(Dis)Connected Generation:
Students' Motivations and Behaviors Associated with Mobile Devices

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Abstract. College students have a variety of temptations that can keep them from making the most of their learning in and out of the classroom. Moreover, students' habits and behaviors related to mobile device use can hinder their learning and can stymie faculty's effective teaching practices. To explore these issues, we conducted a phenomenological study to examine first-year college students' responses to questions about mobile devices to determine how faculty can improve classroom engagement. Findings included that students recognize the distraction that mobile devices have on their learning yet need more self-management skills to ensure that technology does not disrupt the focus required to learn. Students also revealed that they did not see the use of mobile devices in the classroom by other students as impeding their ability to learn. The implications of these results point to an opportunity to develop instructional strategies that can help students develop better self-regulation that could positively impact learning.

Keywords: Student Self-Regulation, Distraction from Learning, Identity, Student Development, High Impact Learning.

Engaging students in the learning process has been more and more challenging over the past decade. The increased availability and use of mobile technologies, including cell phones, and the most recent pandemic have ostensibly contributed to changes in student habits and behaviors in and out of the classroom (Coyne et al., 2019; Le Roux & Parry, 2022; Wei et al., 2012). Because the first year of college is often a time of transition and growth in a student's development, it is essential to look at how mobile devices contribute to or hinder learning. Somewhere between an outright ban on and a laissez-faire attitude toward mobile devices in the classroom is an opportunity to provide guidance and support for students. One of the best ways to figure out effective policies and practices is to ask students what they think about and how they use their mobile devices. What are they using the devices for? How are they shaping their focus and attention? How do they use them to enhance their learning? These questions guided our development of the interview protocol. They allowed us to ask students a range of questions regarding their mobile device use and the effects of using it to stay connected to others. Our research purpose was to provide a clearer picture of how students use their mobile devices so that we could share insights with faculty and staff who develop policies and practices that maximize student learning and engagement.

Review of Literature

Social Norms with Technology

Social norms are defined as typical or appropriate actions that are perceived to be normal for a group (Paluck & Ball, 2010). The social norms regarding acceptable uses of technology and mobile devices have changed almost as rapidly as technology. The change is especially apparent in the classroom, where an increasing number of students have access to cell phones, tablets, and laptops that allow them to take notes, record lectures, and participate in "just-in-time" research (Büttner et al., 2022). Despite this rapid change in what is perceived as appropriate actions for using technology and mobile devices in the classroom, what has remained constant is the lack of recognition of the effect of those distractions (Hammer et al., 2010). Students are most likely developing their social norms regarding social media use and readily employ justifications for their actions even when they admit that their use has been inappropriate for the occasion (Nadelson et al., 2017; Segrist et al., 2018). This disconnect between what should be appropriate actions or social norms and what happens in practice has influenced in-class behavior and caused some faculty to adopt new policies to stem the use of mobile devices in the classroom (Bartel & Fornsaglio, 2019).

Motivation for Engagement with Mobile Devices

College students use their mobile devices for everything in today's technologically advanced world (Uğur & Tuğba, 2015). Unfortunately, that does not end in the classroom. As Howley-Rouse (2020) shares, classroom engagement is at stake when students use mobile devices instead of listening or participating:

> Within an educational context, engagement means students directing their attention and energy "in the moment" towards a particular task or activity. In the classroom, the term "engagement" is often used to refer to the extent of students' active involvement in a learning task.

Engagement in the classroom is a significant component of the learning process and provides numerous educational benefits (Berman, 2014; Heflin et al., 2017). Thus, at the heart of our study is how one engages a classroom of college students deeply reliant on their mobile devices.

Mobile device use in the classroom can have multiple motivators, including "cyberslacking" or "cyberloafing," which is defined as using technology as a distraction or a method of completing other tasks rather than focusing on the situation at hand (Flanigan & Kiewra, 2018; Jandaghi et al., 2015). According to Aagaard (2015), students struggle with habitually checking websites and apps, specifically social media. The motivation for engagement may not be solely for a communication tool or out of pure habit but may also signal boredom or even addiction. According to Flanigan and Kiewra (2018), college students may be motivated to engage with their mobile devices because of the addictive nature of mobile technology (Roberts et al., 2014). In addition, Kil et al. (2021) conducted a

study that showed that leisure boredom relates to the excessive use of mobile devices. Therefore, it is critical that we further explore why college students are engaging with their mobile devices and what effect their engagement has on their learning.

Priority Decision-Making

We typically make decisions based on our values or priorities (Moore, 2022). For college students, that may be to pursue their college degree to get the job they want. However, for today's college students, that priority is not the only motivator in decision-making. Research on habitual behaviors in college students is growing, taking precedence over priority decision-making, especially regarding mobile device usage (Flanigan & Kiewra, 2018). Seventy to ninety percent of college students regularly text during class (Flanigan & Kiewra, 2018; Kornhauser et al., 2016; McCoy, 2016). These students who prioritize phone usage in class send an average of 12 text messages a class period (Flanigan & Kiewra, 2018; Pettijohn et al., 2015). Instead of focusing on the priority of being in college to complete a degree, in which their class is essential for that priority, college students are prioritizing their mobile device use above all, and this could be due to habit.

The habitual behavior of being on a mobile device during class can stem from the fact that a mobile device is no longer linked and used in specific spaces, but now is explicitly linked to a person (Aoki & Downes, 2003; Shambare et al., 2012). According to Shambare et al. (2012), mobile devices may be a priority in decision-making because they provide college students with social interaction, dependency, image, and identity. Therefore, there is justification for exploring further what college students view as a priority when using their mobile devices.

Self-Regulation

Self-regulation refers to the ability to generate actions and thoughts that lead to attaining one's goals (Zimmerman, 2000). Over the past decade, studies have indicated the difficulty that students have in regulating their use of technology in and out of the classroom; these studies have also pointed to the potential negative effects on course grades and GPA when students use mobile devices in the classroom (Amez & Baert, 2020; Bjornsen & Archer, 2015). While "cyberloafers" may believe they demonstrate self-control and focus as they multitask, one study suggests that cyberloafing can trigger self-dysregulation, contributing to stressors. More specifically, students with low self-regulation and self-control were more likely to use technology for social or entertainment purposes and more likely to be affected by problematic use (Jiang & Zhao, 2016; Zhou et al., 2021). However, after three years of data, Coyne et al. (2019) did not find that self-regulation was related to problematic cell phone use. However, they did note that problematic cell phone use predicted symptoms of depression. The question remains: Does lack of self-regulation lead to using mobile devices at inappropriate times, or does using mobile devices at inappropriate times prevent students from developing self-regulatory behaviors?

