results indicated a statistically significant difference between variables ( $F(1.69, 144) = 76.86, p = .000, \text{partial eta squared} = .346$ ). Paired comparison with Bonferroni adjustment indicated phone use was viewed as more uncivil than tablets and tablet use was viewed as more uncivil than laptop use (see Table 3).

#### 4.5 Research Question Four

Research question four asks, what is the association between students' perception of instructors' tolerance of various mobile devices and their perception of those devices being uncivil? Results of the Pearson's Correlations used to test this research question can be found in Table 6. Students' perceptions of instructors tolerance of mobile phone and laptop use was

negatively associated with their perception of the incivility of using those devices during class. The more students perceived that instructors tolerate these two devices the more students perceive them as civil for the classroom, or the less perceived tolerance than the more uncivil the action is believed to be.

Table 6: Correlations Between Students’ Perception of Teacher Tolerance of Mobile Devices and Their Perception of how Uncivil it is to Use Them in Class

	<i>r</i>	<i>p</i>
<b>Mobile Phone</b>	-.16	.048
<b>Tablet</b>	-.14	.090
<b>Laptop</b>	-.20	.013

#### 4.6 Research Question Five

Research question five asks, what is the association of students' frequency of use of mobile devices in class and their perception of how that effects their ability to focus? Results of the Pearson’s Correlations used to test this research question can be found in Table 7. Frequency of all three tested devices was positively associated with the perception of how much it effects their ability to focus on course materials. In other words, the more students used any of the three mobile devises the more it effected their perception of their ability to focus on the class.

Table 7: Correlations Between Frequencies of Use of Mobile Devices and Student Perceptions of how it Affects Their Ability to Focus

	<i>r</i>	<i>P</i>
<b>Mobile Phone</b>	.43	.000
<b>Tablet</b>	.53	.000
<b>Laptop</b>	.50	.000

#### 4.7 Research Question Six

Research question six asks, what is the association of students' frequency of use of social media outlets in class and their perception of how that effects their ability to focus? Results of the Pearson's Correlations used to test this research question can be found in Table 8. Frequency of all three tested social media outlets was positively associated with the perception of how much it effects their ability to focus on course materials. In other words, the more students used any social media outlets the more it effected their perception of their ability to focus on the class.

Table 8: Correlations Between Frequencies of Use of Social Media Outlets and Student Perceptions of how it Affects Their Ability to Focus

	<i>r</i>	<i>p</i>
<b>Facebook</b>	.56	.000
<b>Twitter</b>	.65	.000
<b>Other Social Media</b>	.65	.000

#### 4.8 Research Question Seven

Research question seven asks, what differences are there in students' perceptions of how various devices effect their ability to focus? Mauchly's test indicated sphericity could be assumed. The repeated measures ANOVA indicated a statistically significant difference between variables ( $F(2, 124.99) = 62.50, p = .000, \text{partial eta squared} = .394$ ). Paired comparison with Bonferroni adjustment for multiple tests indicated students viewed mobile phones as more distracting than laptops, which were more distracting than tablets (see Table 3).

## **CHAPTER 5: DISCUSSIONS AND CONCLUSION**

### **5.1 Implications of Findings about CMC and Incivility in the Classroom**

These results indicate that the more a person deems mobile device usage during class uncivil, the less likely they will be to use their mobile phone during class. It seems somewhat odd that this same result could not be duplicated in regards to tablet and laptop use. Most likely, correlations of this same sentiment could not be made for tablets or laptops because most students would agree on a lower level of incivility for these devices, as they can be used to enhance the learning environment, but usage of these devices would tend to be more sporadic and based on personal preferences or device ownership thus throwing off any correlating factors of incivility. At least for mobile phones, students' perceptions of incivility seems to be correlated with being a behavioral deterrent to using that device during class.

Students' who perceive the use of Facebook and Twitter during class as uncivil are less likely to use these types of social media during class. This pattern did not hold true for the category of Other Social Media. With Facebook as the current figurehead of social media it is not surprising students would want to avoid the use of the most dominate website in social media to maintain their value systems. The results of testing Twitter are very similar indicating that if students' perceive use of Twitter to be uncivil they are also likely, to some degree, to refrain from using Twitter during class as well. On the other hand, students may have had a difficult time identifying which social media the boarder category referred to. There could be a difference

in the incivility levels of using more professional social media like LinkedIn to purely personal social media like dating websites thus making it more difficult to determine the level of incivility of the action. Getting a more expansive coverage of social media websites would help to determine if in fact more professional social media websites are viewed as being more civil in the classroom.

