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Mobile Technology Usage in the College Classroom and Its Relational Implications

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Abstract

This study examines the relational implications of the presence of mobile technology within the basic communication course. 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.

Keywords: instructional communication, instructional technology, phubbing.

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 decades since Frymier and Houser's assertion, a sea change has occurred in higher education; the arrival of internet-connected mobile devices (such as smartphones) has left few areas of our daily lives unaffected, and the basic communication course is certainly no exception.

In the wake of the introduction of internet-connected devices in the classroom, educators have been left with new opportunities, and at least as many new challenges. Early findings have demonstrated that smartphones, for instance, are a significant presence in the lives of college students, who daily receive approximately 400 notifications and spend several hours 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 et al., 2015), the same students likely to populate the basic communication course (Beebe, 2013). Already, a growing body of literature describes the potentially negative impact 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, due largely to the incursion of mobile technology, the basic communication course is in an unprecedented state of transition. While research has already begun to establish the positive and negative effects technology may have upon learning, 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 study seeks to address one overarching research question:

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

Given the importance of classroom relationships in the basic communication course, and concerns that technology can hinder these relationships, this study examines the effect that mobile technologies, and in particular phubbing (the “snubbing” of someone with one’s phone), may have on the development of relationships within the basic communication course.

Review of Literature

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 et al., 2006); these twin motivation types help students and instructors to understand actions and attitudes in the classroom. Further, rhetorical and relational goals theory 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 et al., 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 et al., 2005; Stephens et al., 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. 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 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 has demonstrated the potential negative impacts of technology upon academic performance. For example, Kuznekoff and Titsworth (2013) found that increased phone usage had a significant negative impact upon quiz grades. Similarly, Lepp et al. (2015) 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). Clearly, many questions arise when considering the impact of technology and classroom relationships. To further investigate these questions, the basic communication course is proposed as a context that is both appropriate and important.

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 speaking skills (Bodie, 2010), the basic communication course often features a significantly smaller number of students per class 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” (Frymier & Houser, 2000, p. 217) where higher order learning can take place. Finally, the relatively small size of the basic communication course may magnify relational needs and expectations among

students, with Goldman et al. (2016) noting “it is possible that students have fewer relational needs from their instructor in a large lecture class [than they do in smaller ones],” and encouraging future research that draws participants from “smaller classes” (p. 14).

While it has been noted in the past that the basic course has sometimes been slow to incorporate technology (e.g., Valenzano et al., 2014), there have been more recent efforts to examine how technology may be successfully incorporated within these courses, going as far as utilizing technologies like virtual reality as a means to improve student public speaking self-efficacy (Frisby et al., 2020). 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 et al., 2017). Finally, the role of technology in the basic communication course is only likely to increase, with Frisby (2017) suggesting that considering the concurrent proliferation of mobile technology and student dependence upon it, “the role of basic communication instructors in embracing and capitalizing on these changes to engage students and better position the basic communication course, becomes critical” (p.79).

Phubbing

Recent research into the impact of phones upon relationships has begun to coalesce around certain constructs, among them is the term “phubbing.” A combination of the words “phone” and “snubbing,” phubbing broadly describes “the act of snubbing others in social interactions and instead focusing on one’s smartphone” (Chotpitayasunondh & Douglas, 2016, para 2). Especially given the relatively recent invention of the word, phubbing remains a concept somewhat fluid in its definition and application, factors that have made it adaptable to a number of unique circumstances. Phubbing has been examined not only in literature concerning romantic partners (e.g., Kelly et al., 2017), but also family units (e.g., Bai et al., 2020), workplaces (e.g., Roberts & David, 2020), and the classroom (e.g., Nazir, 2020). In short, “phubbing can be found in all kinds of different social settings” (Thabassum, 2021, p. 14).