Emotions and Social Interactions

We recognize that college students tend to prioritize their mobile device use, which is predominantly focused on social interactions. According to Madell and Muncer (2007), college students prefer social interactions through mobile devices because of having more control. In asynchronous social interactions, students are afforded more freedom and time to know when and what to respond; emotionally, this is more satisfying for students (Madell & Muncer, 2007). In addition, mobile devices provide a sense of safety to individuals (Uğur & Tugba, 2015).

Nonetheless, mobile device use is known to have negative influences on our emotional and social interactions as well. According to Volkmer and Lermer (2019), their participants indicated that "mobile device use is negatively correlated with well-being, life satisfaction, and mindfulness" (p. 1). Therefore, those who are on their phone less are healthier emotionally and socially and are more mindful (Volkmer & Lermer, 2019). We seek to explore the emotional and social interactions that college students have and desire through a mobile device.

Method

Our overarching research questions were the following: What are students' perceptions, actions, and motivations for using mobile devices? We generated the following five guiding research questions to frame our investigation:

1. What are students' perceptions of acceptable uses of mobile devices?
2. How do students engage with their mobile devices?
3. What do students perceive as potential issues with mobile device use?
4. What are students' motivations for using mobile devices?
5. What social-emotional impacts are associated with mobile device use?

Participants

Our research participants were undergraduate first-year students recruited from first-year experience courses at two similar-sized, regional, and professional doctorate-ranked state universities in the south-central region of the United States. Twenty-eight students volunteered to participate in the initial request for participation. We then began gathering data until we hit saturation, which occurred within eight student interviews. Thus, we did not continue to collect data as we recognized additional interviews were not likely to reveal substantial variations in the students' activities and perceptions. Of the eight students, four of our participants identified as male, and four identified as female. All participants were first-year students between 18 and 20.

Study Design

We used a cross-sectional qualitative approach with a phenomenology focus. We sought to collect participants' perspectives at one point, anticipating that their

perspectives and actions were stable. Thus, our goal was to capture the phenomenon of student phone use.

Interview Protocol Development

We developed an interview protocol to collect data aligned with our research objectives and guiding research questions. We piloted the protocol with several students who were undergraduate student workers, who were not enrolled in of course, and who met the criteria for our desired participant population, which was undergraduate students within their first two years of college Based on their feedback, we made minor adjustments to the interview prompts. Our prompts included questions such as "Does your phone affect your ability to learn? Why or why not?" and "Do you think your actions influence the learning of others? Do you feel any responsibility for the learning of others?" We designed our protocol to align with our research questions, creating at least two prompts per question theme.

Data Collection

Following approval of our research by the Institutional Review Boards of both universities, we began our research in the spring of 2023. We started by recruiting participants from the population of students in six first-year experience classes that none of the researchers was teaching. To promote participation, the faculty members agreed to provide extra credit as an incentive to participate. We shared a Google Form with the students interested in arranging a time and space for an interview. Once we received the student's information, we contacted the student through email to schedule a semi-structured interview and provided a letter of information prior to the interviews. At the interview, the researchers asked each student to respond verbally to understanding their rights as a research participant and agreeing to participate. We chose a semi-structured approach to allow us to follow up with questions to gain clarity in their perspectives and responses. The researchers scheduled in-person or Zoom interviews, which lasted around 10 to 15 minutes and were recorded for transcription to text for analysis.

Qualitative Data Analysis

We began our analysis process by transcribing the interview recording using Temi (Temi.com) to produce text for analysis. As we encountered potential issues with the transcription, we again listened to the recorded interview to correct the transcript. Next, taking a deductive approach to the analysis, we developed a set of a priori codes representing themes aligned with our interview prompts. We created the codes based on our knowledge and research of college students' mobile device use as we predicted potential student responses. In addition to our deductive approach, we maintained an inductive approach to coding, developing emergent codes as new evidence emerged from the data in our analysis. The focus of our qualitative data analysis was to ensure that our data's overarching idea was effectively detected and represented (see Table 1).

We coded approximately half of the data as a team of three researchers, discussing the responses and developing the codes as they emerged from the data. Once we experienced a high level of consistency (above Cohen's Alpha of .80), we divided the data among the team to complete the coding. As we worked individually on the coding, we flagged responses that were challenging to code for team discussion and analysis. Then, we met again as a team to review all the codes. We analyzed for the presence of the code in all responses, not just per student. Thus, if a student mentioned some concept multiple times it was coded multiple times.

Table 1

Themes, A Priori and Emergent Codes for Analysis

Theme	A Priori Codes	Emergent Codes
Perceptions of Acceptable Use	Fact Check, Emergencies, Staying Connected with Others, Email, Personal Management Tool (i.e., Clock, Maps), Entertainment (i.e., Movies, Listen (Books, Music, Podcast), Money/Wallet, Identification	Off During Class out of Respect, Actions Impact the Learning of Others, Administrative Communications (i.e., Financial Aid, Advising), Be Without Phone when Together, Inform Others of the Need to Use Phone, Self-Regulate to Shift Use
How Students Engage with Their Mobile Devices	Situational, Socially, High Frequency, Personal Choice	Disengage when Distracted, Phones Are Part of Us, Put Away/ Turn off During Class
Student's Perception of Potential Issues with Mobile Device Use	Distraction, Becomes a Priority, High Reliance, Left out with No Phone, Cost, No Service, Over-Reliance, Disruption	Distraction, Fosters/ Causes Procrastination, Not Impacted by Others Using Phone in Class, Impacted by Others Using Phone if Sound or Video Noticed, Impacted by Others Using Phone if in a Personal Situation, Anxiety due to Constant Reminder of Tasks to Be Completed, Backup Plan for No Phone (Second Phone, Rely on Others), Prevents Being in the Moment, No Struggle with No Phone, Being on Phone at Inappropriate Time, Recognition of Inappropriate Use, Exposure to

