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Mobile Technology and Classroom Relationships

Joe C. Martin
University of Kentucky, joe.martin@uky.edu
Author ORCID Identifier:
https://orcid.org/0000-0001-7214-8221
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MOBILE TECHNOLOGY AND CLASSROOM RELATIONSHIPS

DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Communication and Information
at the University of Kentucky

By

Joe C. Martin

Lexington, Kentucky

Director: Dr. Brandi Frisby, Professor of Communication

Lexington, KY

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ORCID iD: https://orcid.org/0000-0001-7214-8221

ABSTRACT OF DISSERTATION

MOBILE TECHNOLOGY AND CLASSROOM RELATIONSHIPS

This dissertation examines the relational implications of the presence of mobile technology within the basic communication course. To guide the research and interpret the results Mottet, Frymier, and Beebe's (2006) rhetorical and relational goals theory is utilized. To investigate this phenomenon a survey design was employed, and participants were asked to respond to open-ended, closed-ended, and descriptive questions. Results of this study shed light upon how and when university students use technology, as well as the positive and detrimental results such usage has upon the development and quality of their relationships in the classroom, both with instructors and other students.

Results from this dissertation revealed that students are frequent and heavy users of mobile technology (particularly "social" applications), but generally do not feel as if they are dependent upon their devices. In open-ended responses, students described ways in which mobile technology facilitated out of class relationships with peers and instructors, but hindered the development of relationship with peers in the classroom; these descriptions aligned with the fact that students who exhibited or experienced phubbing (snubbing someone with one's phone) described less classroom connectedness than their peers. While differing perceptions of classroom connectedness among students were correlated with differing experiences of phubbing, perceptions of rapport with instructors did not differ significantly among participants. Further, students who were more relationally oriented experienced higher perceptions of classroom connectedness than their more rhetorically oriented counterparts. Finally, students in this study generally prioritized rhetorical instructor attributes over relational ones. These results are further explored in the discussion portion of this dissertation.

KEYWORDS: Instructional Communication, Instructional Technology, Classroom Relationships, Phubbing, Rhetorical and Relational Goals Theory

Joe C. Martin

December 10, 2019
Date

MOBILE TECHNOLOGY AND CLASSROOM RELATIONSHIPS

By

Joe C. Martin

<u>Dr. Brandi N. Frisby</u>
Director of Dissertation

<u>Dr. Anthony Limperos</u>
Director of Graduate Studies

<u>December 10, 2019</u>
Date

For Laura, a lily among the brambles,
who has given or sweetened every good thing in my life.

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"Well, here at last, dear friends, on the shores of the Sea, comes the end of our fellowship in Middle-earth. Go in peace!" -*Gandalf*

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Finally, to Him from whom every good and perfect gift flows:
"O LORD my God, I will give thanks to you forever!" - Psalm 30:12

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1: Introduction

For millennia instruction has been a relational process, perhaps exhibited most famously through the relationship between Socrates and his disciple Plato, the former of which would be largely lost to history were it not for the faithful records of his protégé. In the instructional communication literature, the assertion that the teacher-student relationship is interpersonal in nature received its first serious treatment in an article by Nussbaum and Scott (1980), a claim further expounded by Frymier and Houser (2000). Yet, even in the nineteen years since Frymier and Houser's assertion, a sea change has occurred in higher education; the arrival of internet-connected mobile devices (such as smartphones) have left few areas of our daily lives unaffected, and instructional contexts are certainly no exception.

In the wake of these devices, educators have been left with new opportunities, and at least as many new challenges. While research on the issue is still relatively nascent, early findings have demonstrated that smartphones, for instance, are a significant presence in the lives of college students, who receive approximately 400 notifications and spend several hours per day actively using their devices (Lee et al., 2014). Although there are significant levels of smartphone usage among most college students, the highest levels of usage have been found among freshmen and sophomores (Wang, Niiya, Mark, Reich, & Warschauer, 2015), the same students likely to populate the important basic communication course (Beebe, 2013). Already, a growing body of literature describes the potentially negative affect technology usage may have upon face-to-face relationships (e.g., Millter-Ott & Kelly, 2017), a factor that may be relevant to the formation of

potentially important early relational interactions in college classrooms (Sunnafrank & Ramirez, 2004), both between students and their peers, as well as students and instructors. Thus, the presence of technology has implications for classroom relationships. But should the formation and preservation of such relationships be a priority for instructors? This is a fundamental question for modern, technology-saturated, instructional contexts, and warrants a more detailed examination below.

A Brief Case for the Worth of Classroom Relationships

> *Actually, the laboring man has not leisure for a true integrity day by day; he cannot afford to sustain the manliest relations to men; his labor would be depreciated in the market. He has no time to be anything but a machine... The finest qualities of our nature, like the bloom on fruits, can be preserved only by the most delicate handling. Yet we do not treat ourselves nor one another thus tenderly.*

-Henry David Thoreau, *Walden*

In the instructional communication literature, the importance (or lack thereof) of relationships within the classroom is a frequent point of contention, and scholars continue to debate whether instruction is in essence a rhetorical or relational process (see for instance the 2017 *Communication Education* forum "Interpersonal Communication in Instructional Settings"). But just as there are many who argue for the overall importance or relative unimportance of classroom relationships, there are also many who seem to choose merely to ignore classroom relationships altogether. As Hagenauer and Volet (2014) note in their meta-analysis of relevant articles, "most of the studies do not treat TSR [the teacher-student relationship] as the 'variable-of-interest'" (p. 372). Yet, even

those who advocate for the importance of relationships in the classroom often do so on the terms of those who disagree with them. For instance, in their pioneering study on the importance of the teacher-student-relationship, Nussbaum and Scott (1980) evaluate these relationships strictly in terms of their utility for facilitating learning, and call for future studies geared toward increasing the understanding of how to "maximize the effectiveness" of such relationships (p. 561). Similarly, Frymier and Houser justify their classic exploration of the teacher-student relationship largely on the basis of its established links to affective learning, and affective learning's connection with cognitive learning. More recently, Goldman, Cranmer, Sollitto, Labelle, and Lancaster (2016) echo the above reasoning, urging instructors to use relational teaching approaches as these efforts likely engage students on an affective level, which in turn promotes greater opportunities for learning. Perhaps nowhere is this seen more clearly than in the affective learning model, where student affect is the mediator between instructor relational behaviors (i.e., immediacy) and cognitive learning (Rodriguez, Plax, & Kearney, 1996). And while the primacy of learning is frequently a background assumption in instructional literature, Richmond, Houser, and Hosek (2018) explicitly state its preeminence, "The central role of the teacher is to create instructional environments in which the probability of achieving the intended educational objectives are met and student learning outcomes are enhanced" (pp. 97-98). Three thoughts are offered here in response to the above views of relationships and learning the classroom, thoughts that frame the underlying assumptions of this dissertation.

First, while it is routinely assumed, as Richmond et al. (2018) assert, that enhancing learning outcomes should be the central goal of an instructor, few truly believe

this should *always* be the case. To provide an extreme example: if a small fire breaks out in an elementary school classroom, a teacher's primary responsibility in that moment will be to extinguish the flame, and not merely because doing so will enhance learning outcomes. Instead, the blaze reveals a *more central* role of an instructor, to ensure the safety of his or her students. Less extreme examples prove the same point. For example, mental health problems continue to plague both undergraduate (Eisenberg, Downs, Golberstein, & Zivin, 2009) and graduate students alike (Hyun et al., 2006). Faced with challenges such as these, educators must give careful consideration to whether the centrality of learning outcomes should ever be supplanted - even temporarily.

Second, even if one maintains that learning outcomes must always be the central concern of instructors, this is not the same as saying it is the *only* concern, and secondary goals do not necessarily have to function in relation to the central concern. As we have seen, the study of classroom relationships is often justified by its connection to cognitive learning outcomes. This, however, is a disservice to classroom relationships, which possess intrinsic worth that is *related to* and at the same time *independent from* cognitive learning. In other words, part of the value of relationships in the classroom is rightly attributed to their positive effects upon learning, but relationships would also be worthy of study, even if they did not positively corelate with desirable learning outcomes – they are, after all, what Thoreau would dub some of the finest fruits of human nature. Thus, while many scholars have posited an important link between classroom relationships and learning, these relationships should also be recognized as having inherent and independent value, a reality which is further explained in my final point.

Third, while the teacher's role as explained by Richmond et al. (2018) (i.e., learning outcome facilitator) is certainly reflective of the dominant view of instruction, it is sometimes fruitful to examine the merit of such truisms; such an examination briefly follows here.

Aristotle, upon considering life's ultimate purpose, concluded that *eudemonia* or happiness, was the ultimate goal of human efforts – the *end* toward which all *means* strive. While learning may offer intrinsic pleasure, it is frequently a means to an end: a better job, more freedom, or more money. Conversely, while students and instructors of a Machiavellian predisposition may form classroom relationships as a mere means to an end (e.g., a better grade, a positive course evaluation, or to secure a letter of recommendation), the relationships that form within classrooms are frequently *ends*, rather than mere *means*. The creation and maintenance of rewarding social connections is fundamental to the human experience, and therefore arguably a desirable classroom outcome. In fact, as a mode of instruction, formal classrooms themselves are a relatively recent invention; far more ancient are mentor-protégé relationship, or apprenticeships. In mentorships, the relationship between the mentor-protégé frequently preceded and outlasted a period of formal instruction (e.g., a father teaching his adolescent son mastery of the family trade). In such cases, it is difficult to imagine speaking of the relationship strictly in terms of its ability to positively influence learning outcomes. In fact, the opposite approach would make more sense: viewing the passing-on of knowledge and skills as a means to enrich the relationship. While I do not intend to argue here that instructors should seek to facilitate positive relationships in the classroom *more* than they should seek to achieve learning outcomes, I assert nevertheless that rewarding

relationships within the classroom are often closer to the *ends* (i.e., "goals") of life than they are to *means.* To summarize, the instructor-student relationship is a centrally important variable within the classroom, due both to its connections to learning, as well as its independent and intrinsic ability to enhance the quality of life of students and instructors.

Considering the importance of human social interaction, the strain that technology frequently creates in interpersonal relationships is a salient concern (e.g., Roberts & David, 2016; Halpern & Katz, 2017; Kelly & Miller-Ott, 2017). Further, given the potential negative effects of technology upon other interpersonal relationships, it is reasonable to assume that technology may lead to similar relational detriments within the basic communication course. Although Goldman et al. (2016) found students prioritized rhetorical goals in large lectures, they note "it is possible that students have fewer relational needs from their instructor in a large lecture class [than they do in smaller ones]," and encourage future research that draws participants from "smaller classes" (p. 14), such as the basic course. Further, while technology like smartphones reinforce existing relationships of college students, they negatively correlate with bridging new relationships (Park & Lee, 2016), potentially limiting the formation of teacher-student relationships or new student-student relationships within the classroom due to phubbing, (snubbing someone with one's phone).

The most relevant instructional communication theory to the phenomena described above is Mottet, Frymier, & Beebe's (2006) rhetorical and relational goals theory (RRGT) which captures the contention between a focus on learning and on relationships. Posited as a means to better understand the twin motivation types students

and instructors may possess, RRGT offers a lens through which the researcher can view the complex, and sometimes competing, goal-types present in the classroom. RRGT is also well-suited to this current study due to its relevance for early stages within the semester; although needs and goals may be fulfilled or go unmet, they are objectives that students and teachers "bring to the classroom" on the first day (Mottet, Frymier, & Beebe, 2006, p. 265). Further, relationships within the classroom are relevant to important instructional contexts. Student-student relationships are frequently understood through the lens of classroom connectedness (Dwyer et al., 2004), and student-instructor relationships are often understood in terms of perceptions of rapport (Frisby & Martin, 2010). Taken together, the above theory and constructs provide a framework through which classroom relationships can be better understood.

Thus, due largely to the incursion of mobile technology, the instructional context is in an unprecedented state of transition. While research has already begun to establish the positive and negative effects technology may have upon learning (i.e., rhetorical goals), little is known about what relational outcomes might result from technology's presence in the classroom. Given the importance of relationships, both intrinsically and as a predictor of learning, this dissertation seeks to address one over-arching research question:

How does technology relate to the development of student-student and student-instructor relationships within the basic communication course?

Specifically, given the importance of classroom relationships in the basic communication course, and concerns that technology can hinder these relationships, this

dissertation examines the effect that mobile technologies, and in particular phubbing, may have on the development of relationships within the basic communication course.

In this chapter, the context, theoretical framework, and overarching research question was introduced. Chapter 2, the Literature Review, will expand on the rationale for this dissertation.

Chapter 2: Review of Literature

One of the most frequently cited definitions for the field of instructional communication comes from Mottet and Beebe (2006), who describe it as "the process by which teachers and students stimulate meaning in the minds of each other using verbal and nonverbal messages" (p. 5). While this definition was suitable at the time of its writing, it arguably now fails to reflect the increasingly important computer-mediated communication that takes place in the classroom, and falls short of describing a growing body of literature regarding how devices like smartphones alter the instructional environment. Given that the mobile technology in classrooms is frequently mediating communication between those in the classroom and persons outside of it, these connections should be accounted for before a definition of instructional communication can be described as sufficiently broad. Thus, borrowing from Mottet and Beebe's (2006) definition, I propose the following conceptualization of instructional communication for the face-to-face classroom: the process by which teachers and students stimulate meaning in the minds of each other within a context saturated with computer-mediated-communication devices.

In this chapter Mottet et. al.'s (2006) rhetorical and relational goals theory (RRGT) will be introduced and applied, along with a further examination of early relational impressions. I will then describe the advantages and disadvantages of instructional technology in regard to rhetorical and relational priorities. Next, the concept of phubbing, or snubbing someone with one's phone, will be explored as a potentially relevant construct to the phenomena experienced by instructors and students in the basic communication course. Finally, the constructs of rapport and classroom connectedness

will be described and applied, specifically in light of how they may be impacted by technology within the classroom.

Theoretical Framework

Rhetorical and relational goals theory. While a growing body of research has addressed the ways that factors such as smartphone usage may affect student learning, much less has examined the way that such mobile technologies may affect classroom relationships; to investigate the latter phenomenon, Mottet, Frymier, & Beebe's (2006) rhetorical and relational goals theory (RRGT) is well suited.

According to RRGT, there are two primary motives for classroom communication: to achieve rhetorical goal, or to achieve relational goals. The theory has 6 propositions. First, students have rhetorical needs and relational needs, but their drive to achieve each of the need types is not necessarily equal. Second, teachers, like students differ in the emphasis they place upon each type of goal. Third, teachers are most effective when their goals are appropriate and their communication practices to achieve their goals are well suited to their effort. Fourth, student satisfaction is inextricably linked to their achievement of their rhetorical and relational goals (see Figure 2.1). Fifth, teacher goal types and the means they use to achieve their goals differ upon student age/grade-level. And finally, student goals and the way they seek to achieve their goals differ depending upon their age/grade-level (Mottet, Frymier, & Beebe, 2006). While rhetorical and relational goals theory culminates with the goals of students being met or unmet, it begins with the needs and presuppositions with which teachers and students "enter the classroom" (Mottet, Frymier, & Beebe, 2006, p. 271). It is upon how these initial

attitudes influence relevant relational variables early in the semester that this dissertation will focus.

While some research has already begun to apply RRGT to large classrooms (Goldman et al., 2016), this dissertation investigated these questions with a population drawn from the basic communication course. Furthermore, the research conducted here is unique in its application of the theory in regard to technology's presence in the classroom.
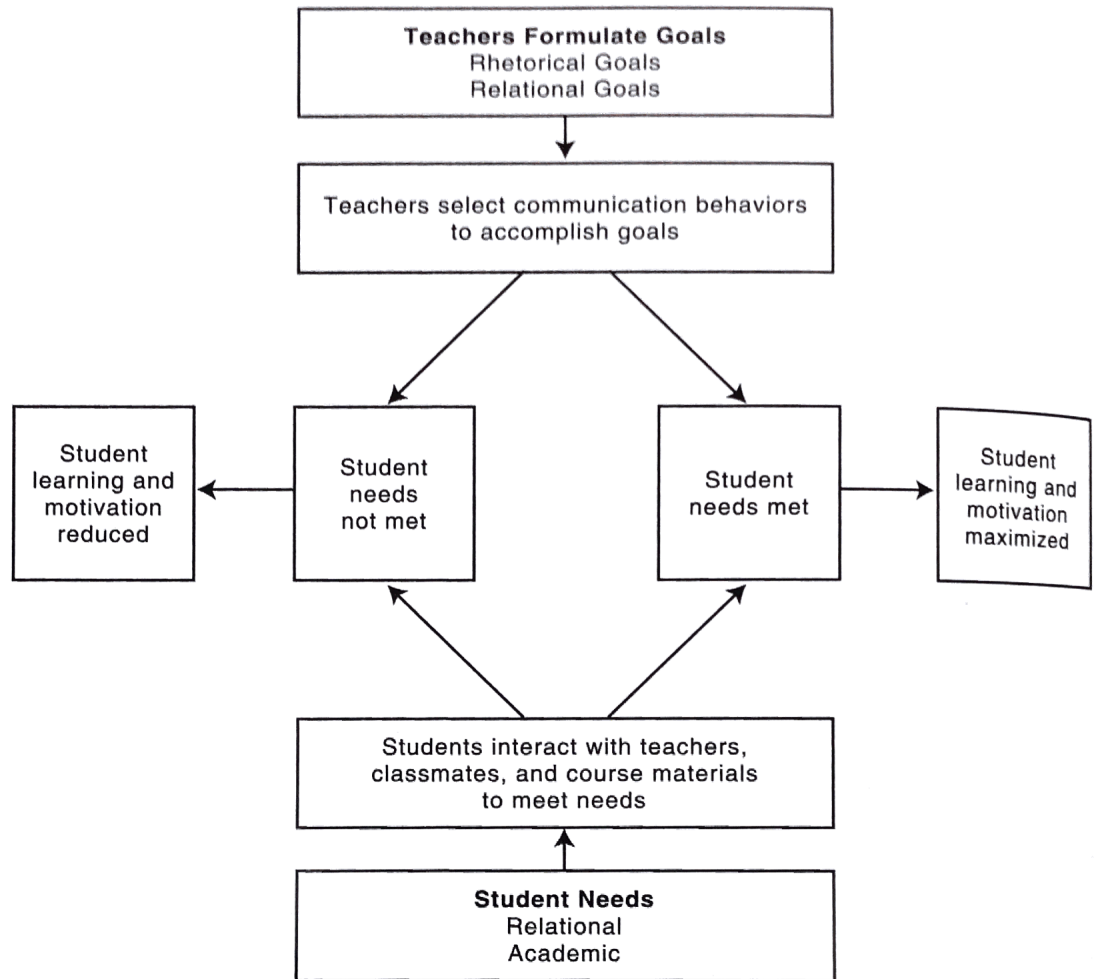
Figure 2.1 - Rhetorical/Relational Goal Theory (Mottet, Frymier, & Beebe, 2006, p. 270)

While RRGT passes Littlejohn's (2009) six tests for a well-constructed theory, it features at least one component that warrants critique. The authors of RRGT write, "It is likely that as students mature and develop, their relational needs lessen…as student become more mature and establish mature relationships, they are less likely to have to have strong relational needs in the classroom" (Mottet, Frymier, & Beebe, 2006, p. 269). While this assertion seems to run against research regarding the loneliness, depression, and despair experienced by the most mature students in the highest echelons of the academy (i.e., graduate students; Hyun, Quinn, Madon, & Lustig, 2006), it also seems to exclude instructors as a potential partner in one of the "mature" relationships a student may develop - an assertion in stark contrast to Wang's (2014) research on educational turning points. This dissertation sheds light upon whether students in smaller college classes view instructors as means through which they might fulfill relational needs. In the following section, I will consider the literature describing the importance of early interactions to relationship development within the classroom.