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). Secondly, an instructor

may phub students, perhaps allowing themselves a quick look at their phone while a student is giving a presentation. Lastly, students may phub instructors by indulging the desire to connect socially with friends or work on assignments for another class rather than devote their attention to their instructor during a lecture. 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; 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 & Myers, 2008). Rapport has been positively associated with rhetorical and relational objectives in the basic course, as had classroom connectedness (Sidelinger et al., 2015).

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 impact that such relationships may have upon learning (e.g., Nussbaum & Scott, 1980; Frymier & Houser, 2000), Dwyer et al. were among the first communication scholars to look specifically at the importance of student perceptions of rapport with other students. It is important to establish student usage behaviors of mobile technology before exploring the influence of technology upon classroom relationships. 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 et al., 2015), comparatively 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., 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), 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 a perception of an interpersonal disconnect due to phubbee's awareness that phubbers are "unable to receive and process" (Thabassum, 2021, p. 13) conversational cues. Thus, phubbed students experience broken communicative connections between themselves and others in the classroom, and obstacles to behaviors essential to classroom connectedness (e.g., "The students in my class engage in small talk with one another"; Johnson, 2009, p. 152). 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 phubbee 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 et al., 2015). Further, some research has already revealed detriments to perceived

connectedness among students who text during class (Johnson, 2013). Other research has alluded to the possibility that phubbing runs counter to the development of mutual rapport between teachers and students (Nazir, 2020), and similarly reduces perceived student-to-student connectedness among students who were “addicted” to their smartphones (Soomro, 2019). Thus, the following hypothesis is posed:

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

Methodology

Procedures

After attaining institutional review board (IRB) approval, recruitment began during the third week of the semester and concluded 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 first half 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. As part of the basic communication course requirement at the principal investigator’s university, students are obligated to participate in three studies, or complete alternative assignments; this study, and an accompanying alternate assignment were listed as options from which students could choose. Students received a small amount of course credit for completing this study or the alternate assignment. Once participants volunteered to participate in the study, they followed a link to a survey hosted on Qualtrics.

Participants

Participants ($N = 256$) were all enrolled in the basic course at a large southeastern university and included females ($n = 168$; 65.9%), males ($n = 85$; 33.3%), and other ($n = 2$; .80%). 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%). Overall, the demographic makeup of this study largely mirrored that of the university at which it was conducted. 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%).

Instrumentation

Rapport. To measure instructor and student relationships, Frisby and Myer’s (2008) 11-item rapport scale was used. 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.” In previous studies the scale has shown reliability values as high as .96 (Frisby & Martin, 2010). In this study, the scale was reliable ($\alpha = .95$, 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. For this study, Johnson’s (2009) 13-item version of the scale was utilized, which removes 5 items that loaded weakly with the remaining scale items in her validation study; the shortened version was previously found to be reliable: $\alpha = .90$.

In this study, the scale was also reliable ($\alpha = .93$, 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. The full GSBP measures factors such as respondents' perceptions of norms regarding phone usage as well as whether the phone usage behaviors of others led to interpersonal conflict with the respondent. Only the 8-item "feeling ignored" dimension of the GSBP was utilized here. 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 ($\alpha = .95$, 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 course, Chotpitayasunondh and Douglas (2018) generic scale of phubbing (GSP) was utilized. The generic scale of phubbing 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. The full GSP measures phenomena such as "nomophobia" (the fear of not having access to one's phone), how respondents' phone usage leads to interpersonal conflict, and one's willingness to acknowledge that their phone usage is problematic. Only the 4-item "self-isolation" dimension of the GSP was used for this study, which features items such as "I would rather pay attention to my phone than talk to others" (Chotpitayasunondh & Douglas, 2018, p.10). 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 ($\alpha = .89$, 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 via a 7-point Likert scale. 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. The full PMPUQ targets factors such as dangerous use of mobile phones and financial problems resulting in mobile phone usage. This study only utilized the "Dependence" subscale, which includes items such as "I feel lost when I do not have my mobile phone" (Billieux et al., 2008, p. 1198). The dependence subscale has 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. In this study, the scale was reliable ($\alpha = .81$, 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. Students were asked to briefly describe how they use their mobile devices before and during class, and how they believe their smartphones affects their relationship with others in their class. Students were also asked to respond to two single-item frequency scales pertaining 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 iOS 12 (87.8% of the participants) 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.