		Content That Is Emotionally Draining or Difficult, Anxiety Without Access
Student's Motivations for Using Mobile Devices	Stay Connected with Others, Fear of Missing Out, A Sense of Responsibility to Respond, No Other Options Available, Nearly Effortless, Convenience	Work on Class Assignment, Tempted to Use Phone When Class Not Engaging, Medical Data (e.g., Diabetes Monitoring), Learn New Things/Being Entertained
Social Emotional Impacts Associated with Mobile Device Use	Feels as if There Is a Sense of Urgency, Anxiety About Not Responding, Anxiety About Not Getting a Response, a Sense of Accomplishment by Leveraging the Immediacy of the Communication to Complete a Task, and a Sense of Relief to Be Able to Complete a Task That Is Pressing, Projecting the Motivations of Others Due to Expectations, Compelled to Respond (Sense of Responsibility)	No Emotional Response when Told to Put away a Phone, Phone Being Focus by Others = Wasted Time, Phone Being Focus by Others = Upset (Emotionally), Loss of Social Skills, Overwhelmed by All the Messages, Feel Bad About Others, Accustomed to the Constant Flow of Information

Trustworthiness

We established the trustworthiness of our research in multiple ways. First, we developed an interview protocol, which enhanced our data collection consistency and provided a replication structure. Second, we recorded our interviews and then used a service to transcribe the audio, which allowed us to verify the accuracy of the transcript to ensure we had an accurate data set for analysis. We then coded a substantial amount of the data as a team, discussing responses, providing justification for our coding, and establishing intercoder reliability to balance the analysis. Finally, we used deductive and inductive approaches in our coding, enhancing our capacity for comprehensive analysis. The combination of these activities enhanced the ability to replicate our research, the dependability of our analysis, the confirmability of our findings, and the credibility of our data collection and analysis.

Results

Perceptions of Acceptable Use

Our first guiding research question was, "What are students' perceptions of acceptable uses of mobile devices?" To answer this question, we examined the coded responses aligned with our theme of acceptable use (see Figure 1). We found that the students indicated it was essential to use phones to stay connected with others (N = 16), for emergencies (N = 15), to fact check (N = 9), and for entertainment (N = 7). The students recognized they needed to have their phones off during class (N = 10) or they self-regulated their phone use in another way (N = 8). There was a low frequency of recognition of using their device for email (N = 2), and there was only one mention of being without their phones when they were with others in social situations (N = 1).

Figure 1

Codes and Frequency of Responses for the Perceptions of Acceptable Use Theme
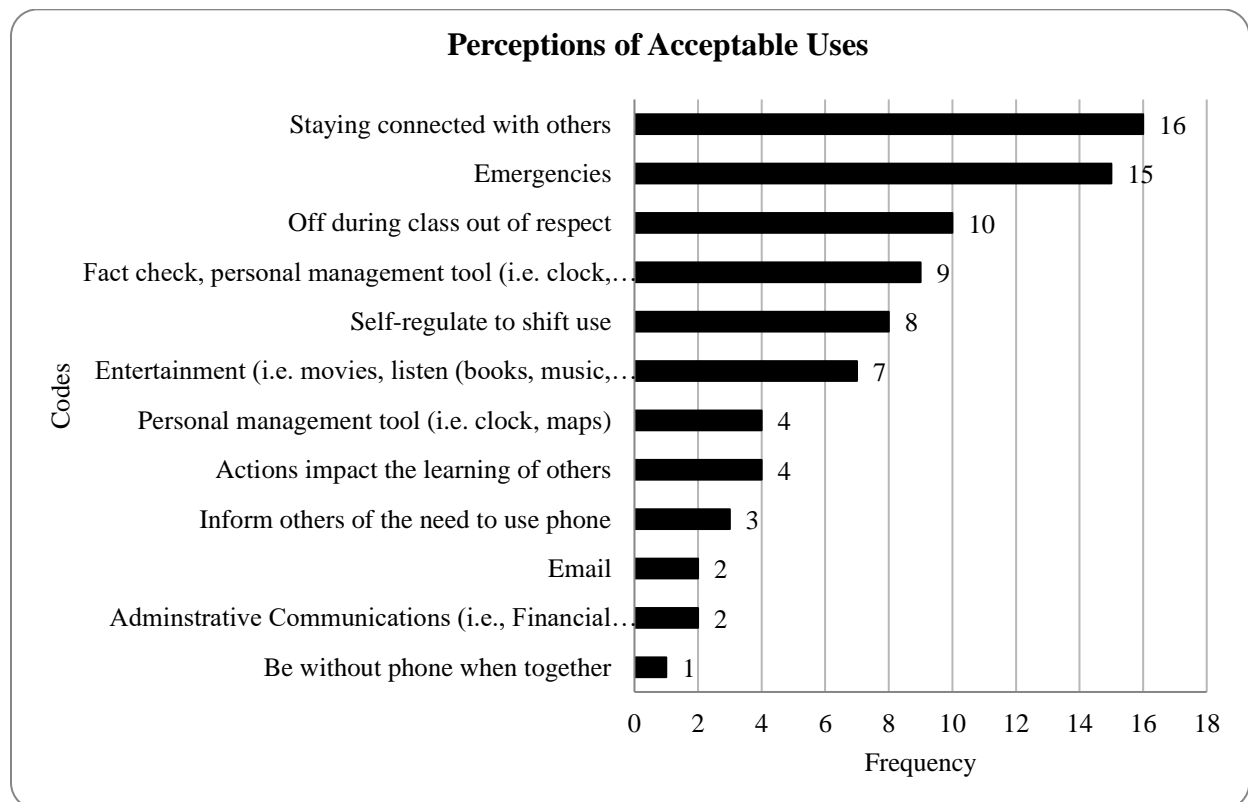
As we continued our analysis, we examined the representative responses, further supporting the students' perceptions of using their phones to stay connected with others and be aware of and respond to emergencies (see Table 2). The students indicated they struggled with self-control or would "shift their use." One student stated, "[P]art of the way that I do my assignments is on my phone. But if I get overwhelmed or want a break, I'll start watching videos…." Multiple students

shared similar statements about turning their phones off in class, such as, "I feel like not having your phone out during lecture in general is respectful." The students indicated flexible use of the phone as a tool for doing their work and managing their time, as the participant noted that the many apps on their phone helped them stay organized.