Early Relational Impressions

As discussed above, student needs precede the first meeting of a class, and can therefore be understood in light of literature regarding early relationship impressions and the lasting impact they often have. Much of this literature is understood through the theoretical lens of predicted outcome value theory, which describes the information-seeking that takes place in initial interactions that is used to determine the potential benefits of future contact (Sunnafrank, 1986). In instructional contexts initial interactions between individuals have been found to have powerful and lasting effect. For instance, Sunnafrank and Ramirez (2004) randomly paired students with no prior interaction on the

first day of a university communication course and instructed them to briefly converse and then answer a survey regarding factors such as their interpersonal attraction; 9 weeks later the same survey was repeated. Although some of the initial interactions lasted as little as three minutes, Sunnafrank and Ramirez (2005) found that among these students "evaluations formed during initial conversations influence long-term relational states in continuing relationships" and further concluded that "the trajectory of relationships is substantially influenced at first contact" (p. 376). Similarly, Horan and Houser (2012) found that student impressions formed within the first week of classes accurately predicted their reports of actual responsiveness and participation levels later in the semester. Experimental designs have also borne out the importance of early classroom interactions; Wilson and Wilson (2007) found that students who were provided with a positive first-day classroom experience compared to those in a negative first day experience reported higher motivation throughout the term and score higher on final examinations. Finally, instructional communication literature with a more pragmatic focus has also advocated for positive peer-to-peer interactions (i.e., "ice-breakers") as early as the first day of class (Pulaski, 2007). Thus, the extant literature strongly supports the importance of early relational interactions for understanding and influencing lasting relational outcomes.

Of course, the contemporary college is not merely populated by persons, but technology as well. To recognize what impact technology may have upon the development of classroom relationships, one must first understand the breadth and depth of technology's presence within the classroom, a topic explored in the following section.

Technology in Instruction

In recent years, significant scholarly attention has shifted to the intersection of instructional communication and technology (Farris, Houser, & Hosek, 2018), bringing to fruition early calls to investigate technology's growing role in instructional contexts (Kuehn, 1994). Today scholars are calling for the re-evaluation of existing scales, theories, and constructs in light of the computer-mediated and computer-saturated educational context in which we find ourselves (Kaufmann & Tatum, 2017). As we wade deeper into these technologically uncharted waters, instructional research is more important now than ever before – for administrators, instructors, and students alike.

Technology may be accurately described as a disruptive force. With the advent of any new technology comes change, and in the wake of this change, both promise and problems. The infusion of technology into education is an especially volatile mixture, intertwining the novel with one of humanity's oldest traditions. It is in this pioneering time that instructional communication scholars find themselves, and while it may be an uncertain time for many instructors, it is a promising time for instructional scholars. Of course, instructional scholars are not the only ones measuring, observing, and experiencing these changes. Many researchers in the fields of education and educational psychology are already carefully tracking and assessing these phenomena. Yet while researchers in other disciplines have much to offer in terms of appreciating our modern educational context, no one is better positioned to shed the light of understanding on instruction and technology than the instructional communication researcher (Chatham-Carpenter, 2017. While individuals employ numerous metaphors to help us understand what technology is (most popularly: a tool), computers, phones, tablets, are in essence, *communication* devices. Thus, an instructional researcher can speak with authority on

matters of learning, face-to-face classroom communication, *and* the technology that permeates and even facilitates our instructional contexts.

Advantages and disadvantages of technology in the classroom. Technology has much to offer education and has made possible entirely new avenues for instruction. Online education, whether it be MOOC's or distance-education courses offered by brick-and-mortar universities, continues to proliferate (Allen & Seaman, 2017). Few would argue that the affordances offered by modern computers and the internet have failed to improve upon the correspondence courses of old, and that is not my intention here. Rather, this dissertation examines how technology has positively and negatively impacted the traditional, face-to-face classroom. Despite the advent of the internet and the personal computer, the overwhelming majority of basic course classes are still taught in the traditional format (Morreale, Worley, & Hugenberg, 2010), thus, how technology affects these courses is of particular salience.

The ways that technology influences and is influenced by education are innumerable, but may be broadly compartmentalized in rhetorical and relational terms. According to rhetorical and relational goals theory, rhetorical goals involve motivating factors like the aspiration to earn good grades, while relational goals in the classroom refer to one's desire to develop fulfilling relationships (Mottet, Frymier, & Beebe, 2006); these twin motivation types help students and instructors to understand actions and attitudes in the classroom. Further, RRGT may also serve as the foundational starting points for discussions of how technology should function in the classroom. Specifically, administrators, students, and instructors may examine any new technology or innovation in regard to how (or if) it will help to accomplish desirable rhetorical or relational

classroom goals. This exercise presupposes that technology is not an inevitability in instruction, but rather a variable that may be embraced, tolerated, or rejected (Fairchild, Meiners, & Violette, 2016). Indeed, much instructional research today focuses upon the ways that instructors exercise, or should exercise, control over technology in their face-to-face classrooms. Thus, technological variables can be manipulated by both students and instructors, a reality that adds practical importance to a discussion of its relative merits and disadvantages. Such an enumeration of the pros and cons of technology in the classroom follows here.

First, technology affords both rhetorical and relational benefits in the face-to-face classroom. The communication devices that most students have with them in their classes can be used to communicate about course related subjects with their instructors and fellow students (Brooks & Young, 2016; Duran, Kelly, & Keaten, 2005; Stephens, Houser, & Cowan, 2009). With greater ease than ever before, students can hold discussions with group-members and classmates: arranging meetings, asking and answering questions, and even commiserating. These same devices also allow for greater ease in out-of-class communication with instructors. Previous generations of students relied upon locating instructors in their office during office hours in order to ask a question outside of class time; today a student may e-mail their instructor at any time, often receiving responses outside of normal working hours and even on the weekend (Martin, Tatum, & Kemper, 2017). Apart from their ability to connect with instructors and classmates, students can use their devices to access the broader internet, with its innumerable, instantly accessible resources.

Instructors benefit from these technologies as well. Valuable class time can be preserved, with mundane reminders relegated to online announcements, additional resources can be added to online learning platforms (e.g., Canvas), and individual students can be contacted if an instructor is concerned with their well-being or academic performance (even if they have not attended class). Within the classroom, instructors can project slides from their computer and play relevant video clips for their students. They can also oversee guided research, workshops, and peer review sessions, allowing student devices to be employed in a context where instructional support is a mere hand-raise away.

Despite the numerous affordances provided by technology in instruction, it is not without its rhetorical and relational disadvantages. In fact, Ledbetter and Finn (2016) write, "it would be surprising indeed if social communication technology use did not continue to be a significant problem for students and instructors" (p. 19). Repeated research, both of experimental and survey designs, have demonstrated the potential negative impacts of technology upon academic performance. For example, Kuznekoff and Titsworth (2013) experimentally manipulated phone usage among a sample of college students and found that increased phone usage had a significant negative impact upon quiz grades. Similarly, Lepp, Barkley, and Karpinski (2015) surveyed 536 undergraduates and, after controlling for various known predictors of academic performance, found a negative correlation with cell-phone usage and GPA. Beyond compromising rhetorical goals of students, technology may also threaten relational goals as well. Though technology is often noted for its ability to maintain connections between individuals, preserving relationships across time and physical distance, that same ability

to preserve existing relationships may negatively impact the formation of new relationships (Park & Lee, 2012). Within a college classroom, students may find it easier to text a friend from their hometown or respond to a group message thread for their sorority than to engage in the higher risk behavior of attempting to meet someone new. Forging a new relationship with an instructor may represent an even lesser likelihood, given the increased distance in both power (Mottet, Frymier, & Beebe, 2006) and proximity when compared to classroom peers.

Like students, instructor goals may also be threatened by technology within the classroom. As evidenced by a body of instructional research regarding attempts and best practices to regulate technology in the face-to-face classroom (e.g., Finn & Ledbetter, 2013; Tatum, Olson, & Frey, 2018; Testa & Tawfik, 2017), many instructors are already grappling with the sometimes-unwelcome presence of technology. Mobile technology often represents a disruption of the learning context, with chiming phones cited as a nuisance by instructors and students alike (Campbell, 2006). Technology has also been used as an aid for academic dishonesty. Not only can students use their devices to do things like view and transmit test answers, they can also utilize the internet to plagiarize written works in their own papers and speeches. Technology may even represent a threat to instructors' evaluation by students, a metric upon which a growing number of faculty jobs depend (Figlio, Schapiro, & Soter, 2015); Ledbetter and Finn (2016) noted that teacher competence was inversely associated with student social media use during class.

Just as technology may threaten instructor rhetorical goals, it poses an equally apparent threat to relational goals as well. The face-to-face college classroom is no longer a relatively intimate and private gathering of a few individuals. Today, each person

carries with them a virtual window to another world, through which one can connect with friends, family, and even celebrities, as well as view carefully curated and customized news. Even if one does not consciously choose to attend to their device, their technologies persist with audio notification and haptic vibrations, pulling the user out of the physical moment and tangible space, into the virtual one. These devices are so powerful in their pull, that even their "mere presence" can compromise one's cognitive and, arguably, one's emotional resources (Ward, Duke, Gneezy, & Bos, 2017, p. 140).

Many instructors find lasting value in the professional relationships they forge with their students, and Frisby et al. note that "ignoring the relational side of teaching may in fact be harmful to the instructor" (2016, p. 108). In fact, even the term *platonic*, defining non-romantic relationships, is derived from an instructor-student relationship: that of Socrates and his disciples, among whom was Plato. While technology can facilitate relationship development between instructors and students outside of class (e.g., through e-mail exchanges), it may also, for the reasons mentioned above, inhibit the likelihood of forming those relationships in the first place.

Clearly, many questions arise when considering the impact of technology and classroom relationships. To further investigate these questions, a suitable environment for their study must be selected.

The Basic Communication Course

The basic communication course context is in many ways ideal for the study of how mobile technology affects relationships. First, the basic communication course is a significant presence in American higher education, taught to over one million students each year (Beebe, 2013). Second, due largely to the emphasis upon developing public

20

speaking skills (Bodie, 2010), the basic communication course is often significantly smaller than many other courses in which a student may enroll; the National Communication Association recommends a maximum student-instructor ration of 25:1 (National Communication Association, 2011). Due to its size, the basic communication course allows for more intimate interactions between students as well as between students and their instructors. These relationships can play a significant role in things like the selection of an academic major (Figlio et al., 2015) and may also serve to alleviate public speaking apprehension (Carlson et al., 2006). Furthermore, for many students, developing meaningful relationships within these courses is essential for the creation of a "safe learning environment" where higher order learning can take place (Frymier & Houser, 2000, p. 217).

Technology and the basic communication course have not always been entities in lockstep. In fact, Valenzano, Wallace, and Morreale (2014) noted that the basic communication course is "glacial" in regard to the incorporation of change (p. 361). Nevertheless, there have been more recent efforts to examine how technology may be successfully incorporated within the basic communication course, such as the utilization of virtual-reality as a means to improve student public speaking self-efficacy (Frisby, Vallade, Kaufmann, Frey, & Martin, in press). Among basic course researchers, technology has been viewed not only as a means to improve learning outcomes (Santoro & Phillips, 1994), but even as an opportunity to enhance accessibility (Strawser, Frisby, & Kaufmann, (2017). Finally, the role of technology in the basic communication course is only likely to increase, with Frisby (2017) suggesting that "the myriad of ways in

which we can use [mobile technology] for positive outcomes will allow for our basic course to not only survive, but thrive and will, in turn, benefit the students" (p.79).

Before further considering the impact technology may have upon the development of classroom relationships, it is prudent to examine what is likely the most relevant construct.

Phubbing

Recent research into the impact of phones upon relationships has begun to coalesce around certain constructs, among them is the term "phubbing." A portmanteau of the words "phone" and "snubbing," phubbing describes the snubbing of an interpersonal partner with one's phone (Chotpitayasunondh & Douglas, 2016). While phubbing is a phenomenon with salience to the instructional environment, there are other contexts in which phubbing occurs - the most obvious and most studied context being the interpersonal one. Indeed, the very definition of phubbing explicitly states its interpersonal nature with its language implying an interpersonal pairing: "the act of snubbing someone in a social setting by concentrating on one's phone instead of talking to the person directly" (Chotpitayasunondh & Douglas, 2016, p. 9).

Already, the exploration of phubbing in the interpersonal literature has produced numerous interesting studies and spans the gamut from interviewing romantic partners (Kelly, Miller-Ott, & Duran, 2017) to experimental studies of first-time acquaintances (Przybylski & Weinstein, 2013). Regardless of context, the concept of phubbing illustrates how technology can, in essence, short-circuit the establishment and development of communicative interactions between persons, connections that are clearly relevant to the physical classroom setting. As it is frequently considered a violation of

behavioral norms, phubbing is a phenomenon that may be manifested due to high levels of "mobile phone involvement (Walsh, White, & Young, 2010) or "problematic mobile phone use (Billieux, Van der Linden, & Rochat, 2008). High levels of mobile phone involvement may represent a behavioral addiction with accompanying negative general and interpersonal outcomes (Billieux, et al., 2008; Walsh et al., 2010).

Classroom phubbing. In the basic communication course context, phubbing can occur in several directions. First, students may phub one another, an act that may reduce classroom connectedness and the resultant benefits (e.g., academic motivation, empathy, enjoyment, etc.; Dwyer et al., 2004). This behavior may be seen before the start of class when students arrive and sit down; rather than converse with the student sitting near them, students may elect to instead devote their attention to their laptop. Secondly, phubbing may negatively impact teacher-student rapport, as instructors may phub students by using things like group activities as a chance to catch up on e-mail, rather than check-in with others in the classroom. Lastly, students may phub instructors by indulging the desire to connect socially with friends or work on assignments for anther class rather than devote their attention to their instructor during a lecture.

Regardless of the directionality, classroom phubbing is an event that is most easily exhibited and perceived when multiple "active ingredients" are present (Johnson, 2003, p. 740). First, and most basically, for phubbing to occur at least two individuals must be present together. Secondly, at least one individual in the exchange must be in the possession of a piece of mobile technology toward which they elect to devote some measure of attention. Finally, the aforementioned act must be viewed by another individual within the class as leading to reductions in interpersonal connection,

diminutions of social presence, or negative impacts upon verbal or nonverbal communication quality.

Two constructs possess particular relevance, and in fact may be hindered by phubbing within the basic communication course: rapport and classroom connectedness. These constructs and the potential for phubbing to negatively affect them are discussed in further detail below.

Rapport

Rapport is defined as "an overall feeling between two people encompassing a mutual, trusting, and prosocial bond" (Frisby & Martin, 2010, p. 147) and is exhibited in relationships centered around "mutual trust and harmony" (Faranda & Clarke, 2004, p. 275). Rapport is an important variable for instructors, and teaching has been described as a "rapport-intensive professional field" (Frisby & Myers, 2008; see also, Jorgensen, 1992). In instructional contexts, the presence of rapport between teachers and students has been associated with numerous desirable classroom outcomes: affective learning (Frisby & Martin, 2010), cognitive learning (Bell & Daly, 1984; Frisby & Martin, 2010), and increased participation (Frisby and Myers, 2008). Instructors interested in increasing rapport may do so by facilitating enjoyable interactions and increasing the perception of a "personal connection" (Gremler & Gwinner, 2000, p. 83).