Qualitative Analysis

To address connections between students' classroom relationships with peers and instructors a thematic analysis of participant's open-ended responses was utilized. 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. The full list of themes was then reviewed and organized together with relevant quotations, with special attention paid to potential relationships between themes, and consideration whether certain themes may be sub-themes. Once this process was completed, the list of themes was reviewed a final time to consider their potential implications in answering the research question.

Once the results were compiled and described, 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.

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. 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 ($Md = 4.07$, $SD = 2.54$). Much of this usage was prompted by device notifications, of which students received an average of 182 per day ($Md = 135$, $SD = 144.25$); most notifications were received from the Snapchat app ($n = 83$).

“Pick-ups” 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 (Md = 156, 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 Tables 1.1 and 1.2 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 1.1 below for student device usage frequency descriptive before the start of class, followed by Table 1.2, which displays how frequently students indicated using devices for non-instructional purposes during class.

Table 1.1

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 1.2

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?), the aforementioned thematic analysis of participant's open-ended responses was utilized as well as Pearson's correlations. 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, with their basic course in mind, 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 struggled to imagine maintaining productive group relationships without the aid of technology, noting they would likely feel “very disconnected and unorganized.” 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, indicating 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.’” 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.” The mention of laptop stickers as a point of conversation highlights the reality that technology not only facilitates communication but is itself communication within the classroom.

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 was echoed in the remarks of other respondents: “Before class I don’t talk to others much because I am on my phone,” and “A lot of people tend to be on their phones before class starts.”

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.”

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 others’ use of technology; perhaps to save face, or to merely respect a perceived

message that a classmate desired solitude, 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 themselves. 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.”

In addition to qualitative analysis, Pearson’s Correlations were used to explore RQ2. 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. It is plausible that instructors are less likely to exhibit phubbing behaviors, and conversely many students described ways they intentionally curtailed their own phone usage so as not to damage their rhetorical or relational goals with their instructors (Mottet et al., 2006).

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). As is discussed above, 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 of instructor rapport but perceived lower levels of classroom connectedness. See table 1.3 for the full Pearson's correlation matrix.

Table 1.3
Pearson Correlation Matrix (All Participants)

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

* $p < .05$

** $p < .01$

Discussion

This study creates a nuanced picture of the complex associations between mobile technology and classroom relationships. Students described numerous ways technology increased connections with other students and instructors beyond the classroom context, a finding aligns with previous research which describes widespread usage of out-of-class communication (Brooks & Young, 2016; Duran et al., 2005; Stephens et al., 2009), and the potentially positive effects of such communication (Martin, et al., 2017; Tatum et al., 2018). In this study, technology was believed by students to create an enhanced sense of both community and connectivity. 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. 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).

Of course, numerous students explicitly indicated no perceived effect of technology upon relationships in the basic course. This result runs somewhat counter to extant research into the prevalent negative interpersonal effects of phubbing (e.g., Millter-Ott & Kelly, 2017). While these students may be largely unaffected by behaviors like phubbing, the “third-person effect” (Davison, 1983) and superiority bias (Hoorens, 1993) may be other potential explanations for this

result; if either of these phenomena were experienced, students might envision detrimental effects of phubbing for others, but not themselves.