Cell phones reported as being the most uncivil device in the classroom that was tested and laptops being the most civil of the devices tested. Laptops can be used to supplement coursework and as such would be deemed civil to be used. On the other hand, cell phones maybe perceived as being used for social use and not to supplement coursework, making the action deemed as more uncivil. Interestingly, students give tablets some benefit of the doubt as they could be being used for coursework or could be used for more uncivil actions, like social media use thus ranking in between laptops and mobile devices in this category.

There is a negative correlation between students' perception of teachers' tolerance of mobile phones and laptops with students' perception of the level of incivility of using those devices. This indicates that when teachers do not tolerate the use of these devices than the more students perceive the devices to be uncivil. From this it can be determined that how instructors' rules on CMC are perceived by students can be a factor on students' perceptions of incivility. When this determination is combined with the earlier extrapolation, where students' who perceive CMC use during class as uncivil are more likely to not use CMC in class, it can be concluded that instructors might have an influencing factor in students' use of CMC in the classroom. This should be comforting to both instructors who forbid and encourage CMC use in the classroom, because depending on how the instructor communicates their levels of tolerance

toward mobile phones and laptops can be an influencing factor in either encouraging or discouraging mobile device use in class on students.

## **5.2 Implications of Findings about CMC and Student Multitasking in the Classroom**

This research was also designed to primarily look at the results that correlated with students' admission to an effect on their ability to focus during class with various devices or social media. The more students use their mobile phones during class the higher their perception that using a mobile phone during class affects their ability to focus on the course materials. In addition to cell phones, this same sentiment can be attributed to the use of tablets, laptops, Facebook, Twitter, and other social media networks. This means that students believe that the use of any of the tested devices or social media outlets affect their ability to focus on class materials.

Even though students believe that the use of CMC during class affects their ability to focus on the materials being taught, students are still using these CMC outlets and devices during class. Continuing research on this topic would want to pursue other explanations as to why students choose to use CMC during class in spite of their belief that it affects their focus. Potential motives for students' using CMC even though they think it effects their ability to focus could be disinterest in the course materials, disinterest in the instructor, belief that full attention to the course will not affect their knowledge of the materials or grade, a belief that their CMC conversations are more important, or a multitude of other possibilities. This research has brought about vital information and focus to the topic, but in order to find out more about motives, a



different research model might prove to be more effective at expanding on this knowledge base further. Rather than hypothesize motives for students and have them report their beliefs for them it might be better served by first starting with more qualitative methods to find out from students directly what their motives are for using CMC during class and follow that up with quantitative testing on these particular motives reported. This should allow for a more focused and effective research design than attempting to guess students motives blindly which could result in a lot of data analysis and mixed success of results.

This research found that mobile phones were more distracting than laptops. This is not surprising, as laptops can be more easily used as supplemental devices for learning with their larger screen and full sized keyboard which makes it more suitable for taking faster and more detailed notes or quickly looking up additional information. The smaller screen requires more concentration and precision in order to complete these same tasks. More surprisingly is that tablets were viewed as almost never being distracting, with perceived impact on focus levels below both mobile phones and laptops. This research presents two possible explanations for this occurrence. First, with tablets still emerging as a widespread technology, they are not as widely owned as laptops and cell phones. As such, students who do not own a tablet might feel compelled to determine that they are never distracted by tablets because they have never had a tablet to use during class. Another possible explanation would be that students perceive tablets as an ideal learning device. Tablets might be a good balance of efficiency without the potential for immersive distractions while students are in class. If this explanation were to be validated it would seem that tablet devices could be the wave of the future for educational purposes. Understanding these psychological differences between these potential explanations and

determining the true explanation for these perceptions and some of the other results would require addressing the limitations of this research and beginning further avenues of research.

### **5.3 Limitations**

While this research was able to make some headway as to students use of CMC during class there are limitations of the research. When analyzing the different types of social media there were only two types of media chosen and one topical grouping; this topical grouping could be parsed out even more to determine how other types of social media impact students' use of CMC during class. In addition, all of the data was self-reported survey data. The self-reported data could be a hindrance to this research as this research was limited to getting a better understanding of students' perceptions. While students' perceptions do help with understanding the message prioritization development it does not paint the entire picture as perceptions do not always match behaviors. Students were asked how much they believe they use CMC during class rather than being able to obtain a true behavioral determination for these variables. Obtaining a better understanding of true behaviors would require a more experimental approach. Also, the sample of students used for this research was drawn from only one particular class on campus which limits the results for determining results for the population of college students as a whole. Future research will be able to take the information developed from this research and create new and specific research questions that will help in answering other questions about how and why students are using CMC during class.