As is discussed above, smartphones and other technologies may be useful for building rapport and connection in existing relationships and connections, but their usage negatively correlates with bridging new relationships (Park & Lee, 2016). Furthermore, the negative effects of smartphones usage in a face-to-face environment may be even more pronounced among individuals already possessing unfavorable views of

smartphones (Gonzales & Wu, 2016). In the classroom setting, given the propensity among some instructors to employ "legalistic policies about classroom rules and expectations" (Frey & Tatum, 2017) and the resultant psychological reactance among students (Tatum, Olson, & Frey, 2018), mobile technology usage in the classroom may foster reductions in perceptions of instructor rapport among students; such reactance may be especially salient early in the semester, when syllabi are often distributed and/or overviewed (Horan & Houser, 2012). Rapport, especially early in the semester, has been shown to be a significant variable for students; Lammers, Gillaspy, and Hancock (2017), found that student perceptions of rapport with their instructors early in the semester predicted more variance in final grades than perceptions of rapport in the middle and latter stages of the semester. Not only do perceptions of rapport persist, they also are formed rapidly – significant differences have been found in perceptions of rapport between experimentally manipulated lecture conditions that lasted only 10-minutes (Frisby, Limperos, Record, Downs, & Kercsmar, 2013).

Classroom Connectedness

While rapport is typically studied as an indicator of the relationship between instructors and students, classroom connectedness is representative of the relationships between peers in the classroom. According to Dwyer and colleagues (2004), a connected classroom is one that features "student-to-student perceptions of a supportive and cooperative communication environment" (p. 267). While much instructional research has focused upon the relationships between instructors and their students, as well as the effect that such relationships may have upon learning (e.g., Nussbaum & Scott, 1980; Frymier & Houser, 2000), Dwyer and colleagues were among the first communication

scholars to look specifically at the importance of student perceptions of rapport with other students. The language of "climate" was adopted by Dwyer at al. (2004), along with a foundation of climate literature both in the broader communication literature (e.g., Gibb, 1960), as well as literature addressing classroom contexts (e.g., Hays, 1970; Hall & Sandler, 1982; Nadler & Nadler, 1990).

Classroom climate is a significant variable to the instructional context and one that is influenced by a variety of factors. Instructors may positively or negatively influence student-to-student connection in classrooms by exhibiting desirable or undesirable teaching behaviors. For instance, Johnson (2013) notes that students "may develop a strong sense of classroom community based on shared *dislike* of a teacher" (p. 153). Sidelinger and Booth-Butterfield (2010) echo the importance of instructors and students when they describe classroom connectedness as a "co-constructed" phenomenon (p. 165). Regardless of how such connections are formed, classroom connectedness has been linked to a number of desirable education outcomes, including: affective learning (Johnson, 2009; Prisbell, Dwyer, Carlson, Bingham, & Cruz, 2009), cognitive learning (Frisby & Martin, 2010; Prisbell, et al., 2009), rapport with instructors and other students (Frisby & Martin, 2010), in-class participation (Sidelinger & Booth-Butterfield, 2010), assimilation (Sollitto, Johnson, & Myers, 2013), and reduced public speaking apprehension (Carlson, et al., 2006).

In regard to educational settings, cell phone use within the classroom has been said to diminish "the potential to develop and sustain meaningful classroom connections" (Tatum, Olson, & Frey, 2018, p. 1). This claim is in line with interpersonal research that shows "the presence of cell phones in interactional contexts appears to create a situation

that is inherently face-threatening to both positive and negative face" (Millter-Ott & Kelly, 2017, p. 202). Perhaps the most powerful testament to the ability of technology to inhibit connectedness comes from Przybylski and Weinstein (2013), who found in a pair of experiments that the "mere presence" of technology in interpersonal contexts reduced the establishment of trust and closeness, as well as perceived levels of empathy and understanding among conversation partners.

Thus, classroom relationships are best understood as a complex phenomenon with relevance to variables such as rapport and connectedness, as well as the goals of both students and instructors. The presence of technology in the classroom, and accompanying interpersonal behaviors such as phubbing, complicate the associations between the above variables, as well as instructor-student and student-student relationships as a whole. In order to better understand how these factors interact with relevance to relationships, several research questions and hypotheses are posed in this dissertation.

It is important to establish student usage behaviors of mobile technology before exploring the influence of technology upon classroom relationships. While previous research has provided data about how students use technology (e.g., Lee, et al., 2014), mobile technology changes rapidly, as do the usage patterns of the individuals who employ it. Thus, as long as technological hardware and software continues to swiftly evolve, so too must its usage be continually investigated. Thus, the following research question is asked:

RQ1: How and to what extent do college students interact with mobile technology?

Although instructional research has already seen evidence of how technology affects rhetorical goals (e.g., Kuznekoff & Titsworth, 2013; Kuznekoff, Munz, & Titsworth, 2015), little is known about how technology may influence relationships between students and their classmates, as well as between students and instructors. A rapidly growing body of literature examining interpersonal communication suggests that technology may have detrimental effects upon the establishment and development of relationships (e.g., Kelly, Miller, Ott, & Duran, 2017; Przybylski & Weinstein, 2013), a reality with potential parallels in the face-to-face classroom. Therefore, the following question was asked:

RQ2: How does mobile technology use relate to students' classroom relationships with peers and instructors?

Based upon the detrimental effects associated with phubbing found within the interpersonal literature (Miller-Ott & Kelly, 2017; Kelly et al., 2017), it seems likely that negative effects from phubbing may also emerge in the classroom. Further, it is reasonable to assume that the perception of being phubbed is, in essence, a perception of an interpersonal "disconnect." Therefore, the following hypothesis is presented:

H1: Higher perceptions of being phubbed will negatively correlate with classroom connectedness.

Just as the perception of being phubbed is likely to affect classroom variables, so too does the actual exhibition of phubbing behaviors. That is to say, it is not just the *phubee* whose classroom experience is altered, but the *phubber* as well. Research has already demonstrated this reality in regard to learning outcomes, noting that attention paid to mobile devices reduces available attention to course material (Kuznekoff &

Titsworth, 2015). Further, some research has already revealed detriments to perceived connectedness among students who text during class (Johnson, 2013). Thus, the following hypothesis is posed:

H2: Students who exhibit phubbing behaviors will report lower perceptions of classroom connectedness and instructor rapport.

Goldman and colleagues (2016) found students prioritized rhetorical goals in their study, but they noted that this preference may differ in smaller courses, as such courses allow for closer connections between individuals. When considering what relevance technology may have upon relationships in the basic communication course, it is important to determine the importance students place upon relationships within such a small and introductory course. Because this preference has not been explored in small courses, a research question was posed:

RQ3: How do college students prioritize rhetorical or relational goals in the basic communication course?

While there is useful extant research regarding *how* students utilize technology in the classroom, much less study has been devoted to *why* students elect to use technology. Guided by rhetorical and relational goals theory (Mottet, Frymier, & Beebe, 2006), this dissertation seeks to determine whether variations in student goals may correlate with certain technology usage behaviors. This endeavor is in line with Johnson (2013), who notes that "student predispositions" may influence their propensity to use technology, and that "it is useful to understand how those who do not text in class differ from those who do" (p. 61). Thus, the following research question is posed:

RQ4: What are the differences between rhetorically and relationally oriented students regarding their in-class mobile technology usage?

Chapter 2 presented literature related to the classroom variables of perceived instructor rapport and student-to-student connectedness. These variables were considered in light of the growing role of technology within the classroom. Furthermore, the interpersonal construct of phubbing was explored as a potentially relevant phenomenon in regard to classroom relationships. All of the above constructs were viewed through the theoretical lens of Mottet, Frymier, & Beebe's (2006) rhetorical and relational goals theory. In order to answer the research questions and test the corresponding hypotheses posed in this dissertation, a survey approach gathering both quantitative and qualitative data was used. This methodological approach is explained in detail in the following chapter.

Chapter 3: Methodology

There is little research on how technology affects the development of relationships in the classroom. Thus, this dissertation represents a novel foray into a previously underexplored area. Given strengths of both qualitative and quantitative methodologies, I utilized a mixed-methods approach in this dissertation. As Johnson and Onwuegbuzie (2004) note, each approach offers a particular benefit to the researcher, and in the case of this dissertation, each method is necessary to fully answer the research questions and test the hypotheses.

Participant Recruitment

After attaining institutional review board (IRB) approval, recruitment began during the third week of the semester and concluded at early in the fifth week of the semester. While research measuring constructs like classroom connectedness is often conducted later in the semester, this decision answered Dwyer et al.'s (2004) call to investigate whether "perceptions of connectedness can be fostered early in a classroom semester" (p. 270). While the time period in which data collection began was in the early portion of the semester, the survey did not open to students until after the completion of a self-introduction speech. This timing allowed for a greater likelihood that survey questions like "The students in my class are supportive of one another" could be accurately evaluated. Moreover, previous research has called for the investigation of rhetorical and relational goals in small classes (Goldman, et al., 2016), and given the importance of the basic communication course (Beebe, 2013) which is typically delivered in a small course format (Morreale, et al., 2010), all participants were students currently enrolled in the basic communication course at a large university located in the

southeastern United States. The study was listed within the research subjects recruitment website at the principal investigator's school. As part of the basic communication course requirement, students are obligated to participate in three studies from a research website, or complete alternative assignments; this study, and an accompanying alternate assignment (that took approximately the same time to complete as the study) were listed as options for students. As research participation is a requirement of the basic communication course in the university at which the research was conducted, students who completed this study received 1 course credit (of three required) for completing this study or the alternate assignment.

Participants

Based on a G*Power analysis, a minimum of 138 student participants were needed to answer the research questions. Initially, 260 participants completed the survey. Before testing hypotheses and answering research questions, data cleaning, recoding, and preliminary analyses were conducted. First, some responses were deleted ($n = 4$) as they answered less 25% of the survey. Second, one participant's gender response was deleted due to their contradiction of their indicated gender in the "Other" response field (the participant used the space to express their view that there is not an "Other" gender). Third, responses where students indicated hours and minutes of screen time activity were cleaned and ranges outside possible answers were deleted (i.e., hours above 24, or minutes above 59). Finally, all scales were analyzed for normality of distribution and skewness and kurtosis values for each were found to be within acceptable ranges. Thus, after data cleaning, the total sample for the majority of analyses in this dissertation was $N = 256$. Finally, as the section of the survey addressing rhetorical and relational goals

asked that students allocate 21 hypothetical dollars to the various instructor attributes (further rationalization for this specific methodology is discussed below), sums above or below 21 were deleted, leaving a total of 208 valid responses for the portion of the survey.

Participants ($N = 256$) included females ($n = 168$; 65.9%), males ($n = 85$; 33.3%), and other ($n = 2$; .80%); see the above paragraph for discussion of the data cleaning protocol in regard to gender. Ages of the sample participants ranged from 18 to 33 ($M = 18.42$, $SD = 1.21$). Participants identified as Caucasian ($n = 212$; 82.8%), African American ($n = 17$; 6.6%), Asian ($n = 14$; 5.5%), Hispanic ($n = 6$; 2.3%), and "Other" ($n = 7$; 2.7%). Participants defined themselves as first-year students ($n = 215$; 84%), sophomores ($n = 23$; 9%), juniors ($n = 13$, 5.1%), and seniors ($n = 5$; 2%). Finally, participants represented over 50 unique majors on campus. Of the sample, all of the students indicated owning a smartphone ($n = 256$; 100%), and all indicated that they brought it with them to class ($n = 256$; 100%). Lastly, most students ($n = 159$; 62.1%) indicated that they did not know any of their classmates prior to the start of the course, and the overwhelming majority did not know their instructor prior to the first day ($n = 247$; 96.5%).

Procedures

Once participants volunteered to participate in the study, they followed a link to a survey hosted on Qualtrics (See Appendix A). Before beginning the survey, students were asked to verify their age and enrollment in the basic communication course. Students who were not over the age of 18 or not currently enrolled in the basic communication course were excluded from participation. Eligible participants then

provided basic demographic information (gender, year in school, race, and academic major), and whether or not they owned a phone or knew others in their classroom prior to attending on the first day. Participants were then presented with the following measures and questions in this order: Goldman et al.'s rhetorical and relational goals scale, Frisby and Myer's (2008) instructor rapport scale, Dwyer et al.'s (2004) connected classroom climate scale, Chotpitayasunondh and Douglas' (2018) generic scale of being phubbed and their generic scale of phubbing, Walsh et al.'s (2010) mobile phone involvement questionnaire, a modified version of Billieux et al.'s (2008) problematic mobile phone usage questionnaire, a series of open-ended questions regarding phone usage before and during class, and a series of questions that ask students to report their phone's measurement of notifications and app usage.

Instrumentation

Rhetorical and relational goals. To establish the goal orientation of students, Goldman and colleague's (2016) operationalization of rhetorical and relational goals theory was partially replicated. Keeping with Mottet, Frymier, & Beebe's (2006) caution that goals cannot be inferred from behaviors, Goldman et al.'s (2016) scale asks students to self-report which attributes they would prioritize in a hypothetical ideal instructor. Goldman et al. describe selecting five of the most widely researched rhetorical behaviors, and five relational behaviors that are similarly dominant in the literature. The five rhetorical attributes are: assertive, responsive, clear, relevant, and competent; the five relational behaviors are: trustworthy, caring, immediate, humorous, and discloses. Goldman et al. (2016) adopt a "budget" approach, where students were asked to "spend" a certain amount on each characteristic in both a modest and luxury budget scenario,

where students were allotted $20 and $60 respectively. This unique method was chosen because it requires students "to compare and, importantly, make tradeoffs between different teacher qualities" (Senko, Belmonte, & Yakhkind, 2012, p. 423).

While Goldman et al. (2016) were interested in comparing differences with student prioritizations in each of the respective budget allotments, for purposes of simplification and concision in this dissertation, a single budget was utilized with a similar amount to Goldman et al.'s "modest" budget. One minor modification to Goldman et al.'s instrument here was the change from a $20 budget to a $21 budget. While this amount is close to the modest budget employed by Goldman and colleagues it is odd-numbered to ensure student's spending was never equally distributed across rhetorical and relational behaviors. This method allowed for students to be categorized as prioritizing either rhetorical or relational goals with instructors for a more direct response to RQ3 and RQ4.

Rapport. To measure instructor and student relationships, Frisby and Myer's (2008) 11-item rapport scale was used. This scale modified items from Gremler and Gwinner's (2000) measure of rapport in customer-employee relationships in order to reflect the instructor-student relationship. The modified scale is two-dimensional, with six-items devoted to measuring "enjoyable interaction" and the remaining five measuring "personal connection" (Frisby & Myers, 2008, p. 29). In this study, and following previous rapport research (Frisby et al., 2016), the total was summed and used to treat and analyze the scale as unidimensional. The scale features items such as "In thinking about my relationship with my instructor, I enjoy interacting with them," and "I am comfortable interacting with my instructor." Participants respond on a 7-point Likert type

scale with response options ranging between (1) "strongly disagree" and (7) "strongly agree". In previous studies the scale has shown reliability values as high as .96 (Frisby and Martin, 2010). In this study, the scale was reliable (α = .95, range = 25-77, M = 60.10, SD = 10.08).

Classroom connectedness. To measure student relationships with other students in their section of the basic communication course, Dwyer et al.'s (2004) connected classroom climate (CCC) scale was selected. The 18-item, unidimensional, CCC asks students to respond to questions like "I feel a strong bond with my classmates," and "The students in my class engage in small talk with one another," via a 5-point Likert scale with response options ranging between (1) "strongly disagree" and (5) "strongly agree." In previous studies this scale has been found to highly reliable, in the range of .93 (Sidelinger & Booth-Butterfield, 2010) and .94 (Dwyer et al., 2004). For this study, Johnson's (2009) 13-item version of the scale was utilized, which removes 5 high-inference items; the shortened version was previously found to be reliable: α = .90. In this study, the scale was also reliable (α = .93, range = 26-65, M = 52.95, SD = 7.04).

Being phubbed. In order to assess the degree to which participants felt they were being phubbed in their section of the basic communication course, Chotpitayasunondh and Douglas (2018) generic scale of being phubbed was utilized (GSBP). The generic scale of being phubbed is a 22-item, multidimensional measure of the phenomenon of feeling phubbed. The GSBP asks participants to rate the frequency with which they experience a variety of feelings and observations relevant to phubbing on a 7-point scale, with responses ranging from (1) "never" to (7) always." Only the 8-item "feeling ignored" dimension of the GSBP was utilized here. Items of the sub-scale include

"Others would rather pay attention to their phones than talk to me," and "Others shift their attention from me to their phones." In the original GSBP study, the feeling ignored sub-scale was determined to have a reliability coefficient of .94 (Chotpitayasunondh & Douglas, 2018). In this study, the sub-scale was reliable (α = .95, range = 8-56, M = 27.88, SD = 9.71).

      Phubbing. To determine the degree to which participants displayed phubbing behaviors in their section of the basic communication course, Chotpitayasunondh and Douglas (2018) generic scale of phubbing was utilized (GSP). The generic scale of pubbing is a 15-item, multidimensional measure of phone usage behaviors. The GSP asks participants to rate the frequency with which they exhibit various behaviors on a 7-point scale, with responses ranging from (1) "never" to (7) "always." Only the 4-item "self-isolation" dimension of the GSP was used for this study. Behaviors measured within the sub-scale include "I would rather pay attention to my phone than talk to others," and "I get rid of stress by ignoring others and paying attention to my phone instead." In the original GSP study, the self-isolation sub-scale was found to have a reliability coefficient of .85 (Chotpitayasunondh & Douglas, 2018). In this study, the sub-scale was reliable (α = .89, range = 8-32, M =15.00, SD = 4.56).

      Mobile phone involvement. Two separate scales were used to measure general student habits regarding phone usage, both in general and in class. First, Walsh et al.'s (2010) 8-item, unidimensional, mobile phone involvement questionnaire (MPIQ) was employed to establish general student phone usage patterns. The MPIQ asks participants to rank on a 7-point Likert scale agreement with statements like, "I interrupt whatever else I am doing when I am contacted on my mobile phone," assigning values ranging

from (1) "strongly disagree" to (7) "strongly agree." Initial reliability analysis revealed the MPIQ to have an acceptable reliability coefficient of .78 (Walsh et al., 2010). In this study, the scale was reliable ($\alpha = .84$, range 8-56, $M = 30.00$, $SD = 8.91$).