Table 2

Five Most Frequent Codes for Perceptions of Acceptable Uses Theme

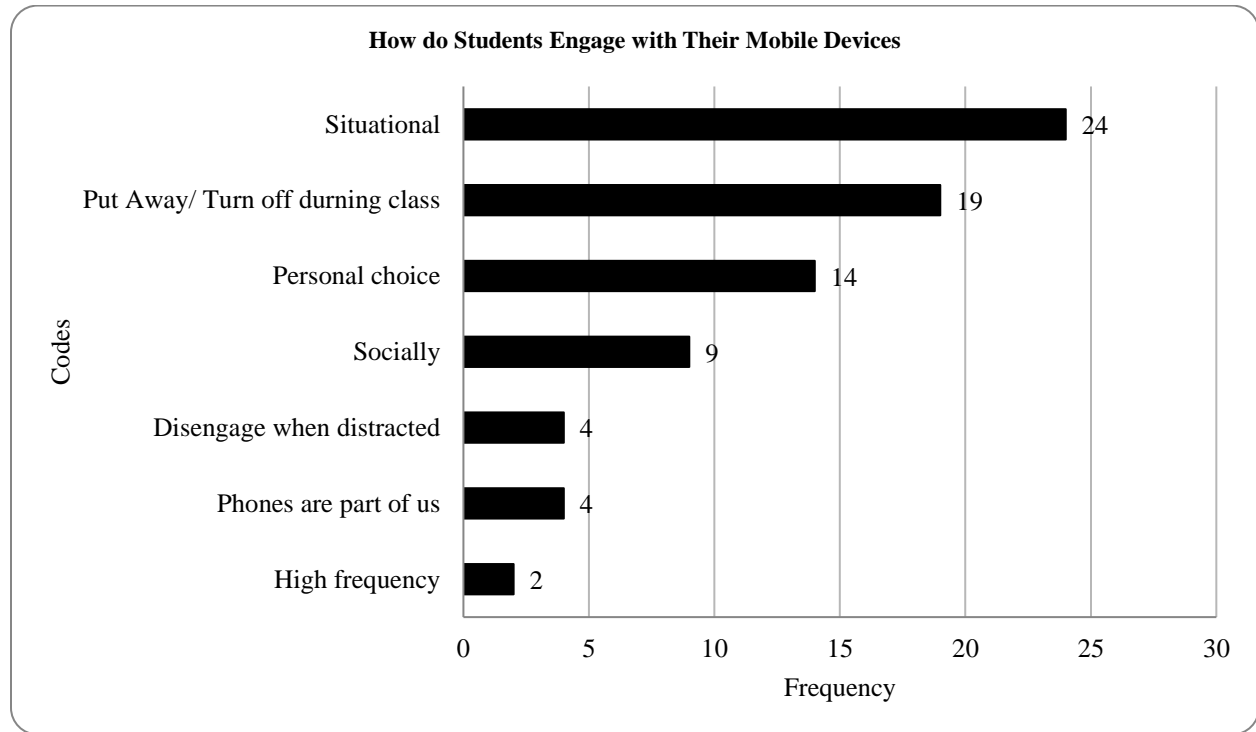| Code	N	Representative Responses
Staying Connected with Others	16	No. I never decide to get together and leave my phone at home. It is difficult to keep in touch with each other without a phone.
Emergencies	15	…if any of my family members are having an emergency and they need immediate help.
Off During Class out of Respect	10	I feel like not having your phone out during lecture in general is respectful. But being told to put my phone up doesn't make me feel any different.
Fact Check, Personal Management Tool (i.e., Clock, Maps)	9	If anything, I would say that for this generation, there are so many apps. The Apple Notes app is one of the best notes apps. There are so many different things that I can do, and it helps me study whenever I'm in the car or I'm away from my computer. I think a phone is a really good way to help me.
Self-Regulate to Shift Use	8	I would say yes because usually I have a lot of things to do and I'll start, cause part of the way that I do my assignments is on my phone. But if I get overwhelmed or just want a break, then I'll start watching videos or something on my phone. So, yes.

How Students Engage with Their Mobile Devices

Our second guiding research question was, "How do students engage with their mobile devices?" To answer this question, we examined the coded responses aligned with our theme of students' engaging with their mobile devices (see Figure 2). We found that students indicated the use was situational (N=24); they put away their phones during class (N=19); they used their phones for personal issues (N=14) or socializing (N=9). There was a low frequency of disengaging when

distracted (*N*=4), the belief that "phones are just part of us" (*N*=4), and a high frequency of use (*N*=2).

Figure 2

Codes and Frequency for How Students Engage with Their Mobile Devices

How do Students Engage with Their Mobile Devices

As we continued our analysis, we examined the representative responses, which further supported students' use of their mobile devices as personal, situational, and social (see Table 3). For example, one student indicated phone engagement depended on the situation: "I would say studying and doing homework is a real struggle whenever you're sitting in your room, and you're covered in distractions through your phone."

Another student shared the struggle they have with staying engaged in any task, even when talking to their mother about a serious topic: "But you know, like we're trying to have a serious conversation, and I struggle not to turn my phone over to see what time it is or see you know if I've gotten any notifications and sometimes you don't realize that you're doing it so it's haphazard."

Table 3

Five Most Frequent Codes for How Students Engage with Mobile Devices Theme

Code	N	Representative Responses
Situational	23	Yes. I would say studying and doing homework is a real struggle whenever you're sitting in your room and you're covered in distractions through your phone and other ways of entertainment. I would say that it's pretty hard to not pick up that phone whenever you just finished a question on an assignment or something. It's hard to do things continuously.
Personal Choice	14	I put it on "do not disturb." I'll turn the brightness down so I won't see a message or I'll just completely put it away from me if I'm doing an exam or something in my room.
Socially	9	I feel like there's a lot of things that because on our phone there's so much social media on, so like, there's so many things that keep you entertained and that you want to catch up on, and that you want to be up to date on. Most of my friends are scattered around the world, and in different time zones, so in the night for me, it could be like day for them so they could be active.
Put Away/ Turn Off During Class	6	Oh, no. Not at all. I usually don't get told that, but if I get told that it's, it's totally on me. You know, the phone shouldn't be out. It's steadily something on me, so I wouldn't get embarrassed. I would just put it away.
Disengage When Distracted	4	I have, I've struggled with that where, you know, like there are times where I'll be talking to my mom and she's like, [student's name], you're on your phone. And I don't mean to be, but she does it too. So like, we both don't realize it in those instances where we're talking to one another. But you know, like we're trying to have a serious conversation and I struggle not to turn my phone over to see what time it is or see you know, if I've gotten any notifications and sometimes you don't realize that you're doing it so it's haphazard. I find that to be my thing. It's kind of one of those routine patterns now where you just kind of check your phone and don't really pay attention to it. So there is a struggle when you are kind of put in a space where it's like, please don't look at your phone. And I try my best to not do that, but it can be very hard for me. I will be at home reading totally by myself, an hour or so and then I will instinctively try to, I'll just

> look at it to see is everything in the world okay. You know, like, I've lost myself. It's hard.