In their open-ended responses, participants unsurprisingly spoke of the ease, and the enhanced and increased communication that technology fostered; what was surprising, however, was the way that students “reinterpreted” technologies such as Snapchat as tools suitable for classroom related use. This is especially interesting considering the fact that using a social application for classroom purposes is occurring despite the existence of applications designed specifically for that purpose (e.g., the Canvas LMS application). This finding can perhaps be best understood when one considers the meaning carried by the medium of communication itself (McLuhan, 1964); in this view, students may be selecting an application like Snapchat for reasons such as its familiarity or its relative informality.

Students also described increasingly using technology to communicate with their instructors, both for purposes of privacy as well as convenience. What was not frequently featured in student’s reports of communication with their instructor, however, was whether such communication was desirable for the instructor, or whether it was the best means by which students and instructors could build valuable rapport. Considering this, students, unfettered by concerns of a public audience or limited office hours, may be communicating with their instructors more, but the results may not be better.

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 et al., 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). Yet, while some students indicated intentionally employing technology usage as a way to signal their unavailability for conversation, for others this signal appeared to be inadvertent. Thus, the dilemma for the student who wants to introduce herself to

a peer on their phone is determining whether or not that person is engaged in that behavior specifically in hopes of avoiding face-to-face conversation or not; accurately making this assessment may prove impossible.

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).

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. Although instructor perspectives were not collected for this study, as noted above it plausible that instructors, whose goals and roles within the classroom differ from students, were less likely to exhibit phubbing behaviors. What is known from this data, however, is that students considered such usage on their parts to be 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” (p. 454) in the classroom. 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; this fact is 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.

Practical Implications

Classroom connectedness, a variable linked to a host of desirable outcomes in general (Johnson, 2013), and the basic course in particular (Sidelinger et al., 2015), was revealed in this study to be particularly vulnerable to the presence of mobile technology. This vulnerability has important implications for basic communication course students and instructors.

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 plane lands" (Sundar & Limperos, 2013, p. 511), some students may instinctively reach for their devices upon arriving at their seats before the start of class. In short, if students do not wish to inadvertently send a message that they desire not to be bothered by their peers in the class, their pre-class technology usage should be limited or abstained from altogether.

Though their own relationships with students appear largely unaffected by mobile technology in the classroom, basic communication course instructors who wish to preserve connectedness between students in their classroom should use their leadership 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 (Morreale et al., 2016).

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.

Results from this study also speak to calls for the democratization of 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 further in the limitations section below), 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).

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.

Unfortunately, due to disparities at the time of data collection 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 (a demographically diverse 87.8%) used an iOS device with screen-time features turned on. 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.

While the rapidly changing nature of technology and its uses helps to justify the need for a study like this one, it also makes the results more likely to need regular updating. 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.

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) as has been noted earlier in this article, 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.

This study revealed that technology in the basic communication course 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. Even if we have not always been quick to adopt technology in the basic communication course (Valenzano et al., 2014), 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) and student perceptions of being phubbed and of exhibiting phubbing negatively correlated with classroom connectedness. Ultimately, this research represents a foray into a largely unexplored area and stands to deepen the understanding of important practical considerations for basic course instructors and their students. Assisted by this and future research, we can better understand and adapt to the modern, technology saturated classroom; by doing so, we stand the best chance of preserving not only learning, but relationships, too.

Bibliography

- Aksan, N., Kısac, B., Aydın, M., & Demirbuken, S. (2009). Symbolic interaction theory. *Procedia-Social and Behavioral Sciences*, 1(1), 902-904. doi: 10.1016/j.sbspro.2009.01.160
- Andersson, L. M., & Pearson, C. M. (1999). Tit for tat? Incivility in the workplace. *Academy of Management Review*, 24, 452-471. <http://dx.doi.org/10.2307/259136>
- Bai, Q., Bai, S., Dan, Q., Lei, L., & Wang, P. (2020). Mother phubbing and adolescent academic burnout: The mediating role of mental health and the moderating role of agreeableness and neuroticism. *Personality and Individual Differences*, 155, 109622. <https://doi.org/10.1016/j.paid.2019.109622>
- Beebe, S. A. (2013). Our “front porch.” *Spectra*, 49(3), 3.
- Bell, R. A., & Daly, J. A. (1984). The affinity-seeking function of communication. *Communication Monographs*, 51(2), 91-115. doi: 10.1080/03637758409390188
- Billieux, J., Van Der Linden, M., & Rochat, L. (2008). The role of impulsivity in actual and problematic use of the mobile phone. *Applied Cognitive Psychology*, 22, 1195-1210. doi: 10.1002/acp.1429