Problematic mobile phone usage. To assess phone usage in class, a modified version of Billieux et al.'s (2008) problematic mobile phone usage questionnaire (PMPUQ) was selected. The PMPUQ is a 4-point Likert type scale and respondents in this study were asked to select options ranging from (1) "strongly disagree" to (4) "strongly agree." This study only utilized the "Dependence" subscale, a subscale with a reliability coefficient of .85 (Billieux et al., 2008). For the sake of concision this study utilized Lopez-Fernandez et al.'s (2017) shortened 5-item version of the sub-scale which had previous reliabilities ranging from .76 to .88 and retains the following items: "It is easy for me to spend all day not using my mobile phone", "It is hard for me not to us my mobile phone when I feel like it", "I can easily live without my mobile phone", "I feel lost without my mobile phone", and "It is hard for me to turn my mobile phone off". For this study, modifications were made to the shortened dependence sub-scale by simply changing the original context to the classroom environment. For example, "It is easy for me to go the whole day without looking at my phone" became "It is easy for me to go the whole class without looking at my phone." Furthermore, items 1 and 3 of the PMPUQ were reverse-coded. While the original Lopez-Fernandez et al. (2017) scale called for ordering scale response from (1) "strongly agree" (4), to "strongly disagree", the survey used for this study reversed that order to better align with preceding questions in order to avoid participant confusion. Thus, while the Lopez-Fernandez et al. (2017) scale reverse-codes items 2, 4, and 5, items 1 and 3 were reverse coded for this study. After reverse-

coding, the results align with previous research where higher scale score indicate higher mobile phone dependence. In this study, the scale was reliable (α = .81, range = 5-20, M = 9.82, SD = 3.01).

Open-ended qualitative data. Several open-ended questions were asked of students in order to more fully understand their motivations and habits regarding mobile technology usage, both in general and in class, with the hope of understanding how such usage may affect classroom relationships. Students were asked to briefly describe how they use their mobile devices before and during class, how they believe their smartphones affects their relationship with others in their class, and to hypothetically consider how their relationships within their basic communication course instructor and peers might differ if mobile technology did not exist. Within this section of the survey, students were also asked to respond to two single-item frequency scales; each was 6-points, ranging from (1) never to (6) always. The first scale pertained to how frequently students used their devices before the start of their class, while the second asked them to describe how frequently they use their devices for non-instructional purposes during class.

Phone usage **descriptive data.** Finally, as phone usage behaviors rapidly change with the introduction of new applications, devices, and even social norms, descriptive data was gathered from students regarding their specific usage behaviors. As iOS 12 (the most recent iOS operating system available during the data collection period) features relatively sophisticated usage reports, students with iPhones running iOS12 were directed to retrieve and report the following averages from the last 7 days as calculated by their devices: average daily use; their top three most used apps, the number of "pick-ups" per day; the most commonly used app after "pick-ups;" and the app sending the most

notifications (See Figure 3.1 for a representation of how device usage is displayed within

iOS 12).
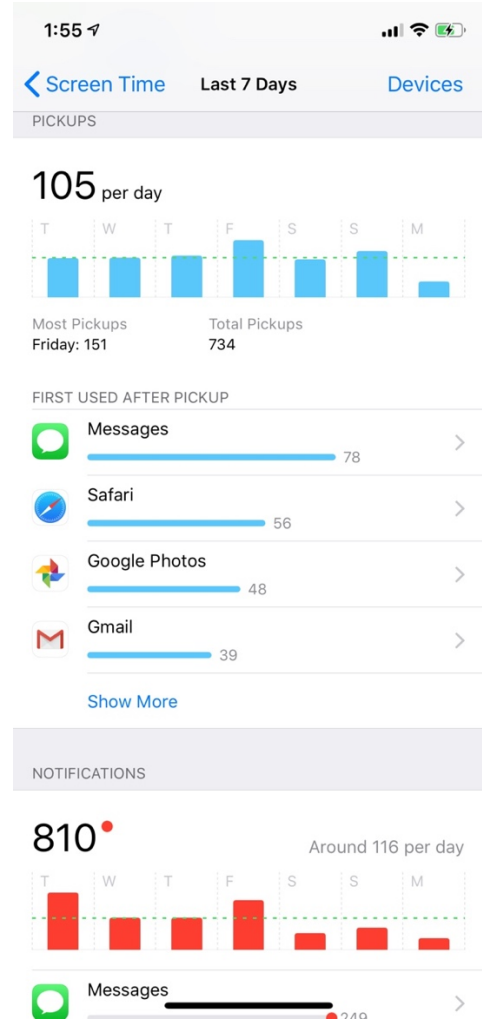
Figure 3.1 - Sample iOS 12 "Screen Time" Report

Data Analysis

First, to answer RQ1 *How and to what extent do college students interact with mobile technology?* results were highlighted from three sources: (a) the mobile phone involvement questionnaire, (b) the dependence subscale of the problematic mobile phone usage questionnaire, and (c) descriptive data from phone usage reports. Specifically, means and standard deviations for the MPIQ and the dependence subscale of the PMPUQ were reported and assessed in light of means from the descriptive data gathered in the final section of the survey.

To answer RQ2 *How does mobile technology use relate to classroom relationships?* and the related H1 and H2, the data were analyzed in two ways. First, student open-ended responses were analyzed using a thematic analysis approach. Following the approach taken by Wang (2014), a method first suggested by Smith (1995), all responses were read twice. The first read-through was devoted to gaining a general overview of the student responses; the second read-through was specifically oriented toward recording noteworthy themes. A theme's salience was evaluated based upon Owen's (1984) criteria of: repetition, recurrence, and forcefulness. Once the list of salient themes was established, a third readthrough was devoted to assigning quotations representing the above criteria to the appropriate thematic heading. I then reviewed the full list of themes organized together with relevant quotations and looked for potential relationships between themes, and considered whether certain themes may be sub-themes. Once this process was competed, I reviewed the list of themes a final time to consider their potential implications in answering my research question.

Once the results were compiled and described by the principal investigator, member-checking was employed, where four members of the participant's community (i.e., undergraduate students that were previously enrolled in the basic course but did not participate in the study) evaluated the findings to see if they rang true with their own experience and understanding of the phenomenon. These participant community members confirmed that the themes were consistent with their own experiences.

Second, correlations were used to explore the relationships between the modified PMPUQ – Dependence and the GSP with classroom connectedness and rapport scales. Third, mean scores for GSBP – Feeling Ignored were compared to mean scores for the CCC to determine if correlations exist between perceptions of being phubbed and perceived classroom climate. Finally, mean scores for the self-isolation sub-scale of GSP were compared to mean scores for the CCC and instructor rapport scales to determine possible correlations between phubbing behaviors and relationships in the basic communication course.

In order to answer RQ3 *How do college students prioritize rhetorical or relational goals in the basic communication course?* results were calculated so that students were categorized as either prioritizing rhetorical or relational attributes in their ideal basic communication course instructor. Additionally, mean scores were calculated in order to determine the highest to lowest priority attributes based upon student responses.

Finally, to answer RQ4, *What are the differences between rhetorically and relationally oriented students regarding their in-class mobile technology usage?* results from Goldman et al.'s instructor budget scale were dichotomized so that students were

categorized as primarily exhibiting either a rhetorical or relational need orientation. An

Analysis of Variance (ANOVA) was then run in order to highlight potential significant

differences between rhetorically and relationally motivated students who were entered as

fixed factor groups and all other scale scores entered as the dependent variables.

Chapter 4: Results

Results from this study were analyzed in accordance with the above analysis protocol in order to answer the research questions and test the hypotheses.

To answer *RQ1: How and to what extent do college students interact with mobile technology?* means and standard deviations were calculated for the MPIQ ($M = 30.00$, $SD = 8.91$; composite $M = 3.75$). Additionally, means and standard deviations were calculated for the PMPUQ – Dependence ($M = 9.82$, $SD = 3.01$; composite $M = 1.96$). Scores for each scale were below those that would indicate self-perceptions of excessive phone involvement or phone dependence. In other words, students' responses to scale items did not indicate a strong perception of dependence upon, or high levels of, involvement with their mobile technology. These scores align with students answer to the supplemental PMPUQ question "Do you feel dependent on your mobile phone?" where a slim majority of students ($n = 127$, 50.6%) indicated that they did not feel dependent, with slightly less ($n = 124$, 49.4%) expressing perceived dependence upon their phone.

To further illuminate the ways and degree to which participants interact with their devices, participants reported their usage frequency, type, and duration. Students ($n = 191$) reported that their device screens were on an average of 4 hours and 52 minutes per day ($SD = 2.54$). Much of this usage was prompted by device notifications, of which students received an average of 182 per day ($SD = 144.25$); most notifications were received from the Snapchat app ($n = 83$). "Pickups" mark the beginning of a new user engagement with one's phone, whether in response to a notification or not, and students on average initiated 164 pickups per day ($SD = 72.78$). Immediately after a pickup, most students indicated engaging with the Snapchat app ($n = 93$). When asked to indicate their most used app students reported using Snapchat ($n = 76$), Instagram ($n = 31$), and

Messages (*n* = 27). When asked to indicate their second most used app students reported using Instagram (*n* = 57), Snapchat (*n* = 43), and Messages (*n* = 30). When asked to indicate their third most used app, students reported using Instagram (*n* = 49), Messages (*n* = 41), and Snapchat (*n* = 21). The type of application used most by students was categorized as "Social Networking" (*n* = 156).

Further descriptive data collected provides additional insight into technology usage habits of students as they relate to the basic communication course. Of note is the fact that 96.4% of student indicated interacting with their devices before class "occasionally," "frequently," "very frequently," or "always." Furthermore, only 15.7% of students reported "never" utilizing technology for non-instructional purposes during class-time in the basic course (See Table 4.1 and Table 4.2 below). Despite scale scores indicating that students expressed relatively little dependence upon, and involvement with, their mobile devices, this descriptive data suggests that mobile technology plays a frequent and important role in the lives of students, both inside and outside the classroom. See Table 4.1 below for student device usage frequency descriptive before the start of class, followed by Table 4.2, which displays how frequently students indicated using devices for non-instructional purposes during class.

Table 4.1: How much (if at all) do you use your phone, laptop, or tablet/iPad
when you are in class before your section of the basic course begins?

		Frequency	Valid Percent
Valid	Never	2	.8
	Rarely	7	2.8
	Occasionally	36	14.2
	Frequently	94	37.0
	Very Frequently	73	28.7
	Always	42	16.5
	Total	254	100.0
Missing	System	2	
Total		256	

Table 4.2: In your section of the basic course, how often would you say that you use your phone, laptop, or tablet/iPad for non-instructional purposes (e.g., texting a friend or shopping) during class time?

		Frequency	Valid Percent
Valid	Never	40	15.7
	Rarely	92	36.2
	Occasionally	77	30.3
	Frequently	22	8.7
	Very Frequently	22	8.7
	Always	1	.4
	Total	254	100.0
Missing	System	2	
Total		256	

To address *RQ2: How does mobile technology use relate to students' classroom relationships with peers and instructors* a thematic analysis of participant's open-ended responses was utilized as well as Pearson's correlations. First, the thematic analysis of open-ended responses revealed three distinct and significant themes, and participants described numerous ways in which technology both supported and hindered the development of relationships with their peers and instructors. Specifically, students described ways that (a) technology aided the development of relationships, (b) ways that technology hindered the development of relationships, and (c) ways that the use or non-use of technology could serve as a cue to other's regarding a student's willingness to communicate.

Technology as a Relational Aid

The first theme was named "technology as a relational aid," and categorizes comments where students described the way technology helped to connect them with others in the basic course, both inside and outside of class. Students identified technology as a way to facilitate communication with their peers and instructors, particularly, outside of class. Students described creating GroupMe groups, group text-message threads, and even using Snapchat to discuss class matters and assignments with their peers. One student remarked, "Whenever we got assigned our Service Learning groups, my group immediately made a GroupMe so that we could all stay in touch and ask each other questions." Another student struggled to imagine maintaining productive group relationships without the aid of technology, noting they would likely feel "very disconnected and unorganized." Another student echoed the feeling of connection with others provided by technology, stating that it "Enhances my sense of community…"

Finally, some students spoke of the *ease* with which technology facilitated the establishment and maintenance of relationships with others in the class, especially group members.

While some students spoke of the ways technology facilitated relationships out of class with other students, others discussed how it connected them with their instructors: "I have emailed my professor and been able to build a relationship with him without having to stay after class and be late to my next class or interrupt class." One student cited the convenience that technology afforded for communication with instructors, noting they could send an email "whenever" they had a question. Another student noted how technology facilitated more private student-instructor interactions, noting that they could speak with their instructor "without having to say it in front of the class."

Although most discussion of technology as a relational aid centered around its ability to facilitate connections outside of class, some students noted instances where it created positive in-class experiences. Students described being "able to quickly look up information about an assignment or a specific topic to answer questions of my peers" or "[sharing] a device to look at or work on an assignment." Other experiences were more obviously relational, and some students discussed bonding thanks to a shared photo or piece of media. One student remarked regarding their technology, "It can be a conversation starter like 'hey have you seen this funny pic' or I've talked about my sports and pulled up videos of me to show others who are interested." One student even described the way that the customization of a piece of technology can facilitate initial interactions between students: "Sometimes people see the back of [a] laptop which has stickers, and that's a good ice breaker."

Technology as a Relational Hindrance

The second theme was named "technology as a relational hindrance" and reflects comments from students who discussed the ways technology negatively impacted relationships. Students described uses of technology that either intentionally or unintentionally hindered the development of relationships with others in their section of the basic course, particularly before the start of class time, or during "down-time" in the class. One student reported, "Before class, sometimes instead of chatting face-to-face, I tend to chat with my friends back home." The previous response that was echoed in the remarks of other respondents: "Before class I don't talk to others much because I am on my phone," "A lot of people tend to be on their phones before class starts," and "Before class, I think that [my technology] affects my relationship with students because it keeps me from engaging in face-to-face verbal discussion."

Students perceived some negative effects of technology upon their relationship with their instructors. Many described instructional policies that inhibited technology usage during class time and discussed their attempts at abiding by such policies: "I do not believe it affects my relationship with my peers. I believe it is disrespectful to the instructor however, and therefore try to limit my use in class."

Although some students described attempting to limit technology usage during class, other participants spoke of the "distraction" of technology in the classroom, with one remarking, "It distracted me from paying attention to the professor's instruction." Another student described their semi-successful attempt at curtailing phone usage during class: "Snapchat has distracted me, but I keep my phone on 'Do Not Disturb.'"

51

Finally, several students reported no perceived negative effects of technology upon their development of relationships in the basic course, with one student clearly stating, "I have never felt that my use of technology has hindered my ability to interact with instructors or classmates."

Technology as a Relational Cue

The third theme was entitled "technology as a relational cue" and categorizes the ways in which technology usage was perceived to function as a cue to others regarding the willingness to converse or otherwise have in-class relational interactions. One student described how technology can function in this way, "I think it is a barrier to communicating with others. If I see someone on their phone or laptop, that is a cue for me not to bother them or distract them." The above sentiment was echoed by other students who noted receiving such messages because of the use of technology; one student stated, "I may not introduce myself to people if they seem preoccupied with their phone."

While some students described receiving messages regarding social availability based upon the technology use of others, other students described unintentionally sending such messages. One student described an awareness that when they utilized technology in the absence of face-to-face conversations, such usage could "possibly prevent future conversations from happening." Another student echoed the above remark, "Using my phone/tablet before class could eliminate these chances of getting small talk with classmates I've never talked to." Another student noted, "I feel like because I'm on my phone before class, nobody makes an effort to talk to me."

Finally, some students described using technology as a way to intentionally experience or project less social awkwardness during the pre-class period, "I'm not much of a social person, so I use it to keep from awkwardly sitting there before class starts." Another student stated, "Before class I will sometimes intentionally check out so that I don't have to fully communicate with people."

Overall, participant responses regarding the role of technology and classroom relationships paradoxically describe technology as an aid to the maintenance of relationships outside of class time, but largely a detriment to the formation of relationships within the classroom.

In addition to qualitative analysis, Pearson's Correlations were used to explore *RQ2 How does mobile technology use relate to students' classroom relationships with peers and instructors?* Results of the Pearson's Correlations revealed no significant relationships between the PMPUQ – Dependence and means for instructor rapport ($r = -.109$, $p = .087$) or the PMPUQ – Dependence and connected classroom climate ($r = -.042$, $p = .507$). However, there was a significant negative correlation between the generic scale of being phubbed and student perceptions of a connected classroom environment ($r = -.166$, $p = .008$), but not with instructor rapport ($r = -.017$, $p = .782$). Finally, the generic scale of phubbing was negatively correlated with perception of a connected classroom environment ($r = -.208$, $p = .001$), but not with instructor rapport ($r = -.108$, $p = .087$). Thus, the results here indicate that generally, while certain phone usage behaviors correlate with reductions in connectedness with peers, the same behaviors do not correlate with reductions in rapport with instructors. This result aligns with student qualitative responses, where more examples were provided for ways that

phones and other mobile technology hindered relationships with peers than with instructors of the basic course. Further, many students described ways they intentionally curtailed their phone usage so as not to damage their rhetorical or relational goals with their instructors.

Pearson's Correlations were also used to test *H1: Higher perceptions of being phubbed will negatively correlate with classroom connectedness.* Given the significant negative correlation between the generic scale of being phubbed and the connected classroom climate scale (r = -.166, p = .008), this hypothesis was supported. In other words, higher perceptions of being phubbed correlate with lower perceptions of classroom connectedness.