Students' Perceptions of Potential Issues with Mobile Device Use

Our third guiding research question was, "What do students perceive as potential issues with mobile device use?" To answer this question, we examined the coded responses aligned with our theme of potential issues with device use (see Figure 3). We found the students often found their devices to be distracting ($N = 29$) or disruptive ($N = 12$); students recognized what was an inappropriate use ($N = 22$); and students admitted their phones become priorities ($N = 15$). The students also recognized multiple other issues, such as a high reliance ($N = 9$) or over-reliance ($N = 4$) on their devices, a barrier to being in the moment ($N = 8$), and a cause of procrastination ($N = 4$). To a lesser extent, the students indicated they had no issues with their devices ($N = 9$) or with others being on their phones being an issue ($N = 9$). It is interesting to note the students *did* indicate others' being on their phones as an issue if they were in a personal situation such as a conversation ($N = 9$). At a lower level, participants indicated feeling anxiety ($N = 3$) and the emotional impact of exposure to content ($N = 2$).

Figure 3

Code and Frequency for Students' Perception of Potential Issues with Mobile Device Use Theme
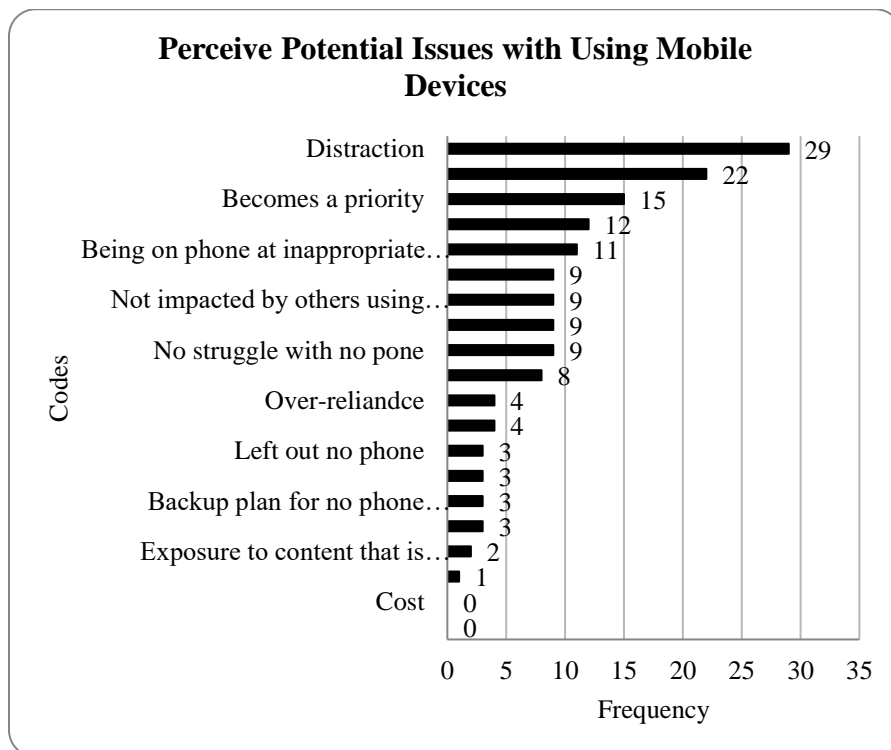
As we continued our data reporting, we selected representative responses for our five most frequent codes, providing additional insight into the students' perspectives of their potential problems with using their mobile devices (See Table 4). It was clear that lecture-based or uninteresting (to the student) classes tempt students to use their mobile devices. As one student stated, "[If] it's [the class] is not interactive and it's just one person speaking… it'll make me use my phone." Students also noted the emotional and mental health aspects of using (or not using) their phones: "Working the smartphone makes me calm down" and "I feel like it's more peaceful and relaxing [when interacting with people without using phones or social media]." Interestingly, the lack of respect when interacting with an individual was evident in the responses: "I would ultimately think that [using a mobile device when someone is talking to you about an important issue] would be very…immature, not very professional, because that's not something you do when you're trying to show that you have an interest in listening to them." There is a recognition of a personal impact when using a mobile device in a one-on-one setting, but this impact was not noted in a classroom setting.

Table 4

Five Most Frequent Codes for Student's Perception of Mobile Device Issues Theme

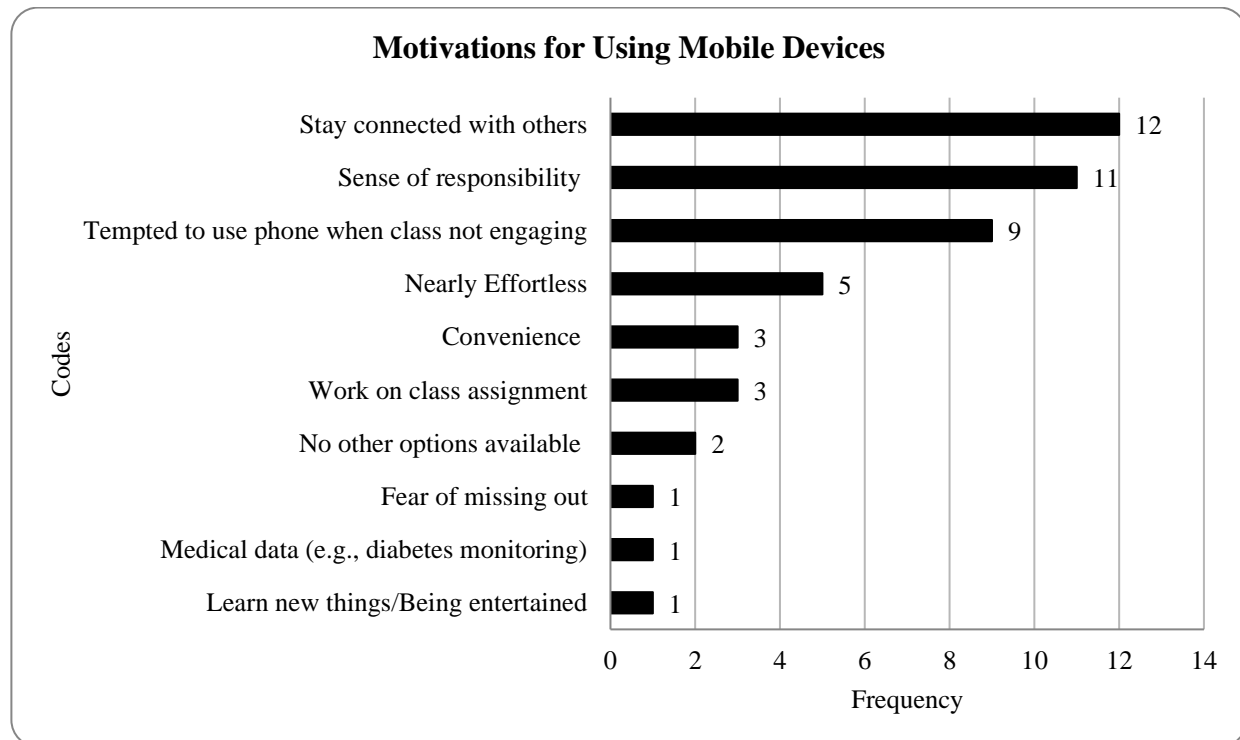| Code	N	Representative Responses
Distraction	29	There are some classes that just feel like it goes on and on, it's not interactive, and it's just one person speaking. So, it'll make me use my phone because most times, my phone isn't even close to me during class, but sometimes, it could cause distractions.
Recognition of Inappropriate Use	22	I would ultimately think that would be very immature, not very professional, because that's not something you do when you're trying to show that you have an interest in listening to them. And it isn't very respectful to the other person if you were to be staring at your phone or picking up your phone while the other person's talking, trying to relate to you in some way.
Becomes a Priority	15	When I listened to the lecture of the teacher, I became panicked and confused. So, working on my smartphone makes me calm down.
Disruption	12	I just love interacting with people outside of phones or social media. I feel that it's just more peaceful and relaxing and it's not something that will distract you. It just helps you live in the moment and enjoy what's in front of you.