## 5.4 Conclusion and Recommendations

Students believe that multitasking affects their ability to focus on the class and also believe using CMC during class is incivil. These results indicate that students' message prioritization has them continue to use CMC in class even though they know it could potentially affect them negatively. Although, there are correlations that indicate higher levels of these beliefs do tend to be deterrents to student usage. These are likely not the only account for students' use of CMC in the classroom as students could be using CMC because they are not engaged in the material, they put more emphasis on their social life than their academic life, or because in such a digital age they feel obligated to respond to messages instantaneously, else, feel or cause social rejection, but in order to uncover these possibilities to be truth more research must be made. In the end, CMC use in the classroom remains at an impasse between whether it should be forbidden or encouraged by instructors. As previously mentioned, Gilroy (2004), and others, point out the potential distraction of CMC use in the classroom while Brooks (2010), Byrne (2011), Lindquist et al. (2007), and others, see the potential for increased knowledge adaptation and absorption. This research shows that civility, instructors, and focus can be influencing factors, but ultimately determining students' motivations and behaviors in regards to message prioritization in the classroom requires more steps to fully understand why students choose to seek out, comprehend, and respond to the stimuli that they do.

The results of this research open the door to many more avenues of future research for exploration in regards to message prioritization and CMC. The consistent significant results of this study shows that correlations and relationships do exist between students' CMC usage in the

classroom in regards to how they are communicating and their perceptions around using communication. One idea for future research includes determining the impact of the initial point of communication in regards to students' use of CMC during class. Future research could try to determine if there is a difference between students response based communication versus communication that they initiate. If students are predominately responding to messages this could be due to a different dimension of civility. Students might believe that not responding to a message sent by CMC could be equally as uncivil. In our current society communication has been brought to an instantaneous level such that a lack of an immediate response can be considered rude. This would be one of the many routes that could begin to look into students' actual motives for their behaviors and begin to obtain a more through psychological and behavioral understanding of these students' communicative actions.

Other motives in the field could attempt to look at why students are disengaged from the classroom and feel inclined to use their mobile devices during class. This research only address two popular motives for students use of mobile devices in the classroom, and even these motives can be further elaborated on, such as looking more into other types of social media, the amount of texting, the amount of web surfing, or the amount of game playing students engage in during class. This research suggests that future research should use both quantitative and qualitative methods to continue on further exploring this issue. The use of qualitative methods could supplement the use of quantitative methods by allowing researches to speak directly with students about what their motives are for using mobile communication during class and thus providing a good starting point for new divisions of research. A more complete understanding of

the motivations of students for using mobile communication during class will allow for the construction of a more engaged and positive learning environment.

## **APPENDIX A: MESSAGE PRIORITIZATION IN CMC SURVEY**

## Message prioritization in computer-mediated communication

Q1 Instructions: Please answer the following questions to the best of your understanding. This research is looking for your opinions in regards to your classroom behaviors with mobile devices and interpersonal communication. You will not be penalized by your instructor for not participating in the survey. Please answer honestly and to the best of your ability. Your answers will be anonymous and any individually identifying information will be withheld. Your cooperation will provide data to research that is to be presented for the completion of a Master's Thesis in the University of Central Florida Nicholson School of Communication. Answers are selected by clicking on the appropriate radio buttons corresponding to each question. Your survey will be sent to the researcher when you click on the Submit button at the conclusion of the survey. If you have question or concerns in regards to this research please feel free to contact the conductor of the research, Paul Wills, at paul1414@knights.ucf.edu.

Q2 Are you choosing to participate in this research of your own free will and agree to respond to questions honestly and to the best of your ability?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

Q3 What is your age group?

- 17 and below (1)
- 18 to 24 (2)
- 25 to 30 (3)
- 31 to 35 (4)
- 36 and above (5)

Q4 What is your gender?

- Male (1)
- Female (2)

Q5 What is your ethnicity?

- White / Caucasian (1)
- Hispanic / Latino (2)
- Black / African American (3)
- Native American / American Indian (4)
- Asian / Pacific Islander (5)
- Other (Please specify) (6) \_\_\_\_\_

Q6 What is your current major?

Q7 What is your current classification in college?

- Freshman (1)
- Sophomore (2)
- Junior (3)
- Senior (4)

Q8 Do you have a cell phone?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Block

Q11 During a typical class period, how often would you typically send text messages to parents while you are in class? (click on the radio button)

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q12 During a typical class period, how often would you typically send text messages to friends while you are in class? (click on the radio button)

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q13 During a typical class period, how often would you typically send text messages to classmates while you are in class? (click on the radio button)

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)



Q14 During a typical class period, how often would you typically send text messages to other people (such as work-related contacts) while you are in class? (click on the radio button)

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q16 During a typical class period, how often would you use your mobile phone?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q17 During a typical class period, how often would you use a mobile device to look up information in regards to class related material?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q18 Does personal use of a cell phone in the classroom affect your ability to focus on the lesson?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q19 During a typical class period, how often do your teachers tolerate the use of mobile devices?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q20 Do you consider personal use of mobile phone in the classroom uncivil?