Pearson's Correlations were also used to examine *H2: Students who exhibit phubbing behaviors will report lower perceptions of classroom connectedness and instructor rapport.* While the generic scale of phubbing did not correlate significantly with the instructor rapport scale (r = -.108, p = .087), the generic scale of phubbing did significantly and negatively correlate with the connected classroom climate scale (r = -.208, p = .001); thus, H2 was partially supported. That is, students who exhibited more phubbing behaviors did not differ in their perceptions instructor rapport, but perceived lower levels of classroom connectedness. See table 4.3 for the full Pearson's correlation matrix.

Table 4.3: Pearson Correlation Matrix (All Participants)

Variables	α	*M*	1	2	3	4	5	6
1. Rapport	.95	60.10	–					
2. CCC	.93	52.95	.544**	–				
3. MPIQ	.84	30.00	-.011	-.030	–			
4. PMPUQ	.81	9.82	-.109	-.042	.426**	–		
5. GSP	.89	15.00	-.108	-.208**	.444*	.271**	–	
6. GSBP	.95	27.88	-.017	-.166**	.238**	-.010	.432**	–

*p<.05. **p<.01.

RQ3 asked *"How do college students prioritize rhetorical or relational goals in the basic communication course?"* As was described above, budget allocations for instructor rhetorical and relational attributes were totaled, and when sums were above or below 21, all scores were deleted, leaving a total of $n = 208$ valid responses for this portion of the survey. Once the valid responses were identified, results from the instructor budget scale were dichotomized into two groups: students who allocated most of their budget to instructor rhetorical attributes, and students who allocated most of their budget to instructor relational attributes. Overall, like the students in Goldman and colleagues' (2016) study, most students allocated the majority of their budget to rhetorical behaviors ($n = 122$, 58.7%) with fewer students electing to spend their budget primarily on relational behaviors ($n = 86$, 41.3%). Students spent $M = \$11.14$ (53.05%) of their budget on rhetorical behaviors and $M = \$9.86$ (46.96%) on relational behaviors. Students spent the most on the rhetorical attributes of "clear" ($\$597$, $M = \$2.87$, 13.67%) and "competent" ($\$586$, $M = \$2.82$, 13.42%), followed by the relational attribute of "caring" ($\$561$, $M = \$2.70$, 12.85%), the rhetorical attributes of and "responsive" ($\$521$, $M = \$2.50$, 11.39%), the relational attribute of "trustworthy" ($\$453$, $M = \$2.18$, 10.37%), the rhetorical attribute "relevant" ($\$425$, $M = \$2.04$, 9.73%), the relational attributes of "immediate" ($\$408$, $M = \$1.96$, 9.34%) and "humorous" ($\$379$, $M = \$1.82$, 8.68%) and "discloses" ($\$250$, $M = \$1.20$, 5.72%), and the rhetorical attribute of "assertive" ($\$188$, $M = \$.90$, 4.30%). The above results present a relatively nuanced answer to RQ3. Although most students spent the majority of the attribute budget on rhetorical qualities, the overall amount of money spent on rhetorical attributes only narrowly exceeds those spend on relational qualities. Further, the relational quality of "caring" ranks higher than three of

56

the five rhetorical qualities. Thus, while college students in the basic course generally

prioritize rhetorical instructor attributes above relational ones, they also place a high

value on many relational instructor attributes as well. See Table 4.4 for totals, means, and

percentage of student spending upon instructor attributes.

Table 4.4: Instructor attribute budget spending by students.

	Total Spent	Mean Spent	Percent of Budget
1. Clear [Rhetorical]	$597	$2.87	13.67%
2. Competent [Rhetorical]	$586	$2.82	13.42%
3. Caring [Relational]	$561	$2.70	12.85%
4. Responsive [Rhetorical]	$521	$2.50	11.39%
5. Trustworthy [Relational]	$453	$2.18	10.37%
6. Relevant [Rhetorical]	$425	$2.04	9.73%
7. Immediate [Relational]	$408	$1.96	9.34%
8. Humorous [Relational]	$379	$1.82	8.68%
9. Discloses [Relational]	$250	$1.20	5.72%
10. Assertive [Rhetorical]	$188	$.90	4.30%

Finally, to answer *RQ4: What are the differences between rhetorically and relationally oriented students regarding their in-class mobile technology usage?* a one-way ANOVA was employed that revealed only one significant difference. Specifically, rhetorically and relationally oriented students were significantly different in their perception of classroom connectedness, [F (1, 206) = 1.726, p = .017, η^2 = .219, power = .989.] with rhetorically oriented students perceiving less classroom connectedness (*M* = 52.07, *SD* = 6.61) than relationally oriented students (*M* = 54.01, *SD* = 6.37). There were no other significant differences between rhetorically and relationally oriented students. Thus, while relationally oriented students perceived significantly more classroom connectedness, rhetorically and relationally oriented students did not significantly differ in their perception of instructor rapport, their phone usage tendencies, or the phone usage tendencies of others. See Table 4.5 for all ANOVA results.

Table 4.5: One- way ANOVA – Rhetorically vs. Relationally Oriented Students

		Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared	Observed Power
Rapport	Corrected Model	7.616	39	.195	.765	.837	.151	.766
CCC	Corrected Model	11.069	29	.382	1.726	.017	.219	.989
MPIQ	Corrected Model	9.941	40	.249	1.022	.446	.200	.911
PMPUQ	Corrected Model	2.934	13	.226	.921	.532	.060	.551
GSP	Corrected Model	5.087	19	.268	1.107	.347	.103	.770
GSBP	Corrected Model	10.138	38	.267	1.119	.309	.201	.935

Post Hoc Analysis

Given that previous research (e.g., Billieux et al., 2008; Lopez-Fernandez et al., 2017) has reported significant sex-differences in reported phone usage, separate partial correlations were used to control for sex differences. Of note is the fact that while men did not significantly differ in their perceptions of classroom climate based on their perceptions of being phubbed, women did. Specifically, women who reported greater instances of being phubbed showed a significant negative correlation with classroom connectedness ($r = -.165$, $p = .032$). See Table 4.6 below for Pearson's correlations with grouped by sex.

Table 4.6 Pearson Correlation Matrix (Males below diagonal, females above))

Variables	1	2	3	4	5	6
1. Rapport	-	.515**	-.064	-.127	-.088	-.038
2. CCC	.563**	-	-.092	-.056	-.209*	-.165*
3. MPIQ	.107	.054	-	.398**	.509**	.258**
4. PMPUQ	-.039	-.001	.488**	-	.287**	-.092
5. GSP	-.182	-.232*	.317**	.233*	-	.437**
6. GSBP	.000	-.189	.218*	.180	.419**	-

*p<.05. **p<.01.

In this chapter quantitative and qualitative results were provided and analyzed regarding how students in the basic course use mobile technology and how such usage correlates with perceptions of instructor rapport and classroom connectedness. Further, student perceptions of their peer's device usage was reported and analyzed with particular attention to correlations with rapport and classroom connectedness. Finally, results of student prioritization of rhetorical vs. relational instructor attributes were presented and compared to mean scores for scales examining perceptions of classroom relationships as well as perceptions of the phone usage of others. To further elucidate these results, the following chapter will evaluate their connection to related literature, their theoretical significance, and their practical importance. Finally, limitations of this dissertation will be discussed, as well as suggested directions for future research.

Chapter 5: Discussion

This dissertation provided preliminary insights into the relational implications of the growing presence of mobile technology within the basic communication course. Through analysis of the qualitative and quantitative data above, as well as the guidance of the theoretical lens of rhetorical and relational goals theory, a clearer picture of the impact of technology upon classroom relationships has developed. This chapter describes the implications of the results, both theoretical and practical. Further, ways in which this study was limited are discussed below, as well as recommended directions for future research. Finally, in light of all of the above, concluding thoughts are offered.

Student Mobile Technology Usage

Although there are no commonly accepted standards in place for what constitutes "healthy" or "normal" amounts of phone usage among college populations, students at least generally perceived their usage to be within acceptable levels; this fact is supported by scale means for both the PMPUQ and MPIQ. This result is further illuminated by the fact that only an exceedingly slim majority of student respondents indicated that they did not feel "dependent" upon their mobile phones. However, given that participants may be less likely to readily express their perceived dependence than their perceived independence due to factors such as social desirability bias (Fisher, 1993) and superiority bias (Hoorens, 1993), the number of students who actually experience mobile phone dependence may be higher than indicated by their self-reports. This possibility is supported by the fact that 100% of the study population indicated bringing their phone with them to class; while not a "proof" of dependence, this fact is nevertheless aa

significant and objective indication of importance students place upon their mobile phones, and possibly the frequency of their use.

These results can be further understood in light of previous research that showed college students as technology usage pioneers, and "much more likely than the overall cell owner population to use the internet on their mobile phone" (Smith, Rainie, & Zickuhr, 2011). Thus, while college students may be using their phones more than the general population, their usage may be perceived as normal when compared to that of their peers. Further, one should not assume that perceptions of normality among students regarding their own usage are reflected in the perceptions of instructors, who routinely seek to curb technology usage among students (Frey & Tatum, 2017) and sometimes hold views of technology, and student usage of it, that are less than enthusiastic (Fairchild et al., 2016).

Despite their general perception of a lack of phone dependence, phone usage tendencies among the sample revealed sustained, frequent, and socially motivated interaction with mobile technology. Student phone screens were active an average of nearly five hours per day, and phones sent notifications, on average, every eight minutes. To translate, for example, in a 50-minute class, students may receive and potentially respond to about 6 notifications in that single class session. The overwhelming majority of phone usage for students was, on the surface, socially oriented, and of the applications students used most frequently, second most frequently, and third most frequently – all were social. Of the 191 participants who reported iOS screen time usage, 82% indicated a social app was their most used app. Of significance to the basic course is the fact that every participant indicated owning a smartphone and bringing it with them to their class,

65

with a majority indicating that they used their devices for purposes unrelated to class, even during the class session. This result aligns with previous research which describes the "common occurrence" of "students who are physically present, yet mentally preoccupied by non-course-related material on their mobile devices" (Kuznekoff et al., 2015).

Results from this study suggests college students use their phones for primarily social purposes, and they do so often and for relatively long periods of time. This contemporary reality regarding phone usage is interesting, especially given the way that devices like smartphones were originally conceived. Early smartphones were marketed as productivity devices, with famous examples like the Blackberry being adopted heavily by businesspeople who could now handle work matters away from their laptops (e.g., Ripp, 2019). The first iPhone was described rather simply by Steve Jobs as an internet communication device, a phone, and an iPod (Wright, 2015). Although technology like smartphones may have been originally conceived as a mere tool that could aid individuals in things like their work, their evolution and mass adoption has led to devices that come with their own sets of demands and obligations, with Snapchat streaks that must not be broken (Taylor Lorenz, 2017), and numerous "alarm-red" notification icons appearing every hour. It is apparent that students may succumb to these demands and obligations, in some cases at the expense of attention to instruction and interacting with others in the classroom.

It is important to note that despite descriptive data that indicates high levels of social usage among college students, it would be unwise to assume that all such usage is "merely" social. While e-mail may be the standard for professional communication in

many workplaces, other settings employ the same apps that students use: GroupMe, iMessage, and even Snapchat (Mitaru, 2011). Students undoubtedly do sometimes use the above applications for purely social reasons, but open-ended data collected in this study highlights the ways that such apps may also be used for purposes that both facilitate the completion of course-work as well as build relationships with peers and to enhance group dynamics. Students' decisions to use these apps for either rhetorical or relational purposes appears to sometimes be a calculated, rational decision. Rational choice theory is a broad understanding of human decision making with applications to a broad array of environments; it asserts that humans, given multiple options, will calculate factors such as risks and rewards and select the most reasonable choice (Hechter & Kanazawa, 1997). While it is possible that some technology usage among basic course students may be triggered by things such as environmental cues or ritualistic and subconscious impulses (Bernheim & Rangel, 2004; Sundar & Limperos, 2013), student self-reports in this study indicate much of it is conscious and intentional (e.g., "I'm not much of a social person, so I use it to keep from awkwardly sitting there before class starts."), otherwise described as intentional media usage (Rubin, 1984).

Mobile Technology and Classroom Relationships

This study creates a nuanced picture of the complex associations between mobile technology and classroom relationships. Perhaps unsurprising, given that devices like tablets, laptops, and phones serve as communication mediation devices, is the fact that students described numerous ways they increased connections with other students and instructors beyond the classroom context. This finding aligns with previous research which describes widespread usage of out-of-class communication (Brooks & Young,

67

2016; Duran et al., 2005; Stephens et al., 2009), and the potentially positive effects of such communication (Martin, et al., 2017; Tatum, Martin, & Kemper, 2018). In this study, technology was believed by students to create an enhanced sense of both community and connectivity, and many examples were offered by students in support of the ways that technology facilitated staying in touch with friends outside of class, as well as their classmates and instructors in the basic course.

That same constant connectivity, however, was also revealed to be a detriment to students, many of whom described forsaking face-to-face conversations in class for some type of technological engagement. While some of this usage was rhetorical in orientation (i.e., centered around classwork), much of it was relational (e.g., "Before class, sometimes instead of chatting face-to-face, I tend to chat with my friends back home.") These results echo previous research that show smartphones to be effective in relationship preservation and maintenance, but less effective in new relationship formation (Park & Lee, 2012). The fact that some respondents in this study indicated turning to their technology instead of their peers in the basic course is especially salient given the data collection period and population: students in the first few weeks of the semester, most of whom were in their first semester of college. Given the importance early relational interactions in the face-to-face classroom (Sunnafrank & Ramirez, 2004; Horan & Houser, 2012), students appear to be missing an important opportunity to form relationships with peers. Previous research has shown correlations between high levels of social shyness and high levels of loneliness (Mounts, Valentiner, Anderson, & Boswell, 2006). Further, students who indicate positive changes in their sense of university belonging over the course of their first year in college also are more likely to report

increased perceptions of academic competence and self-worth, along with decreases in in their internalization of problematic behaviors (Pittman & Richmond, 2008). Thus, relationship formation early in one's college experience is important, and partially threatened by certain technology usage behaviors.

Of course, numerous students explicitly indicated no perceived effect of technology upon relationships in the basic course. Considering extant research into the negative interpersonal effects of phubbing, this may be a perception not fully based in reality (e.g., Millter-Ott & Kelly, 2017), but is nevertheless noteworthy.

Among the most interesting findings from participant open-ended response was the way that technology usage was employed as a cue or message to others in the classroom. In this sense, the act of using one's phone, laptop, or tablet prior to the start of class was perceived as being symbolic for a desire not to communicate with those occupying the physical space of the basic course (Aksan, Kısac, Aydın, & Demirbuken, 2009). Thus, the student texting "friends back home" is also sending a simultaneous nonverbal message to her classmates that she does not wish to be bothered. Further, sustained usage of one's device may lack the signals present in conversational turn-taking cues which are exhibited by speakers to show the conclusion of their own remarks and the opportunity for others to interject (Duncan, 1972; Wiemann & Knapp, 1975). Given that some social media applications employ virtually "infinite" and uninterrupted content delivery (Stinson, 2017), pauses in usage are less likely, as are subsequent opportunities for conversational interjection (Wiemann & Knapp, 1975).

Phubbing and its Effects on Relationships

As predicted, students who felt that others phubbed them frequently also indicated significantly lower levels of classroom connectedness. This finding may be explained in several ways. First, phubbing may prevent students from experiencing the feelings of support, understanding, and encouragement associated with classroom connectedness, and has clear implications for elements of the connected classroom climate scale such as "the students in my class engage in small talk with one another" (Johnson, 2009, p. 152). Of particular salience to a public speaking focused basic communication course, may be the effects of phubbing that may occur while a student is speaking. If one's classmates are on their mobile devices during a peer's speech, perceptions of connectedness may be damaged further, particularly in regard to connected elements of "support" and displaying "interest in what one another is saying" (Johnson, 2009, p. 152). This possibility is supported by an apparent instructor awareness of the detrimental effects of phubbing during student speeches; as one student remarked in their open-ended response, "There aren't super strict classroom policies on technology usage except when someone is speaking." Another student noted their habit of keeping their devices put away "while the teacher is lecturing or when there is a presentation/other students are speaking." Yet, while some students expressed an intentional effort to restrict phubbing during student speeches, this norm was not necessarily universal, and previous research has already demonstrated that disparate understanding of appropriate technological usage exists within the college student population (Campbell, 2006). Thus, one can imagine how phubbing behaviors during speeches (data collection for this speech began after self-introduction speeches) could negatively influence perceptions of connectedness,

especially among students who feel that such usage is a violation of their personal norms (Gonzalez & Wu, 2016).

Second, and a surprising aspect of this result, is that before answering questions related to being phubbed, students were instructed to "take a step back from the basic communication course and please think generally about others' mobile phone use during your face-to-face social interactions with others." Thus, the correlation between students' classroom connectedness and their perception of being phubbed may speak to collateral effects from students' out of class experience. Or in other words, students who frequently *experience* being phubbed in their daily interactions may evaluate classroom connectedness differently than those who are not phubbed as often. Another possibility, and one rooted in the research of Gonzalez and Wu (2016), is that certain individuals generally have a more negative predisposition against certain phone usage behaviors, both in and out of the classroom; that is to say, students who *perceive* higher levels of phubbing in their daily life may perceive higher levels of phubbing in the classroom.