Being on the Phone at Inappropriate Times	11	I had a mathematics exam or a test. It was a test and an exam that I had to do on my own. Like, it was self-paced. So, instead of doing that early before the deadline, I just didn't, I was on my phone and I kind of lost track of time. I almost didn't submit the test.

Students' Motivations for Using Mobile Devices

Our fourth guiding research question was, "What are students' motivations for using mobile devices?" To answer this question, we examined the coded responses aligned with our theme of motivation for device use (see Figure 4). We found the students tended to use their phones to stay connected with others, particularly family members ($N = 12$), and bring their phones with them wherever they go as a sense of responsibility ($N = 11$). Multiple times, the participants indicated they were tempted to use their phone while in class when the class was not engaging ($N = 9$). At a lower frequency ($N = 5$), the students shared how they perceived their phone use as nearly effortless ($N = 5$) and convenient ($N = 3$). A few students indicated they use their phones to complete course assignments ($N = 3$) and relied on their phones due to the lack of other options ($N = 2$). One student mentioned each of the following as motivation for using the phone: fear of missing out, medical monitoring, and entertainment.

Figure 4

Code and Frequency for Students' Motivations for Using Mobile Devices Theme

Motivations for Using Mobile Devices

Code	Frequency
Stay connected with others	12
Sense of responsibility	11
Tempted to use phone when class not engaging	9
Nearly Effortless	5
Convenience	3
Work on class assignment	3
No other options available	2
Fear of missing out	1
Medical data (e.g., diabetes monitoring)	1
Learn new things/Being entertained	1

In Table 5, we share representative responses aligned with the five more frequent codes. For our code representing the motivation for using the phone as staying connected, the response "if my dad had called me, I would be able to receive it" exemplifies the expectations that the students perceive are critical to have a phone to be connected with others. Our representative responses for a sense of responsibility reflect a perspective that using a phone when meeting with others is a higher priority than the person in the room is acceptable: "...[I]f you pick up your phone, it's not gonna be that bad for me. I really will have no issue with it." Similarly, the students perceived phone use as acceptable when they struggled to pay attention in class: "Like a boring class, I think it would be easier to use your phone instead of paying attention to it." The students indicated shifting from use to no use was nearly effortless, but only when they were in the company of someone who shared the phone use was bothering them, as evidenced in, "I will abide by them and if it is bothering them and getting it in the way of their teaching, then I would easily put it down. And it wouldn't bother me." Few students did indicate they used their phone as a tool, as did a non-native English speaker: "I can use the phone for a translator. If I can't use it, I can't have good English."

Table 5

Five Most Frequent Codes for Student Motivation for Using Mobile Devices Theme

Code	N	Representative Responses
Stay Connected with Others	12	It might worry me because I wouldn't know what's going on. If my dad had called me, I would be able to receive it.
Sense of Responsibility	11	I feel like it's something like I come for a counseling session like that really entails you listening one-on-one and, you're using your phone. I find it kind of unnerving. I feel like in something like this [the interview] or where we're doing more like a question and answer, if you pick up your phone, it's not gonna be that bad for me. I really will have no issue with it.
Tempted to Use Phone when Class Not Engaging	9	Yes. I think if it's a class that doesn't really make me challenge myself or really pay attention, if like, I'm easier, like a boring class, I think it would be easier to use your phone instead of paying attention to it. So, yeah.
Nearly Effortless	5	Because if it's somewhere that it's their rules really I will abide by them and if it is bothering them and getting it in the way of their teaching, then I would easily put it down. And it wouldn't bother me.

Convenience	3	Yeah, I think it's affected my ability to learn, because the iPhone has the ability to search everything. So, if I have something which I don't know, I can search everything by using this phone. I can use the phone for translator because I don't have good English, so I already sometimes use phone or class writer.

Social Emotional Impacts Associated with Mobile Device Use

Our final guiding research question was "What social-emotional impacts are associated with mobile device use?" To answer this question, we examined the coded responses aligned with our theme of social-emotional impacts (see Figure 5). We found that students tended to find people focusing on their phones over them was upsetting ($N = 13$). However, the students also tended to focus on their phones out of a sense of urgency they may miss something ($N = 9$). Many students recognized phones as potentially hindering social skill development ($N = 6$) as they are accustomed to the constant flow of information ($N = 5$). The participants shared that phone use was associated with a sense of responsibility ($N = 4$) and being relieved when able to use the phone to complete a task ($N = 3$). A few participants indicated they had emotional reactions when told to put away their phones ($N = 3$); in contrast, at the same frequency, participants indicated being with others while they were on their phones was a waste of time. A couple of times, the participants shared feeling anxious about not responding as well as being overwhelmed by all the messages. Overall, our results reflect an array of perspectives, including the positive and negative social and emotional responses to phone use.