- Blinne, K. C. (2013). Start with the syllabus: Helping learners learn through class content collaboration. *College Teaching*, 61(2), 41-43. doi: 10.1080/87567555.2012.708679
- Bodie, G. D. (2010). A racing heart, rattling knees, and ruminative thoughts: Defining, explaining, and treating public speaking anxiety. *Communication Education*, 59(1), 70-105. doi: 10.1080/03634520903443849
- Brooks, C. F., & Young, S. L. (2016). Exploring communication and course format: Conversation frequency and duration, student motives, and perceived teacher approachability for out-of-class contact. *The International Review of Research in Open and Distributed Learning*, 17(5). doi: 10.19173/irrodl.v17i5.2561
- Carlson, R. E., Dwyer, K. K., Bingham, S. G., Cruz, A. M., Prisbell, M., & Fuss, D. A. (2006). Connected classroom climate and communication apprehension: Correlations and implications of the basic course. *Basic Communication Course Annual*, 18, 1-27.
- Chotpitayasunondh, V., & Douglas, K. M. (2016). How “phubbing” becomes the norm: The antecedents and consequences of snubbing via smartphone. *Computers in Human Behavior*, 63, 9-18. doi: 10.1016/j.chb.2016.05.018
- Chotpitayasunondh, V., & Douglas, K. M. (2018). Measuring phone snubbing behavior: Development and validation of the Generic Scale of Phubbing (GSP) and the Generic Scale of Being Phubbed (GSBP). *Computers in Human Behavior*, 88, 5-17. doi: 10.1016/j.chb.2018.06.020
- Davison, W. P. (1983). The third-person effect in communication. *Public Opinion Quarterly*, 47(1), 1-15. <https://doi.org/10.1086/268763>
- Duncan, S. (1972). Some signals and rules for taking speaking turns in conversations. *Journal of Personality and Social Psychology*, 23(2), 283-292. doi: 10.1037/h0033031
- Duran, R. L., Kelly, L., & Keaten, J. A. (2005). College faculty use and perceptions of electronic mail to communicate with students. *Communication Quarterly*, 53(2), 159-176. doi: 10.1080/01463370500090118

- Dwyer, K. K., Bingham, S. G., Carlson, R. E., Prisbell, M., Cruz, A. M., & Fus, D. A. (2004). Communication and connectedness in the classroom: Development of the connected classroom climate inventory. *Communication Research Reports, 21*(3), 264-272. doi: 10.1080/08824090409359988
- Fairchild, J., Meiners, E. B., & Violette, J. (2016). "I tolerate technology—I don't embrace it": Instructor surprise and sensemaking in a technology-rich learning environment. *Journal of the Scholarship of Teaching and Learning, 16*(4), 92-108. doi : 10.14434/josotl.v16i4.19995
- Faranda, W. T., & Clarke III, I. (2004). Student observations of outstanding teaching: Implications for marketing educators. *Journal of Marketing Education, 26*(3), 271-281. doi: 10.1177/0273475304268782
- Figlio, D. N., Schapiro, M. O., & Soter, K. B. (2015). Are tenure track professors better teachers? *Review of Economics and Statistics, 97*(4), 715-724. doi: 10.1162/rest_a_00529
- Fisher, R. J. (1993). Social desirability bias and the validity of indirect questioning. *Journal of Consumer Research, 20*(2), 303-315. doi: <https://doi.org/10.1086/209351>
- Frey, T. K., & Tatum, N. T. (2017). The influence of classroom cell phone policies on instructor credibility. *North Dakota Journal of Speech and Theatre, 29*, 1-13.
- Frisby, B. N. (2017). Capitalizing on the inevitable: Adapting to mobile technology in the basic communication course. *Basic Communication Course Annual, 29*, 8.
- Frisby, B. N., Beck, A. C., Smith Bachman, A., Byars, C., Lamberth, C., & Thompson, J. (2016). The influence of instructor-student rapport on instructors' professional and organizational outcomes. *Communication Research Reports, 33*(2), 103-110. doi: 10.1080/08824096.2016.1154834
- Frisby, B. N., & Martin, M. M. (2010). Instructor-student and student-student rapport in the classroom. *Communication Education, 59*(2), 146-164. doi: 10.1080/03634520903564362