While many students described ways that technology may positively or negatively affect their relationship with the classroom peers, very few described perceived negative effects of technology usage upon their relationship with their instructor. Students considered such usage disrespectful and therefore made conscious efforts to limit technology usage during class, demonstrating what Andersson and Pearson (1999) describe as "civility," or the observance of "norms for respect" in the classroom (p. 454). Given that uncivil behaviors can be broadly described as negative behaviors "disruptive to the teaching and learning process" (Myers et al., 2016, p. 65), students surveyed for this study appeared to respect civility expectations in the college classroom, either due to

their own standards ("[I would] rather pay attention than get distracted.") or instructor expectations ("Dr. [instructor's name] usually wants us to put tech away during class, so I don't really use it that much.") These perceptions and habits among students are supported by the fact that instructor rapport showed no significant correlation with student's exhibition or perception of phubbing behaviors, while classroom connectedness did. Propensities toward mobile phone involvement, problematic mobile phone usage, phubbing, and even perceptions of being phubbed all failed to significantly correlate with instructor rapport; a fact even more surprising given instructor rapport's high correlation with classroom connectedness in this population. While classroom connectedness did not correlate significantly with perceptions of problematic phone usage, it did correlate significantly and negatively both with student perceptions of their own phubbing behaviors as well as their perceptions of being phubbed themselves.

Differing conclusions may be drawn from this result. It may be possible that perceptions of instructor rapport are more resilient to differences in student phubbing behaviors and technology usage. The resilience of instructor rapport could be due to key differences between the student-instructor relationship when compared to the student-student relationship. While the instructor-student relationship is interpersonal in nature (Frymier & Houser, 2000), it remains distinct in many ways (e.g., power differential; (Ledbetter & Finn, 2013; McCroskey & Richmond, 1983; Mottet, Frymier, & Beebe, 2006) from relationships between classroom peers. Another possibility is that environmental and social factors unique to the classroom environment account for this difference. For example, the proximity of students with other students (sitting beside one another) compared to their instructor (at the front of the room) may make instances of

phubbing more pronounced in the former case. Further, while students often seek

relationships with their instructors (Mottet, Frymier, & Beebe, 2006), they likely have

higher relational expectations for their peers. Additionally, while phubbing may utterly

prevent the formation of a relationship with a classmate (e.g., due to receiving the cue

that the student is unreceptive to conversation), instructor communication with students is

likely somewhat unaffected (at least in quantity) by student device usage. Presumably,

instructors will either hold class (therefore, communicating with students) regardless of

student device usage, or will require such usage to cease. It should also be noted that

instructors are likely less prone to phubbing students than students are to phub each other.

While one can imagine a student who might elect to carry out online shopping on their

phone for the duration of class, it is difficult to envisage an instructor standing before a

classroom of expectant students doing the same thing. Further, as is noted above, many

students consciously attempted to limit device usage during class time when their

instructor was speaking. Finally, as is discussed above, it is possible that even in cases

where such usage is not explicitly forbidden through instructor policies, it may be

considered by students to be disrespectful, and therefore something they seek to limit.

When asked whether their instructor had an explicit policy limiting mobile

technology usage in class many students indicated that such a policy was in place

(40.8%), with fewer that were unsure (31.8%), and the fewest stating that their instructor

had no such policy in place (27.5%). Taken together, 72.6% of respondents believed that

their instructors did, or might possibly, have a policy limiting mobile technology usage in

class. Such policies are not uncommon in higher education (Ledbetter & Finn, 2013; Frey

& Tatum, 2017; Rockmore, 2014), especially in light of numerous studies indicating

learning deficits among "connected" students when compared to their peers (Kuznekoff & Titsworth, 2013; Kuznekoff et al., 2015). Recent research has asserted that policies encouraging of instructional usage of technology (when compared to policies forbidding non-instructional use) result in greater perceptions of instructor caring and credibility among students (Frey & Tatum, 2017). Given that many students indicated using their devices for instructional purposes (e.g., "We use our devices to answer our daily warm-up."), it may be inferred that some of the technology polices in participants' sections of the basic course were permissive of instructional usage of devices. In light of the above research, as well as the resilience of instructor rapport in this study, a surprising possibility is that student in-class device usage (if encouraged by their instructors) may have served to preserve or even enhance perceptions of instructor rapport.

Rhetorical and Relational Priorities and Mobile Technology Usage

When asked to prioritize instructor attributes, respondent's answers differed when compared to those of Goldman and colleagues (2016) large-lecture population. While rhetorical attributes were the most important to students in both groups, relational attributes were given a higher priority among the population of this study (students enrolled in smaller classes) compared to Goldman and colleagues' (2016) large-lecture participants. Students in this study allocated a higher percentage of their "budget" to every relational attribute except humor when compared to those enrolled in a large lecture, with instructor caring and immediacy showing appreciably more prioritization among this population. Still, in both populations, rhetorical instructor attributes received more of student's overall budget than relational ones. While clarity was the highest ranked attribute in both populations, it was also the attribute for which there was the

highest disparity in scores between the two groups (dropping nearly 6% in the basic course/small class size population). These differences imply that class size is directly relevant to student's prioritization of needs they would like to have met from their instructors, with larger classes correlating with a higher emphasis on rhetorical student needs, and smaller classes encouraging more relational student needs in comparison. These results are especially interesting in light of research which shows the effects of class size upon factors relevant to relationships; Sidelinger and Booth-Butterfield (2010) reported a significant, inverse relationship between class size and student perceptions of classroom connectedness as well as in-class involvement. Similarly, class size has been found to have an inverse relationship with student propensity to ask questions (Kendrick & Darling, 1990).

Results for this study revealed no significant difference between rhetorically and relationally oriented students, apart from their perceptions of classroom connectedness; relationally motivated students perceived significantly higher levels of classroom connectedness. This result is somewhat surprising considering the method by which students' orientation (rhetorical or relational) was evaluated used *instructors* as the focus, yet the only differences between the two groups of students was not in regard to their perceptions of *instructor* rapport, but instead their perceived connection with their *peers*. On the other hand, this result aligns with what one might expect: students who care more about relational behaviors on the part of their instructors may also notice, and even encourage them among their peers. The "encouragement" of relational behaviors by relationally oriented students may be understood in terms of the fact that "individuals tend to behave in ways that reciprocate the perceived behavior of others" (Titsworth,

McKenna, Mazer, & Quinlan, 2013, p. 204; see also Mehrabian, 1981). Additionally, previous research into classroom behaviors has reported student's propensity to exhibit reciprocity for relationally positive behaviors, such as gratitude (Howells, 2014). Conversely, students who are less relationally oriented may be more likely to exhibit phubbing behaviors in class, with Chotpitayasunondh and Douglas (2016) finding that phubbed individuals are likely to reciprocate the act, resulting in "a vicious circle that may further harm intimacy" (Halpern & Katz, 2017, p. 388).

What is unknown is whether this difference described above is one of perception or of reality. For instance, relationally centric students might merely be more aware of the positive relational behaviors of their peers. Of course, the inverse could also be true: relationally oriented students could also be more sensitive to the negative or non-existent relational behaviors of peers, a scenario which would result in lower levels of perceived classroom connectedness. For the previously described reason it is perhaps safer to assume this difference in classroom connectedness is rooted in reality. In support of this possibility is the open-ended responses of students who indicated modifying their behavior based upon relational preferences. Before class, for instance, some students indicated using their phones as a way to intentionally avoid interaction with others, while other respondents indicated intentionally putting their devices away when others entered the room. In these instances the latter, more relationally oriented student, is likely to have a classroom experience that is more "connected" than the former, less relationally oriented student.

Of course, while the significant result regarding student relational orientation and classroom connectedness is interesting, one must be careful to also consider the lack of

significance between the groups and the technology usage and perception scales employed in this study. RQ4 was specifically focused on whether students differed in the technology usage based upon their rhetorical or relational orientation. While some differences could be inferred from open-ended responses, no significant differences were found regarding dependence upon, or involvement with, mobile technology, nor with perceptions of phubbing or the exhibition of phubbing behaviors.

The most obvious possibility to consider is that these two groups simply do not differ in their usage or perceptions of mobile technology, but the reality may be more complex. For instance, students who are more rhetorically oriented may be less aware of their own phubbing behaviors (and/or those of others), and therefore less likely to report them in this study. Another potentially confounding variable is the social nature of student's technology usage. Rhetorically motivated students may feel less of a draw to their devices during a class session if they are less socially connected than their more relationally oriented counterparts.

Finally, it may merely be the case that students rhetorical or relational orientation toward their instructors does not predict their orientation toward their peers in the classroom or larger social circle. This result, however, may be the least likely given the aforementioned significant perceived differences in classroom connection.

One additional noteworthy finding here is the relatively high mean score for classroom connectedness when compared to previous research, despite the data collection for this study occurring early in the semester. In their 2018 scoping review of literature utilizing the 18-item CCC scale, Macleod and Yang (2018) reported data for thirteen studies that employed the CCC in a face-to-face classroom context. The mean score for

CCC in the previously reviewed studies was 3.68, lower than the 4.07 mean in the present study. While this result should be evaluated in light of the fact that the present study utilized Johnson's (2009) 13-item version of the scale, it is nevertheless interesting that a relatively high perception of classroom connectedness was found to exist early in the semester. It should also be noted that the classroom connectedness mean in this present study also exceeded that of Johnson's scale validity study ($M = 3.54$) from which this the 13-item scale used in this study was taken. Thus, in response to Dwyer et al.'s (2004) question of whether "perceptions of connectedness can be fostered early in a classroom semester" (p. 270), the answer appears to be a tentative "yes." Of course, this result could be due in part to the nature of the courses from which student participants were drawn. Some of the instructors were familiar with concepts linked to classroom connectedness, such as teacher immediacy, which has been identified as a potentially relevant variable in past research on classroom connectedness and the basic course (Prisbell et al., 2009). Further, elements of the courses from which the population was drawn are intentionally relational; for instance, the first speech students deliver is self-introductory in nature, which could conceivably improve perceptions of connectedness. Additionally, small class sizes (like those sampled in this study) have been shown to correlate with greater perceptions of connectedness (Sidelinger & Booth-Butterfield, 2010), and higher levels of participation (Kendrick & Darling, 1990). Ultimately, the relatively high levels of connectedness among this basic course populations are important as connectedness "may assist with student learning, retention, and satisfaction in the course, as well as in college" (Prisbell et al., 2009, p. 151), and the basic course is often taught to students

early in their academic careers (Morreale, Hugenberg, &Worley, 2006) when the

likelihood of student attrition is highest (Christie & Dinham, 1991).

Theoretical Implications

When considering the results of this present study, several important theoretical

implications may be highlighted. First, this study expanded the application of RRGT to

the basic course, a largely underexplored context for the theory. Relevant to RRGT was

the apparent distinctions between students' relationships with their instructors and with

other students in relationship to technology. As Mottet and colleagues (2006) note

regarding relational needs, "Students meet these needs by interacting with their instructor

and with other students" (p. 266). Especially given the ways that classroom

connectedness was significantly and negatively correlated with perceptions and

exhibitions of phubbing behaviors, technology usage in-class should be considered in

future discussions of student's relational goal attainment in class.

Another significant finding relevant to RRGT was the general agreement found

here between students' prioritization of instructor attributes whether they are in a large

lecture (e.g., Goldman et al., 2016) or a small section of the basic course. While

rhetorical attributes receive most of the fund allocation whether students are in a large-

lecture or a small classroom, there were nevertheless noteworthy differences between the

two population's spending (see table 5.1), including far less spending on "clarity" and far

more spending on "immediate." Given that Mottet, Frymier, & Beebe's (2006) original

conceptualization of RRGT largely assumes the small classroom concept, further

attention in future research should consider the role classroom sizes plays in student

assessments of instructor attributes, as well as their own rhetorical and relational goals.

See Table 5.1 for a complete comparison of spending across instructor attributes in both the basic course and large lectures.

Another theoretically relevant finding in this study was support for Mottet and colleague's (2006) first proposition of RRGT: "For some students, academic needs will dominate; for others, relationship needs will dominate; and some will be equally driven by the two needs." (p. 267; Also see Table 4.4). The frequent interdependence and overlap between rhetorical and relational student goals was especially noticeable in the qualitative data collected for this study. Students indicated that technology allowed them to "contact [their] instructor outside of class and talk to [their] peers to discuss class together." Another student described the way technology facilitated staying "in touch" with members of their service leaning group through the utilization of group messaging. Even "social" apps, such as Snapchat" were used by students to "communicate if there are questions about the class." One student even seemed to explicitly describe how the same application could allow for relational and rhetorical goal achievement "Whenever we got assigned our Service Learning groups, my group immediately made a GroupMe so that we could all *stay in touch* and *ask each other questions*" (emphasis mine). Interestingly, the same type of simultaneous goal achievement also seemed to apply to student goal achievement in relation to instructors, with one student describing how they could "build a relationship" with their instructor through email correspondence. Thus, while some students may possess predominantly rhetorical goals, and others predominantly relational ones, responses to this study especially highlighted the ways that technology can create and facilitate instances of interdependence between the goal types.

Mottet and colleague's (2006) assertion that "as students mature and develop, their relational needs lessen" (p. 269) seems somewhat in doubt in light of results of this study. While rhetorical needs received most of student's ideal instructor budget, less than one percent separated spending on the most desired rhetorical attribute (Clear, 13.67%) and the most desired relational attribute (Caring, 12.85%). While it is difficult to assert with confidence whether or not student relational needs change over time, findings here indicate that they are a significant priority, at least among college students early in their careers.

The possibility remains that relational needs may lessen as students progress through their educational careers (students in this study had a mean age if 18.42), but this hypothesis seems to contradict research that shows the importance of relationships throughout student's careers, even into graduate school. Factors such as a student's relationship with their advisor have been described as a significant predictor of student life-satisfaction ("Graduate student happiness & well-being report," 2014). Other research has shown that among international graduate students studying in the United States, those "who reported a more functional relationship with their advisors were less likely to report having an emotional or stress related problem in the past year" (Hyun, et al., 2006, p. 109). Thus, when considering the results of this research in combination with other research examining older student populations, relationships appear to be an important component for students throughout their time in academia.

Table 5.1: Comparison of budget spending percentages for instructor attributes – large lecture vs. basic course.

	Large Lecture	Basic Course	Change
1. Assertive [Rhetorical]	4.75	4.3	-0.45
2. Responsive [Rhetorical]	10.43	11.39	0.96
3. Clear [Rhetorical]	19.23	13.67	-5.56
4. Relevant [Rhetorical]	12.15	9.73	-2.42
5. Competent [Rhetorical]	13.42	13.42	=
6. Trustworthy [Relational]	8.52	10.37	1.85
7. Caring [Relational]	10.17	12.85	2.68
8. Immediate [Relational]	5.69	9.34	3.65
9. Humorous [Relational]	11.58	8.68	-2.9
10. Discloses [Relational]	4.38	5.72	1.34

Of the competing theories for understanding human-technology interaction, perhaps the view that best aligns with the findings of this dissertation is that described by mutual shaping theory (e.g., Boczkowski, 1999). According to mutual shaping theory, neither technology nor individuals are solely responsible for the exact role that technology plays in society, instead each entity mutually determines technology's function. While the words "mutual shaping" may lead some to assume that the involved entities navigate their relationship in a harmonious and synergistic way, the practical reality is sometimes more akin to a struggle. Campbell (2006), after expounding upon how cell phones have multiple negative effects upon the college classroom, nevertheless suggested "it is important not to lose sight of the constructive uses of technology in educational contexts" (p. 291). Similarly, students in this study described ways that they, as well as their instructors, attempted to shape technology usage so that it aligned with desirable educational outcomes; yet students also described the ways that their technology played the larger shaping role, causing them to be distracted in class, or to miss out on relationship-building interactions with peers. It is the shaping role that technology plays in classroom contexts that has particular salience to the formation of technology policies, a point explored in further detail later in this discussion.

Practical Implications

Classroom connectedness, a variable linked to a host of desirable outcomes (Johnson, 2013), was revealed in this study to be particularly vulnerable to the presence of mobile technology. This vulnerability has important implications for students, instructors, and administrators.

First, students should be cognizant of how their device usage behaviors might negatively impact their overall perceptions of classroom connectedness. As was seen in this study, even the demonstration of phubbing behaviors correlated negatively with classroom connectedness, not just being phubbed. Secondly, students should be aware of the cues their device usage may send to others in the classroom. While some students expressed cognizance of how device usage sent a message to others in the classroom regarding one's willingness to communicate, many other students expressed sentiments like "I have never felt that my use of technology hindered my ability to interact with instructors or classmates." When one recalls that 96.4% of respondents indicated using technology prior to the start of class, and that such usage was interpreted as a message that the user does not want a classmate to "bother or distract them," it seems that many students are unaware of the potential effects of their technology usage on the development of relationships with others in the basic course. This raising of student consciousness could override what may be for some a ritualistic usage of one's phone. Just as some users may resort to "flipping out a phone when the plan lands" (Sundar & Limperos, 2013, p. 511), some students may instinctively reach for their devices upon arriving at their seats before the start of class.

Though their own relationships with students appear largely unaffected by mobile technology in the classroom, instructors who wish to preserve connectedness between students in their classroom should use their role to that end. This could be accomplished by orienting the pre-class period toward activities that encourage student interaction. Something as simple as a message on the whiteboard encouraging students to "Ask your neighbor if they have questions about the upcoming paper" might help to turn students

from their device and toward others in the classroom in a way that furthers rhetorical and relational goals; similar activities during the class period that encourage discussion between individuals can work to the same end. Lastly, even having open discussion with students regarding the messages that device usage may send to others can help to clarify misunderstandings (e.g., as one respondent indicated, "Just because I'm on my phone doesn't mean I don't want to talk.") and is appropriate for the curriculum of the typical basic course aimed toward building communication competence.

Given the ubiquity and frequency of student utilization of various communication applications (e.g., Snapchat and GroupMe), some instructors may be tempted to incorporate such platforms officially into the classroom. For instance, rather than leaving students to organically form their own groups within an application such as GroupMe, instructors themselves could create "official" groups in which they could participate with students and oversee their communication with each other. Instructors should exercise caution, however, before electing to take this approach, one that some have described as the "creepy treehouse" effect (Young, 2008). Yet, while an instructor's intrusion into certain virtual spaces may be perceived by students as "invasive, unwanted contact" (Morreale, Staley, Stayrositu, & Krakowiak, 2015), other forms of electronic communication (e.g., email), are routinely deemed appropriate by students and may even enhance the teacher-student relationship (Sheer & Fung, 2007).