- Not uncivil (1)
- Somewhat uncivil (2)
- Extremely uncivil (3)

Q21 Do you have a tablet device (iPad, Kindle, Android Eee Pad, etc...)?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Block

Q22 During a typical class period, how often would you use your tablet device?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q23 Does personal use of a tablet in the classroom affect your ability to focus on the lesson?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q25 During a typical class period, how often do your teachers tolerate the use of tablet devices?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q26 Do you consider personal use of tablet devices in the classroom uncivil?

- Not uncivil (1)
- Somewhat uncivil (2)
- Extremely uncivil (3)

Q27 Do you have a laptop or notebook computer (including netbooks)?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Block

Q29 During a typical class period, how often would you use your laptop device?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q30 Does personal use of a laptop in the classroom affect your ability to focus on the lesson?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q31 During a typical class period, how often do your teachers tolerate the use of laptops?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q32 Do you consider personal use of laptop/notebook in the classroom uncivil?

- Not uncivil (1)
- Somewhat uncivil (2)
- Extremely uncivil (3)

Q33 Do you have a Facebook account?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Block

Q35 During a typical class period, how often would you use Facebook?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q34 During a typical class period, how often do your teachers tolerate the use of Facebook?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q36 Do you consider personal use of Facebook in the classroom uncivil?

- Not uncivil (1)
- Somewhat uncivil (2)
- Extremely uncivil (3)

Q37 Does personal use of Facebook in the classroom affect your ability to focus on the lesson?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q38 Do you have a Twitter account?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Block

Q39 During a typical class period, how often would you use Twitter?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q41 Do you consider personal use of Twitter in the classroom uncivil?

- Not uncivil (1)
- Somewhat uncivil (2)
- Extremely uncivil (3)

Q42 Does personal use of Twitter in the classroom affect your ability to focus the lesson?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q43 Do you have another social media account such as Instagram, Pinterest, Blogger, Tumblr?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Block

Q44 During a typical class period, how often would you use these other social media?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q45 During a typical class period, how often do your teachers tolerate the use of Social Media?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

Q46 Do you consider personal use of social media in the classroom uncivil?

- Not uncivil (1)
- Somewhat uncivil (2)
- Extremely uncivil (3)

Q47 Does personal use of social media in the classroom affect your ability to focus the lesson?

- Never (1)
- Rarely (2)
- Occasionally (3)
- Frequently (4)
- All of the Time (5)

## **APPENDIX B: EXTRA CREDIT PARTICIPATION SURVEY**

## Extra Credit Participation

Q1 Thank you for accessing this survey. If you've been brought here by clicking on a link at the end of another survey, it is likely because you believe your instructor is providing credit for taking part in a research project. Please fill out the questions below (your first name, your last name, last name of instructor). Once the research is completed, your instructor will receive a list of all the people how have submitted their names for credit. You should be aware that the information you provided on the previous survey is anonymous. The information we are gathering here enables us inform your professor or instructor about who completed the project for course credit. Thank you for your participation.

Q2 What is your name?

First (1)

Last (2)

Q3 What is the last name of your instructor?

Q4 What is the name of the course?

Q5 What is the course prefix and number as well as the section number?

Course Prefix and number (ex. COM1000) (1)

Section Number (2)



## **APPENDIX C: IRB APPROVAL LETTER**



University of Central Florida Institutional Review Board  
Office of Research & Commercialization  
12201 Research Parkway, Suite 501  
Orlando, Florida 32826-3246  
Telephone: 407-823-2901 or 407-882-2276  
[www.research.ucf.edu/compliance/irb.html](http://www.research.ucf.edu/compliance/irb.html)

### Approval of Exempt Human Research

From: **UCF Institutional Review Board #1  
FWA00000351, IRB00001138**

To: **Paul T. Wills**

Date: **September 28, 2012**

Dear Researcher:

On 9/28/2012, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination  
Project Title: Message prioritization in computer-mediated communication: A  
Study of mobile device use in the classroom  
Investigator: Paul T. Wills  
IRB Number: SBE-12-08691  
Funding Agency:  
Grant Title:  
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 09/28/2012 04:52:44 PM EDT

A handwritten signature in black ink that reads "Joanne Muratori".

IRB Coordinator

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