- Frisby, B. N., & Myers, S. A. (2008). The relationships among perceived instructor rapport, student participation, and student learning outcomes. *Texas Speech Communication Journal*, 33(1), 27-34.
- Frisby, B. N., Kaufmann, R., Vallade, J. I., Frey, T. K., & Martin, J. C. (2020). Using virtual reality for speech rehearsals: An innovative instructor approach to enhance student public speaking efficacy. *Basic Communication Course Annual*, 32, 6.
- Frymier, A. B., & Houser, M. L. (2000). The teacher-student relationship as an interpersonal relationship. *Communication Education*, 49(3), 207-219. doi: 10.1080/03634520009379209
- Goldman, Z. W., Cranmer, G. A., Sollitto, M., Labelle, S., & Lancaster, A. L. (2016). What do college students want? A prioritization of instructional behaviors and characteristics. *Communication Education*, 66(3), 280-298. doi: 10.1080/03634523.2016.1265135
- Hoorens, V. (1993). Self-enhancement and superiority biases in social comparison. *European Review of Social Psychology*, 4(1), 113-139. doi: 10.1080/14792779343000040
- Johnson, D. I. (2009). Connected classroom climate: A validity study. *Communication Research Reports*, 26(2), 146-157. doi: 10.1080/08824090902861622
- Johnson, D. I. (2013). Student in-class texting behavior: Associations with instructor clarity and classroom relationships. *Communication Research Reports*, 30(1), 57-62. doi: 10.1080/08824096.2012.723645
- Jorgensen, J. (1992). Social approaches: Communication, rapport, and the interview: A social perspective. *Communication Theory*, 2(4), 148-156. doi: 10.1111/j.1468-2885.1992.tb00034.x
- Kelly, L., Miller-Ott, A. E., & Duran, R. L. (2017). Sports scores and intimate moments: An expectancy violations theory approach to partner cell phone behaviors in adult romantic relationships. *Western Journal of Communication*, 81(5), 619-640. doi: 10.1080/10570314.2017.1299206

- Kuznekoff, J. H., Munz, S., & Titsworth, S. (2015). Mobile phones in the classroom: Examining the effects of texting, Twitter, and message content on student learning. *Communication Education*, 64(3), 344-365. doi: 10.1080/03634523.2015.1038727
- Kuznekoff, J. H., & Titsworth, S. (2013). The impact of mobile phone usage on student learning. *Communication Education*, 62(3), 233-252. doi: 10.1080/03634523.2013.767917
- Ledbetter, A. M., & Finn, A. N. (2016). Why do students use mobile technology for social purposes during class? Modeling teacher credibility, learner empowerment, and online communication attitude as predictors. *Communication Education*, 65(1), 1-23. doi: 10.1080/03634523.2015.1064145
- Lee, U., Lee, J., Ko, M., Lee, C., Kim, Y., Yang, S., ... & Song, J. (2014). Hooked on smartphones: An exploratory study on smartphone overuse among college students. In *Proceedings of the 32nd annual ACM conference on Human factors in computing systems* (pp. 2327-2336). doi: 10.1145/2556288.2557366
- Lepp, A., Barkley, J. E., & Karpinski, A. C. (2015). The relationship between cell phone use and academic performance in a sample of US college students. *Sage Open*, 5(1). doi: 10.1177/2158244015573169
- Lopez-Fernandez, O., Kuss, D. J., Romo, L., Morvan, Y., Kern, L., Graziani, P., ... & Schimmenti, A. (2017). Self-reported dependence on mobile phones in young adults: A European cross-cultural empirical survey. *Journal of Behavioral Addictions*, 6(2), 168-177. doi: 10.1556/2006.6.2017.020
- Martin, J. C., Tatum, N. T., & Kemper, B. (2017). "Thanks for the quick reply!": Email chronemics and instructor liking. *Pennsylvania Communication Annual*, 73(1), 50-67.
- McLuhan, M. (1964). *Understanding media: The extensions of man*. MIT press.