In the formation of classroom technology policies, instructors should consider findings from this research as well as previous relevant studies. Respondents to this study largely described attempting to limit their technology usage to subjects relevant to the basic course during class-time. Given that previous research has shown that policies

encouraging technology usage for instructional purposes are associated with greater student perceptions of instructor credibility (Frey & Tatum, 2017), and that on-task technology does not significantly hamper student recall of information (Kuznekoff et al., 2015), instructors of the basic communication course may consider allowing such on-task usage within their class.

Still, it is important to consider that while encouraging on-task technology usage may enhance instructor credibility, it does not guarantee that student device usage will remain strictly relevant to the classroom (only 15.7% of respondents in this study indicated never using their devices in class for non-instructional purposes during class); for example, a student's on-task Google query may be interrupted by a an iMessage notification irrelevant to the classroom. Further, while Kuznekoff and colleagues (2015) did not find a significant detrimental effect of on-task technology usage upon "short-term learning and recall" (p. 362), they note that little is known about how such usage may impact long-term learning. Finally, when considering technology policies, instructors must consider not just the length of time for which they hope students to retain knowledge, but also the type of knowledge they wish to be attained. Previous research has shown that when comparing students who took class notes by hand compared to those who took notes via a computer, the latter group experienced "shallower processing" of the information they were recording (Mueller & Oppenheimer, 2014). Specifically, participants who took notes by hand and laptop users were able to recall basic information equally well, but laptop users performed significantly worse on questions requiring "conceptual-application" (Mueller & Oppenheimer, 2014, p. 3). Thus, even if they are resolved to limit technology usage strictly to class-related matters, instructors

must carefully consider when to allow such usage, if at all, weighing the relational

benefits and costs with the potential effects upon learning.

Results from this dissertation also speak to recent calls to democratize the

learning process through efforts like co-constructing course syllabi (Blinne, 2013). Given

the complex and nuanced considerations that must be balanced in the formation of

classroom technology policies, as well as the possibility of superiority bias (discussed in

further detail in the limitations section), students may not be the ideal arbiter for their

own classroom technology policies. This is not to say, however, that students should not

be informed of an instructor's motivations for their technology policy – on the contrary,

attempting to foster agreement with students regarding a technology policy is likely to

yield more positive results for instructors than an authoritarian imposition of the

instructor's will (Frey & Tatum, 2017).

Finally, administrators must consider the potentially negative effects of

technology for student relationships. One need not look hard to find examples of massive

administrative investment in mobile technology for college students (O'Hara, 2018).

Combined with omnipresent wi-fi, and classrooms where USB-charging ports are

ubiquitous, the message from campus administrators sometimes appears to be that

technology is an unmitigated good. Recent campus wide initiatives to provide mobile

technology to students, despite often being well intentioned, may have unintended

consequences on classroom connectedness, and at the larger level, campus climate.

Retention researchers often state that social integration with peers and instructors is a

primary factor in students being retained at the university (Prisbell et al., 2009; Sidelinger

& Frisby, 2019), and have largely supported Tinto's (1975) assertion that "social

integration" is a factor positively correlated with persistence in college (p. 107); Tinto's conceptualization of social integration consists of "commitment, enjoyment, satisfaction, and personal contact with students and faculty" (Sidelinger & Frisby, 2019). Although higher education is in a race to increase retention rates (Leonhardt & Chinoy, 2019), if these devices are hindering social integration with peers, as found in this study, then university administrators may be unwittingly reducing student retention rates as well as overall student wellbeing.

Limitations and Future Directions

Several important limitations and future directions should be mentioned for the above research. First, this study employed a cross-sectional design and data collection occurred early in the semester. While future research, either occurring later in the semester or featuring a longitudinal design, could undoubtedly expand our understanding of these issues, this research nevertheless illuminates an interesting and important time in the life of students, many of whom were in first two months of their college career. Although this research sought to address whether "perceptions of connectedness can be fostered early in a classroom semester" (Dwyer et al., 2004, p. 270), a time period shown in previous research to predict relational outcomes (Sunnafrank & Ramirez, 2004), future research should examine how the variables analyzed here may differ at later points in the semester. Additionally, significant differences may exist between this population and college students whose relationships span multiple semesters, such as students enrolled in the second semester of a two-semester basic course series, or students who select a major and develop a cohort of friends and acquaintances within that major.

Another limitation is that it is unclear what influence instructor attributes may have upon student's perceptions of technology in the classroom and its effect upon relationships. Myers, Baker, Barone, Kromka, and Pitts (2018) speculated as to whether student perceptions of instructor rhetorical attributes may be influenced by an instructor's ability to adeptly navigate various technologies. One can imagine, for instance, that having an instructor whose lack of technological proficiency creates constant logistical problems may make students more acutely aware of rhetorical needs, such as instructor competence. Future research should seek to better understand and account for the potential influence of instructor qualities upon student's evaluation of desirable instructional attributes, for, as Mottet, Frymier, & Beebe (2006) assert "teacher communication behaviors interact with student communication behaviors and characteristics" (p. 265). Thus, instructor qualities may increase or decrease student's propensity toward relational needs. A student's propensity to seek a relationship with their instructor or classmates is likely to be influenced by variations in attributes of the participant, her instructor, and her classmates. Previous research has shown the way that instructors may conceal certain aspects of their identity from students for fear that it might be a relational detriment (McKenna-Buchanan, Munz, & Rudnick, 2015).

Concerning the guiding theory (RRGT), its original conceptualization addresses the goals of both students and instructors, while this study only directly examines student perspectives and goals. Although the relationships in the basic communication course could be understood more fully by also examining instructor perspectives, this study remains an appropriate extension of existing research and an answer to Goldman et al.'s (2016) call to explore how RRGT functions among students in the basic course.

Nevertheless, a richer understanding of the complex, technology saturated, classroom environment could be attained through future incorporation of the instructor perspective on student technology use. Further, future research may examine student perceptions of instructor mobile technology use, and potential phubbing of students, before, during, and after class.

Unfortunately, due to the current disparities in features between the dominant mobile phone operating systems (iOS and Android), detailed descriptive data could only be reliably attained from iPhone users. This problem was somewhat mitigated by the fact that the majority of participants for this study (87.8%) used an iOS device with screen-time features turned on. Once such features are more readily available on other operating systems, data from those users can be combined with, and compared to, iOS users. While such reports are useful, especially given that they do not rely upon participants estimates of their usage, they are unable to provide the richest possible understanding of how students use their phone. For instance, while apps can be categorized (e.g., "social networking" or "entertainment"), this does not speak to how those apps are actually used. Students in this study noted that "social" apps such as snapchat could be used for purely social reasons, but also for collaboration with peers concerning schoolwork. Thus, even with data suggesting that students primarily use their phones for social reasons, I am unable to confidently assert the degree to which such use was rhetorical or relational in nature. In the future, researchers may consider asking participants to estimate how within-app-usage varies for each individual.

An additional potential weakness here is the operationalization of RRGT. While there is precedent in the literature for the approach taken here (Goldman et al., 2016), it is

admittedly a non-traditional instrument. Further, as Goldman et al. (2016) explain, students may have difficulty understanding how much they actually prioritize things like immediacy when spending their hypothetical budget. Although immediacy has been repeatedly shown to have powerful positive effects upon student attitudes and behavior, students in this study as well Goldman et al.'s did not consciously elect to assign a large degree of their budget to it. Thus, while the operationalization of RRGT may effectively serve to highlight how students would design their "ideal" instructor, other methodologies may also be fruitful in determining what instructor attributes actually serve to advanced student's various goals.

Another limitation of the instrumentation for this study is that no technology scales directly relevant to relationships yet exist that were designed for the classroom context. Thus, scales used here were either adapted to the classroom context (e.g., the PMOUQ) or applied to this study unmodified. While classroom specific scales would undoubtedly be a benefit to future research, utilizing broader scales in this study may have actually helped to provide a clearer picture of student behaviors. Given the time period early in the semester (and the brevity of the pre-class period), employing a mixture of scales that address the classroom context specifically, as well as the student's wider experience, effectively broadens the scope of data collection to provide a fuller picture of a student's technology usage behaviors and perceptions.

An additional limitation is rooted in the various types of mobile technology employed by students, and the different uses of each. While this study sought to focus on mobile technology in general, there were times when it was necessary to focus on a certain type, such as when smartphone usage data was collected. Additionally, much of

the extant relevant literature centers around mobile phones in particular, but other devices (e.g., iPads) function in similar ways and even sometimes share common applications and operating systems. Due to the above considerations, attempting to focus on a single type of technology in this study would have excluded large amounts of relevant data. Further, after this study was conceptualized and approved by the institutional review board, a campus-wide distribution of iPads for first-year students was instituted. This action on the part of the university administration greatly increased ownership and utilization of iPads in particular among the student population. Further, workshops and trainings, and iPads identical to those given to students were provide for instructors of the basic communication course. Thus, restricting analysis entirely to mobile phones would have been unwise in this particular research context. Yet, including various forms of mobile technology in the overall analysis meant that respondents were sometimes asked to think of their phone usage in particular, and at other times their broader technology usage. Thus, despite having to shift focal points periodically in the data collection instrument, this approach was necessary to reflect the varied and nuanced ways technology is used by students in the contemporary classroom environment.

While the rapidly changing nature of technology (as well as the ways in which it is used) helps to justify the need for a study like this one, it also makes the results more likely to need regular updating. What may be true of technology usage in 2019, may become largely irrelevant in 2025. Thus, while the study of how technology influences our communication habits is undoubtedly a worthwhile endeavor, it is research that possesses less permanence in its pronouncements than many other areas of study.

Therefore, future research should replicate this study, not only to validate its findings, but to update them as well.

Just as we renew our understanding of how students are using technology, we must also continue to revise our evaluation of such usage, and the measurements we use to do so. In the unmodified version of the problematic mobile phone usage questionnaire, for instance, one question reads 'It is easy for me to spend all day not using my mobile phone." While an inability to easily function a full day without one's phone might have indicated a "problematic dependence" in 2008 when the scale was created, one could argue that is no longer the case: while dependence appears to have increased, perceptions of whether such dependence constitutes a problem have likely changed as well. Thus, future research should focus on the development of new scales (and the revision of existing ones) to better reflect the contemporary moment in regard to phone usage patterns and behaviors. Additionally, words such as "dependent" may be more loaded than necessary when it comes to evaluating phone usage. For those more interested in technology usage patterns than the subjective evaluation of such usage, scales intended for use outside of fields such as psychology may opt to dispense with terms like "dependence" altogether.

One interesting finding of this study was the seeming incongruence between student perceptions of dependence upon technology and their usage behaviors. While the majority of students did not feel that they were "dependent" upon their mobile phones, descriptive data revealed that 100% of the population brought their phones to class, and used their phones, on average, several hours per day. Given that participants are sometimes prone to social-desirability bias (Fisher, 1993) and superiority bias (Hoorens,

1993), future research should ask students not only of their own perceived dependence, but also of their perceptions of their peers' and classmates' dependence. Comparisons can then be made to determine if these perceptions of self and others' dependence differ significantly.

An additional limitation of this study is the potential for student self-selection into the type of basic course from which the population was sampled. At the university where data collection occurred, students may choose to take their basic-course series through one of two colleges on campus; the sample for this study was drawn from the basic course series facilitated by the communication college. In my anecdotal experience, student (and advisor) perceptions seem to be that the communication facilitated basic course series requires more public speaking, and therefore may attract more students who are comfortable with speaking in public, than the basic course series offered by a different college at the university. While it is unclear what effect such a possible self-selection may have upon the data here, it is nevertheless a potentially confounding variable, and therefore noteworthy.

This study revealed that technology in the classroom has more than rhetorical implications, it has relational ones as well. Given this fact, and as was briefly discussed above, this research highlights a need for the development of scales specifically addressing the presence and usage of technology in the classroom as it relates to relationships. While we have been quick to incorporate technology in our colleges and universities, it may be argued that our adoption has outpaced our understanding. In order to understand the effects of technology more fully, we must develop instruments with which we can take more accurate measurements. The development of classroom specific

technology scales relevant to relationships will allow not only for a greater understanding of how technology affects the classroom, but data drawn from them may also be coupled with more general technology usage scales in order to make valuable comparisons between the two.

Conclusion

In summary, this study reveals several important insights relating to students' mobile technology, and the effects such usage may have upon relationships in the basic communication course. The key findings are: (a) students use their mobile technology frequently and for large portions of the day; (b) despite large amounts of usage, the majority of students do not feel dependent upon their devices; (c) students use "social networking" apps most frequently and for the longest period of time, but such usage is not always strictly "social" in nature; (d) many students perceived no effect of technology upon their relationships in the basic course; (e) students generally described ways that technology facilitated relationships outside of class; (f) students generally described technology as a detriment, or potential detriment, to relationships during class; (g) rapport with instructors is not associated with differences in phone usage or perceptions of phubbing or being phubbed; (h) most students in the basic course generally prioritize rhetorical instructor behaviors over relational ones; (i) student rhetorical and relational need orientation is not associated with perceptions of instructor rapport; (j) student perceptions of being phubbed and of exhibiting phubbing negatively correlated with classroom connectedness; (k) and student rhetorical and relational need orientation is associated with significant differences in perceptions of classroom connectedness.

While this study is not without limitations, it remains an important and illuminating foray into a largely unexplored area. By combining previously validated scales, as well as descriptive data and open-ended responses, this research expands the application of an essential instructional communication theory (RRGT) and also deepens the understanding of important practical considerations for instructors and students. Further, and perhaps even more importantly, I hope that this dissertation leads to important new questions that I, along with other researchers, can investigate in future studies.

Epilogue

> *Our civilization is first and foremost a civilization of means; in the reality of modern life, the means, it would seem, are more important than the ends. Any other assessment of the situation is mere idealism.*

Jacques Ellul, *The Technological Society*

Technology may be accurately described as a disruptive force. With the advent of any new technology comes change, and in the wake of this change, both promise and problems. The infusion of technology into education is an especially volatile mixture, intertwining the novel with one of humanity's oldest traditions. Today, each student carries with them a window to another world – through which they can see their closest acquaintances, their AI curated news feed, and their preferred social media platforms. And even if one does not consciously choose to attend to their device, their smartphones and tablets persist with audio notification and haptic vibrations, pulling the "user" out of the physical moment and tangible space, into the virtual one. The college classroom is no longer a relatively intimate and private gathering of a few individuals; the old way of

doing things is dead, and those who care to notice may question whether we have even lost anything worth mourning.

Unlike Neo in "The Matrix," we do not learn Kung-Fu, or any other skill, through a cable attached to our brainstem; we learn through *others*. Strong relationships in the classroom are more than a benefit to learning, they are part of what it means to be human, and possess potential relevance to a host of important issues, ranging from student attrition and mental health to instructor burnout. While there may come a day when fellow humans can be dispensed with in the learning process, it is not a day we should long for. I hope that this research will elevate the teacher-student and student-student relationship above the rising tide of technological advancement, not only for the sake of learning, but for the sake of those who learn - and the ones, like myself, who love to teach them.

Appendix A

Online Survey

Dear Potential Participant:

My name is Joe Martin and I am a researcher at the University of Kentucky. I am inviting you to take part in an online survey about technology usage in the classroom and how it may affect platonic relationships. This invitation is extended to you if you are at least 18 years old and currently enrolled in a face-to-face section (i.e., not fully online) of the basic course.

By completing this survey, you will receive one RSP course credit. Although you may not get further personal benefit from taking part in this research study, your responses may help me understand more about how what impact technology may have upon relationships within the basic course. Some volunteers experience satisfaction from knowing they have contributed to research that may possibly benefit others in the future.

The survey/questionnaire will take about 20 minutes to complete.

There are no known risks to participating in this study. Your response to the survey will be kept confidential to the extent allowed by law. When we write about the study you will not be identified. Your information collected for this study will NOT be used or shared for future research studies, even if we remove the identifiable information like your name, academic major, or year in school.

I hope to receive completed questionnaires from about 250 people, so your answers are important to us. Of course, you have a choice about whether or not to complete the survey, but if you do participate, you are free to skip most questions or discontinue at any time.

Please be aware, while we make every effort to safeguard your data once received from the online survey company, given the nature of online surveys, as with anything involving the Internet, we can never guarantee the confidentiality of the data while still on the survey company's servers, or while en route to either them or us. It is also possible the raw data collected for research purposes will be used for marketing or reporting purposes by the survey/data gathering company after the research is concluded, depending on the company's Terms of Service and Privacy policies.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Thank you in advance for your assistance with this important project.
If you agree to participate in this research, please indicate so on the question below.

Note: Portions of this survey can be more easily completed by using a laptop or tablet/iPad.

Sincerely,
Joe C. Martin
Faculty Lecturer | Instructional Communication and Research
University of Kentucky | School of Information Science
joe.martin@uky.edu | LCLI 310D

Do you agree to participate in the following study?

◯ YES. I agree to participate.

◯ NO. I do not agree to participate.

Are you currently enrolled in a face-to-face section
(i.e. not 100% online) of CIS 110 or CIS 112?

◯ Yes, I am enrolled in a face-to-face section of CIS 110

◯ Yes, I am enrolled in a face-to-face section of CIS 112

◯ No, I am not enrolled in a face-to-face section of CIS 110 or 112

What is your age?

(You must be 18 years or older to participate)

Please provide the following demographic information.