As we examined the representative responses (see Table 6), we found the students did find offense in others using their phones while trying to engage with them. One participant stated, "...when I interact directly, and [they] interact with the phone, I think it's unfriendly." The students' reliance on their phones for responding to urgent requests is reflected in the response: "So whenever it is really important, they just call me. If I know that there's a person who doesn't usually text me, I will see what's going on because it's unusual." The response "I think people get caught up in technology a little bit too much sometimes instead of focusing on what's in front of them" reflects the lack of consideration of the impact of focusing on a phone may have on others who are trying to be engaging. Responses similar to "I tend to try to just stay on alert at all times just because I don't know if there is going to text me" reflect the students' perceptions of feeling compelled to monitor their phones constantly. The following are the only participant responses that overtly recognized the potential for phone use to be addictive: "Phones are just an addiction, so not looking at your phone for long periods of time can be hard, but it depends on the activity you're doing" and "The phone matters, but the phones are usually tools that you need and, and you use all day."

Figure 5

Code and Frequency for Social Emotional Impacts of Mobile Device Use Theme
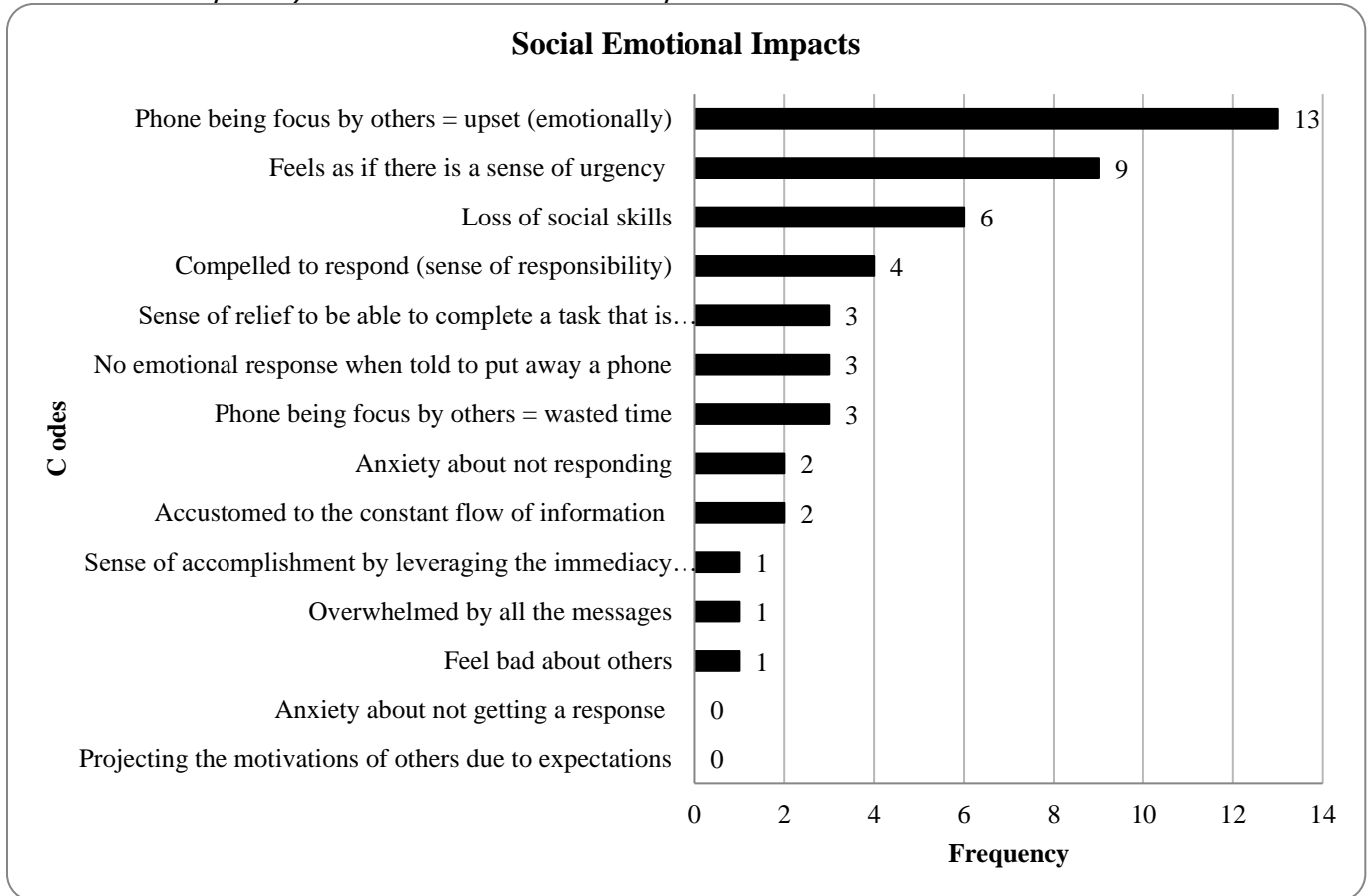
Social Emotional Impacts

Code	Frequency
Phone being focus by others = upset (emotionally)	13
Feels as if there is a sense of urgency	9
Loss of social skills	6
Compelled to respond (sense of responsibility)	4
Sense of relief to be able to complete a task that is...	3
No emotional response when told to put away a phone	3
Phone being focus by others = wasted time	3
Anxiety about not responding	2
Accustomed to the constant flow of information	2
Sense of accomplishment by leveraging the immediacy...	1
Overwhelmed by all the messages	1
Feel bad about others	1
Anxiety about not getting a response	0
Projecting the motivations of others due to expectations	0

Table 6

Five Most Frequent Codes for Social Emotional Impact of Mobile Device Theme

Code	N	Representative Responses
Phone Being Focus by Others = Upset (Emotionally)	13	I think that when I interact directly, and [they] interact with the phone, I think it's unfriendly. But when I was interacting by calling each other, but the others are using another form, I think it's not unfriendly.
Feels as if There Is a Sense of Urgency	9	You usually know what kind of people would text important stuff. For example, my mom and my dad would text me only for important stuff because they know I'm in school or I'm usually studying. So, whenever it is really important, they just call me. If I know that there's a person that doesn't usually text

me, I will see what's going on because it's unusual.