- Miller-Ott, A. E., & Kelly, L. (2017). A politeness theory analysis of cell-phone usage in the presence of friends. *Communication Studies, 68*(2), 190-207. doi: 10.1080/10510974.2017.1299024
- Morreale, S. P., Worley, D. W., & Hugenberg, B. (2010). The basic communication course at two-and four-year US colleges and universities: Study VIII—The 40th anniversary. *Communication Education, 59*(4), 405-430. doi: 10.1080/03634521003637124
- Morreale, S. P., Myers, S. A., Backlund, P. M., & Simonds, C. J. (2016). Study IX of the basic communication course at two-and four-year US Colleges and Universities: a re-examination of our discipline's "front porch". *Communication Education, 65*(3), 338-355.
- Mottet, T. P., Frymier, A. B., & Beebe, S. A. (2006). Theorizing about instructional communication. In T. P. Mottet, V. P. Richmond, & J. C. McCroskey (Eds.), *Handbook of instructional communication: Rhetorical and relational perspectives* (pp. 255–282). Allyn & Bacon.
- Myers, S. A., Goldman, Z. W., Atkinson, J., Ball, H., Carton, S. T., Tindage, M. F., & Anderson, A. O. (2016). Student civility in the college classroom: Exploring student use and effects of classroom citizenship behavior. *Communication Education, 65*(1), 64-82. doi: 10.1080/03634523.2015.1061197
- National Communication Association. (2011). National Communication Association's guidelines for undergraduate communication programs. Retrieved from https://ams.natcom.org/uploadedFiles/Teaching_and_Learning/Basic_Course/Advocating_for_the_Basic_Course/NCA%20Guidelines%20for%20Undergraduate%20Communication%20Programs.pdf
- Nazir, T. (2020). Impact of classroom phubbing on teachers who face phubbing during lectures. *Psychology Research on Education and Social Sciences, 1*(1), 41-47.

- Nussbaum, J. F., & Scott, M. D. (1980). Student learning as a relational outcome of teacher-student interaction. In D. Nimmo (Ed.), *Communication Yearbook 4* (pp. 553-664). Transaction Books.
- Owen, W. F. (1984). Interpretive themes in relational communication. *Quarterly Journal of Speech*, *70*(3), 274-287. doi: 10.1080/00335638409383697
- Park, N., & Lee, H. (2012). Social implications of smartphone use: Korean college students' smartphone use and psychological well-being. *Cyberpsychology, Behavior, and Social Networking*, *15*(9), 491-497. doi: 10.1089/cyber.2011.0580
- Przybylski, A. K., & Weinstein, N. (2013). Can you connect with me now? How the presence of mobile communication technology influences face-to-face conversation quality. *Journal of Social and Personal Relationships*, *30*(3), 237-246. doi: 10.1177/0265407512453827
- Roberts, J. A., & David, M. E. (2020). Boss phubbing, trust, job satisfaction and employee performance. *Personality and Individual Differences*, *155*, 109702. <https://doi.org/10.1016/j.paid.2019.109702>
- Santoro, G. M., & Phillips, G. M. (1994). Computer-mediated communication in the basic communication course. *Basic Communication Course Annual*, *6*, 19. <https://ecommons.dayton.edu/bcca/vol6/iss1/19>
- Sidelinger, R. J., Bolen, D. M., McMullen, A. L., & Nyeste, M. C. (2015). Academic and social integration in the basic communication course: Predictors of students' out-of-class communication and academic learning. *Communication Studies*, *66*(1), 63-84.
- Smith, J. A. (1995). Semi-structured interviewing and qualitative analysis. In J. A. Smith, R. Harre, & L. Langenhove (Eds.), *Rethinking Methods in Psychology* (pp. 9–26). Sage.
- Soomro, K. A., Zai, S. A. Y., & Hina, Q. A. (2019). Investigating the impact of university students' smartphone addiction on their satisfaction with classroom