Gender

- ○ Male
- ○ Female
- ○ Other

[   ]

Classification

- ○ a. First Year
- ○ b. Sophomore
- ○ c. Junior
- ○ d. Senior
- ○ e. Graduate Student

Race/Ethnicity

- ○ a. White/Caucasian
- ○ b. African American
- ○ c. Hispanic
- ○ d. Asian
- ○ e. Native American
- ○ f. Pacific Islander
- ○ g. Other

Academic Major

[ ]

Do you typically take your smartphone with you to
your CIS class?

○ Yes

○ No

○ I don't own a smartphone

Please enter the number of students you knew in your
CIS course before the first day of class.

[ ]

Are you enrolled in a special section of CIS 110 or CIS
112 (e.g. a section only for health-care or
communication majors)?

○ Yes, I'm in a special section of CIS 110 or 112

○ No, I'm not in a special section of CIS 110 or 112

○ Unsure

Did you know your CIS instructor prior to the first day
of class?

○ Yes

○ No

Please enter your CIS instructor's full name

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[                                          ]
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What is your CIS instructor's gender?

○ Male

○ Female

○ Other

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[                              ]
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○ Unknown

Imagine you could design the ideal instructor for your basic course (CIS 110 or 112). In this situation, you are provided with a limited budget of $21, from which you can allocate "funds" to different qualities below. Spend the most money on the attributes below that would be most important to you when designing your ideal basic course instructor.

Please be sure that your total spending equals exactly 21 dollars.

Please indicate how you would spend your $21 budget designing ideal instructor for your section of the basic course (CIS). You may spend anywhere from 0-21 dollars per category but cannot spend more or less than $21 total across all categories.

Humorous: This instructor uses humor in the classroom frequently, they are funny, and they easily incorporate jokes into lectures.

Immediate: This instructor smiles at students, uses expressive hand and facial gestures when lecturing, nods their head in understanding when students talk, makes eye contact with students when lecturing, and changes vocal tones when lecturing.

Assertive: This instructor defends their beliefs in the classroom, has a strong personality, and is independent, competitive, and even forceful or dominant.

Caring: This instructor cares about their students, understands their students, and has their students' best interests at heart.

Clear: This instructor presents knowledge in a way that students understand, answers questions clearly, has clear course objectives, and is straightforward in lectures.

Trustworthy: This instructor is honest and trustworthy to students, works under a set of morals and ethics, and is genuine.

Competent: This instructor is an expert in their field, is intelligent, and is well trained in instruction.

103

Relevant: This instructor uses examples, explanations, and exercises to make course content relevant to students' career and personal goals or needs.

O————————————————

Discloses: This instructor reveals an appropriate amount of positive information about themselves during lectures, when doing so is relevant to the topic being taught.

O————————————————

Responsive: This instructor is compassionate, sympathetic, helpful, sincere, friendly, warm, and sensitive to the needs of students.

O————————————————

Please add the score values above and enter the total below.
Note, please do not add a "$" before entering the total.
Example: 21

For this section, think about your relationship with your basic course (CIS) instructor,

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
In thinking about my relationship with my instructor, I enjoy interacting with them	○	○	○	○	○	○	○
My instructor creates a feeling of "warmth" in our relationship	○	○	○	○	○	○	○
My instructor relates well to me	○	○	○	○	○	○	○
In thinking about this relationship, I have a harmonious relationship with my instructor.	○	○	○	○	○	○	○

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
My instructor has a good sense of humor	○	○	○	○	○	○	○
I am comfortable interacting with my instructor	○	○	○	○	○	○	○
I feel like there is a "bond" between my instructor and myself	○	○	○	○	○	○	○
I look forward to seeing my instructor in class	○	○	○	○	○	○	○

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I strongly care about my instructor	○	○	○	○	○	○	○
My instructor has taken a personal interest in me	○	○	○	○	○	○	○
I have a close relationship with my instructor	○	○	○	○	○	○	○

In this section, think about your classmates in your section of the basic course (CIS).

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I have common ground with my classsmates	◯	◯	◯	◯	◯
I feel a strong bond with my classmates	◯	◯	◯	◯	◯
The students in my class share stories and experiences with one another	◯	◯	◯	◯	◯
The students in my class are friendly with one another	◯	◯	◯	◯	◯
I feel included in class discussions in my class	◯	◯	◯	◯	◯

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The students in my class praise on another	◯	◯	◯	◯	◯
The students in my class are concerned about one another	◯	◯	◯	◯	◯
The students in my class smile at one another	◯	◯	◯	◯	◯
The students in my class engage in small talk with one another	◯	◯	◯	◯	◯
The students in my class laugh with one another	◯	◯	◯	◯	◯

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The students in my class are supportive of one another	◯	◯	◯	◯	◯
The students in my class cooperate with one another	◯	◯	◯	◯	◯
The students in my class feel comfortable with one another.	◯	◯	◯	◯	◯

Now , take a step back from the basic course (CIS) and please think generally about *others*' mobile phone use <u>during your face-to-face social interactions</u> with others.

	Never	Rarely	Occasionally	Sometimes	Frequently	Usually	Always
Others pay attention to their phones rather than talking to me	○	○	○	○	○	○	○
Others would rather pay attention to their phones than talk to me	○	○	○	○	○	○	○
Others seem like they get rid of boredom by paying attention to their phones instead of me	○	○	○	○	○	○	○
Others seem like they feel content when they are paying attention to their phones instead of me	○	○	○	○	○	○	○

	Never	Rarely	Occasionally	Sometimes	Frequently	Usually	Always
Others pay attention to their phones rather than focusing on me	○	○	○	○	○	○	○
Others seem like they get rid of stress by paying attention to their phones instead of me	○	○	○	○	○	○	○
Others seem like they feel good when they stop focusing on me and pay attention to their phones instead	○	○	○	○	○	○	○
Others shift their attention from me to their phones	○	○	○	○	○	○	○

Before proceeding to the next section, please select the answer that represents the type(s) of mobile technology you own.

○ I only own a mobile phone.

○ I own a phone AND a laptop/tablet/iPad

○ I ONLY own a laptop/tablet/iPad

○ I do not own any mobile technology.

Continuing to think about general phone use in your everyday life, please think about *your* mobile phone use during your face-to-face social interactions with others.

	Never	Rarely	Occasionally	Sometimes	Frequently	Usually	Always
I would rather pay attention to my phone than talk to others	○	○	○	○	○	○	○
I feel content when I am paying attention to my phone instead of others	○	○	○	○	○	○	○
I feel good when I stop focusing on others and pay attention to my phone instead	○	○	○	○	○	○	○
I get rid of stress by ignoring others and paying attention to my phone instead	○	○	○	○	○	○	○
	Never	Rarely	Occasionally	Sometimes	Frequently	Usually	Always

Please think about your phone usage in general.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I often think about my mobile phone when I am not using it	○	○	○	○	○	○	○
I often use my mobile phone for no particular reason	○	○	○	○	○	○	○
Arguments have arisen with others because of my mobile phone use	○	○	○	○	○	○	○
I interrupt whatever else I am doing when I am contacted on my mobile phone	○	○	○	○	○	○	○

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I feel connected to others when I use my mobile phone	○	○	○	○	○	○	○
I lose track of how much I am using my mobile phone	○	○	○	○	○	○	○
The thought of being without my mobile phone makes me feel distressed	○	○	○	○	○	○	○
I have been unable to reduce my mobile phone usage	○	○	○	○	○	○	○

Coming back to the basic course (CIS), please think about how you use your phone in your section of the basic course (CIS).

	Strongly disagree	Disagree	Agree	Strongly agree
It is easy for me to go the whole class without looking at my phone	○	○	○	○
It is hard for me not to use my phone when I feel like it	○	○	○	○
I can easily attend class without my phone	○	○	○	○
I feel lost without my phone in class	○	○	○	○
It is hard for me to turn my phone off in class	○	○	○	○
	Strongly disagree	Disagree	Agree	Strongly agree

Do you feel dependent on your **mobile phone**?

○ Yes

○ No

Does your basic course (CIS) instructor have a policy limiting mobile technology usage in class?

○ Yes

○ Maybe

○ No

For this section, you will answer a few questions regarding mobile-technology in the basic course (CIS).

In your section of the basic course (CIS), how often would you say that you use your phone, laptop, or tablet/iPad for non-instructional purposes (e.g. texting a friend or shopping) **during** class time?

	Never	Rarely	Occasionally	Frequently	Very Frequently	Always
	○	○	○	○	○	○

Please describe how you might typically use your phone, laptop, or tablet/iPad **during class** when you are in your section of the basic course (CIS).

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How much (if at all) do you use your phone, laptop, or tablet/iPad when you are in class **before** your section of the basic course (CIS) begins?

	Never	Rarely	Occasionally	Frequently	Very Frequently	Always
	○	○	○	○	○	○

Please describe how you might typically use your phone, laptop, or tablet/iPad when you are in class **before** your basic course (CIS) begins.

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How, if it all, does your phone, laptop, or tablet/iPad usage affect your relationships with others (i.e.

instructor and classmates) when you are in your basic course (CIS) classroom (before or during class)?

Please describe an instance where your phone, laptop, or tablet/iPad has helped you to interact with

your instructor or a classmate in your section of the basic course (CIS).

Please describe an instance where your phone, laptop, or tablet/iPad has hindered your ability to interact

with your instructor or a classmate in your section of the basic course (CIS).

If, hypothetically, mobile technology (phones, laptops, and tablets/iPads) did not exist, how would this

change your interactions with others (i.e. instructor and classmates) in the basic course (CIS)?

Do you have an iPhone with Screen Time (available on all devices with IOS 12 and later)

◯ Yes

◯ No

Screen time:

The last information required here is regarding your actual screen usage.

To access your phone's screen time report, go to Settings > Screen Time

From there, tap the graph at the top of the screen with device name displayed above it.

Finally, select "Last 7 Days" and scroll down if necessary to access the information.

○ I can see my phone's screen time for the past 7 days

○ Screen time was not previously enabled on my phone and I can't see my screen usage for the past 7 days.

○ My screen time report says "All Devices" instead of the name of my phone.

Once you have accessed your screen time report for last **seven days,** please report the following:

Average daily use **HOURS**

Average daily use **MINUTES**

Please enter the name of your most used app

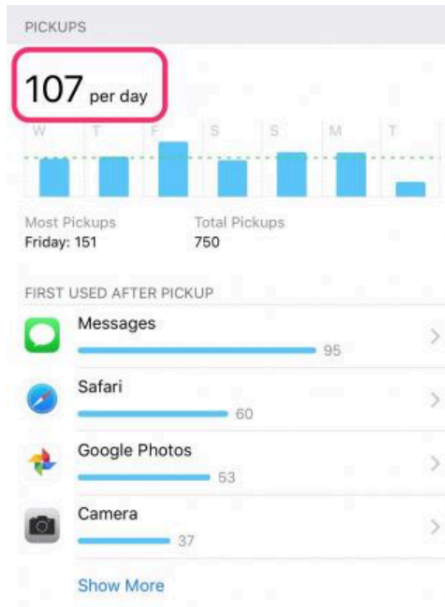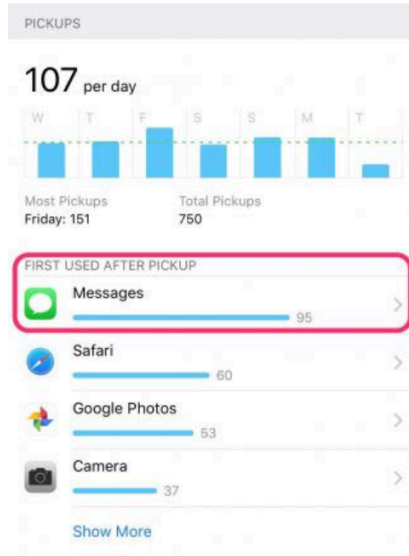Please enter the name of your second most used app

114

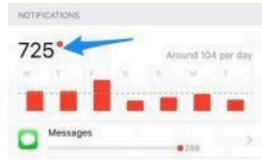Please enter the name of your third most used app

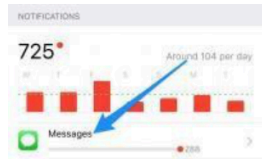Please enter the number of "Pickups" per day

Please enter the name of the first app used after pickup

Please enter the overall number of notifications received over the 7 day period

Please enter the name of the app that sends the highest number of notifications

End of Survey

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   https://www.chronicle.com/blogs/wiredcampus/when-professors-create-social-

   networks-for-classes-some-students-see-a-creepy-treehouse/4176

JOE C. MARTIN

2015-2017   The University of Kentucky
- Graduate Certificate in Instructional Communication

2010-2012   The Southern Baptist Theological Seminary
- Master of Theology (Th.M.) - Apologetics and Worldview - 26 hours

2007-2010   The Southern Baptist Theological Seminary
- Master of Divinity (M.Div.) - Christian Ministry – 94 hours

2003-2006   Eastern Kentucky University
- Bachelor of Arts - Communication Studies

ACADEMIC APPOINTMENTS

2014-Present   University of Kentucky
Faculty Lecturer: Instructional Communication and Research

Fall 2014   Union College (KY)
Adjunct Instructor of Communication

2011-2014   Eastern Kentucky University
Adjunct Instructor of Communication Studies

PEER-REVIEWED JOURNAL ARTICLES

- Parker, K. A., Geegan, S., Ivanov, B., Slone, A., Silberman, W., **Martin, J. C.**, Hester, E., Goatley-Soan, S., Anderson, A., Herrington, T., & Riker, S. Defending democracy: Inoculation's efficacy in protecting First Amendment attitudes. *Communication Studies.* (Accepted)
- Frisby, B. N., Vallade, J. I., & Kaufmann, R, Frey, T. K., & **Martin, J. C.** (Accepted) Using virtual reality for speech rehearsals: An innovative instructor approach to enhance student public speaking efficacy. *Basic Communication Course Annual.* (Accepted)
- **Martin, J.C.**, Tatum, N.T, and Kemper, B.N. (2017) "Thanks for the quick reply!": Email chronemics and instructor liking. *Pennsylvania Communication Annual 73*(1).
- **Martin, J.C.**, Strawser, M.G., Apostel, S. P., Martin, F. (2017) The communication center as a transcendent physical and virtual space. *Communication Center Journal, 3*(1), 61-77.
- Tatum, N.T., **Martin, J.C.**, and Kemper, B.N. (2018) Chronemics in

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BOOK CHAPTERS

- **Martin, J.C.**, and Frisby, B.N. (2017) Institution-wide trigger warnings: A case study of a university's 'Common Reading'. In Emily Knox (Ed.) *Trigger Warnings: History, Theory, Context.* Rowman and Littlefield.
- Hether, H.J., **Martin, J.C.**, & Cole, A.W. (2017). The internet of things and wearable technology as a classroom resource. In Michael Strawser (Ed.) *New Media and Digital Pedagogy.* Lexington Books.
- Strawser, M.G., Hawkins, M, and **Martin, J.C.** (2018) Persuasive ambassadors: The Southern Baptist commitment to religious freedom for all. In Eric C. Miller (Ed.) *The Rhetoric of Religious Freedom in the United States.* Lexington Books.

CONFERENCE PRESENTATIONS

- Ivanov, B., **Martin, J.C.** … and Anderson, A. Post-inoculation attack: Experiencing threat, fear, anger, happiness, sadness, and surprise. Paper accepted for the 2019 meeting of the National Communication Association.
- Frisby, B.N., Tristan, A, Hartsough, L, and **Martin, J.C.** Student perceptions of instructor emotions, self-reported emotions, and emotional transference in the college classroom. Paper accepted for the 2019 meeting of the National Communication Association.
- Frisby, B. N, Kaufmann, R, **Martin, J.C.**, and Limperos, A.M., (2019) Stimulating dialogue for basic course instructors and administrators: Should we use virtual reality to enhance students' public speaking performance? Paper presented at the annual conference of the Central States Communication Association, Omaha, NE.

  Top Paper, Basic Course Interest Group
- Kercsmar, S. E., and **Martin, J.C.** (2018) The faculty member/Instructional designer relationship. Presented at the Lilly Conference: Innovative Strategies to Advanced Student Learning, Asheville, NC.
- Carpenter, R,…**Martin J.C.** (2018) Panel discussing the publication process presented at the National Association of Communication Centers Conference, Harrisonburg, VA.
- **Martin, J.C.**, and Tatum, N.T. (2017) 'URGENT": Intersecting expectations of instructor and student email chronemics. Paper presented at the annual conference of the National Communication Association, Dallas, TX.
- **Martin, J.C.**, and Tatum, N.T, (2017) 'Thanks for the quick reply!': Email chronemics and instructor liking. Paper presented at the annual conference of the National Communication Association, Dallas, TX.
- Tatum, N. T., **Martin, J.C.**, Kemper, B. (2017). You've got mail: Exploring violations and interpersonal impacts in instructor-student email communication. Paper presented at the annual meeting of the

Central States Communication Association Convention, Minneapolis, MN.

Top Paper, Communication Education Interest Group

Top Student Paper, Communication Education Interest Group

- **Martin, J.C.**, Gaffney, A.H., Kercsmar, S.E., Cooper, T.B., Devito, A, B,. and Beck, A.C. (2016) Teaching classes for living-learning programs: Challenges and opportunities. Panel presented at Eastern Kentucky University's Pedagogicon, Richmond, KY.

- Frisby, B.N., Strawser, M.G, Lawrence, A.J., & **Martin, J.C.** (2016) Instructor self-handicapping: Instructor perspectives on motives, communicative strategies, and outcomes. Paper presented at the annual conference of the Kentucky Communication Association, Bowling Green, KY.

- **Martin, J.C**. 'Decode This!' Helping students employ research methods to understand language as code. (2017) G.I.F.T. presented at the annual conference of the National Communication Association, Dallas, TX.

GRANTS AND FELLOWSHIPS

- eLII (e-learning) Faculty Development Grant ($4,000): 2015-2016
- Presentation U! Faculty Fellow ($3,00): 2015-2016

Signed: Joe C. Martin