- connectedness. *Education and Information Technologies*, 24(6), 3523-3535.
<https://doi.org/10.1007/s10639-019-09947-7>
- Stephens, K. K., Houser, M. L., & Cowan, R. L. (2009). R u able to meat me: The impact of students' overly casual email messages to instructors. *Communication Education*, 58(3), 303-326. doi: 10.1080/03634520802582598
- Stinson, L. (2017) Stop the endless scroll. Delete social media from your phone. *Wired*. <https://www.wired.com/story/rants-and-raves-desktop-social-media/>
- Sundar, S. S., & Limperos, A. M. (2013). Uses and grats 2.0: New gratifications for new media. *Journal of Broadcasting & Electronic Media*, 57(4), 504-525. doi: 10.1080/08838151.2013.845827
- Sunnafrank, M., & Ramirez Jr, A. (2004). At first sight: Persistent relational effects of get-acquainted conversations. *Journal of Social and Personal Relationships*, 21(3), 361-379. doi: 10.1177/0265407504042837
- Strawser, M. G., Frisby, B. N., & Kaufmann, R. (2017). Universal adaptation: The need to enhance accessibility in the basic course. *Basic Communication Course Annual*, 29, 10. <https://ecommons.udayton.edu/bcca/vol29/iss1/10>
- Tatum, N. T., Martin, J. C., & Kemper, B. (2018). Chronemics in instructor–student e-mail communication: An experimental examination of student evaluations of instructor response speeds. *Communication Research Reports*, 35(1), 33-41. doi: 10.1080/08824096.2017.1361396
- Thabassum, L. (2021). Phubbing: A literature review of the technological invasion that has changed lives for the last decade. *Psychology Research on Education and Social Sciences*, 2(1), 11-18.
- Valenzano III, J. M., Wallace, S. P., & Morreale, S. P. (2014). Consistency and change: The (r)evolution of the basic communication course. *Communication Education*, 63(4), 355-365. doi: 10.1080/03634523.2014.911928

- Walsh, S. P., White, K. M., & Young, R. M. (2010). Needing to connect: The effect of self and others on young people's involvement with their mobile phones. *Australian Journal of Psychology*, 62(4), 194-203. doi: 10.1080/00049530903567229
- Wang, T. R. (2014). Formational turning points in the transition to college: Understanding how communication events shape first-generation students' pedagogical and interpersonal relationships with their college teachers. *Communication Education*, 63(1), 63-82. doi: 10.1080/03634523.2013.841970
- Wang, Y., Niiya, M., Mark, G., Reich, S. M., & Warschauer, M. (2015, February). Coming of age (digitally): An ecological view of social media use among college students. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*. doi: 10.1145/2675133.2675271
- Wiemann, J. M., & Knapp, M. L. (1975). Turn-taking in conversations. *Journal of Communication*, 25(2), 75-92. doi: 10.4324/9781315080918-19