Loss of Social Skills	6	I just feel like technology is a big part of our society now, although it's fairly newer, the way that we kind of communicate, it's changed everything really. I think people get caught up in technology a little bit too much sometimes instead of actually focusing on what's in front of them. I know I can do it myself. I see my grandparents and my family, and think I don't know how long I may have with them and really enjoy spending time with them. So, taking the time to step away from your phone can definitely be needed to actually enjoy people around you and to enjoy your own personal environment.
Compelled to Respond (Sense of Responsibility)	4	I tend to try to just stay on alert at all times just because I don't know if there is going to text me. I know my parents are at work so usually if they text me, it is something they need to tell me or let me know they forgot to tell me earlier in the day. So, I try to stay on alert to monitor and see if they are texting me. When it comes to my grandparents since they're older, I always try to respond to them as quickly as I can. They'll check on me and if I don't respond they think something's wrong. You know, they're texting. I'm like, okay, are y'all okay? You know, it's a mutual check-in. So, I try to do my best with just being responsive so that they know that everything is okay.
Sense of Relief to Be Able to Complete a Task That Is Pressing	3	Phones are just an addiction, so not looking at your phone for long periods of time can be hard, but it depends on the activity you're doing. For example, if you're with people that you really enjoy being with, I don't think that matters. The phone matters, but the phones are usually tools that you need and, and you use all day.

Discussion, Implications, and Future Research

The findings suggest that mobile devices are, first and foremost, social connectors for students as they function as "lifelines," in which students stay connected and help others, most notably their family members. There is clear evidence from our study that this function supersedes everything else. Students' social currency is of high value to them, yet the classroom learning community is not considered a

place where their connections and attention are essential. Their mobile devices also function as a negative and positive distraction from discomfort. Students indicated they used their phones to self-soothe during stressful times and entertain themselves when bored, but they also kept them from completing important tasks, increasing their stress levels.

Perceptions of Acceptable Use

We found that students relied on their phones to stay connected with others, including for emergencies. Some students also set limits on their use and used the phone for various tasks and outcomes. We found it ironic that the students rely on their phones to connect with others, yet when they are in the company of others, they continue to use their phones. For example, none of the students would go out with friends, leave their phones at home, or turn them off. We speculate that the high reliance on phones to connect with others, mainly through social media, likely reinforces the students' attention toward their phones rather than those physically near them.

Further, we posit that the constant use of the phone for a wide range of tasks, including those related to their school work, reinforces the students' justification for their constant connection with their phones. The finding that students feel compelled to stay connected with others outside of the classroom while discounting learning as a social activity could provide faculty insight into the student experience and an avenue for future research. This finding should warn faculty members who organize their teaching to be unidirectional (e.g., lecture only) rather than interactive. They will likely find their students more compelled to use their mobile devices in class. A possible instructional solution to address this behavior is reinforcing the importance of learning as a social endeavor and providing students an opportunity to learn collectively. However, whether or not their mobile device use during class stems from the desire for social connections needs to be researched in different contexts. Our findings imply that the potential for high reliance on phones limits students' awareness of other resources and hinders their overall development. A potentially significant direction for future research is examining what most students would consider unacceptable use of their phones, particularly concerning their social interactions.

How Students Engage with Their Mobile Devices

We found that phone use is situational for some students, but we did not find notable trends in the participants' phone engagement. We speculate that students likely perceive their use of phones, particularly in class, as conceptually different from their faculty members. Additionally, our study may indicate a contradiction between what students say about their device use and how they actually regularly engage with it. Likely, the students' use of their phones for various personal choices is an easily justified part of their culture and, thus, part of their identity. As a result, students rely on their phones as part of who they are and, therefore, do not want to self-regulate to stop their use, as this threatens their identity. One potential teaching practice is increasing students' self-awareness of their actions

by asking them to evaluate when, where, and how long they engage with their mobile devices and reflect on the impact of their actions. The implications of the findings are the potential identity threat students may experience when separated from the immediate access and use of their phones. Exploring students' relationships with their phones as part of their identity is potentially a fruitful direction for future research. Further, our data indicate a need for further research on students' phones as reaching a level of automaticity, as they were often not aware they were engaging with their phones inappropriately until their use was brought to their attention.

Students' Perception of Potential Issues with Mobile Device Use

Student responses indicated they used phones as a distraction and disruption and struggled to regulate their phone use. We also found that the students' learning engagement was impacted by their phone use, and they recognized they were on their phones when it was not appropriate and had a high reliance on them. The inability to self-regulate and monitor their phone use is likely reflective of their high dependence on their phones to fulfill some need to be connected or stimulated. The implication is that the students may focus on their phones at the expense of forming relationships with others, including forming relationships in class with their professors and classmates. These relationships are critical for working collaboratively, feeling part of the campus community, and engaging within learning communities. The students do not seem to embrace the notion that they are responsible for being present in their courses and contributing to the learning community. An implication for practice is that faculty can and should provide information about what behaviors and actions are expected in class. Faculty may also want to ask students to develop "community standards" for learning and hold students accountable for meeting those standards through self-evaluation and reflection. Future research, however, is needed to understand students' perceived levels of responsibility to be present and part of a learning community.

Students' Motivations for Using Mobile Devices

The most central motivation for using mobile devices was to stay connected with others. We found the students felt responsible for being immediately available and needed to respond quickly when contacted. The participants also indicated they used their phones to stay stimulated and perceived their phone use as effortless. We speculate that the students hold a relatively high level of fear of missing out and, therefore, continually check their phones to remain included. We posit that the connection to others through their phones further strengthens the notion that their phones are part of their identities. We also found that students perceive their phones as the conduit to and reflection of what they think, value, relate to, and seek. Implications of these findings include opportunities for discussion around the effects of being constantly "plugged in" to respond to all notifications and messages, as well as the definitions of "urgency" in the context of phone use. Implications for instruction include having faculty help students find solutions to staying connected without sacrificing their attention and focus during class, such

as coaching them to alert others they will be unavailable when attending class. We maintain that direction is needed for future research is the limits students place on using their phones. Specifically, it is likely fruitful to research the association between students' perceptions aligned with their phones as part of their identity and their motivations to use them.

Social Emotional Impacts Associated with Mobile Device Use

Our findings indicate that students have mixed feelings about using mobile devices. They have a sense of urgency to use it when the messages are important or require a quick response, particularly if the person communicating with the student is a family member and there is a perceived need to "fix" an issue. However, when others respond the same way, they indicate the use is disrespectful. Our participants' responses point to a sense of relief when a task is completed via the mobile device, which suggests that students experience some emotional satisfaction when they receive initial notifications, requests, or messages. Interestingly, while student responses make the case that they are more socially connected than ever, students also shared that they regret the loss of uninterrupted, face-to-face interactions with those they care about. For example, there was almost uniform agreement that students would be upset and feel disregarded if someone engaged with their phone during a crucial one-on-one conversation. We speculate that the students' need for attention and engagement is likely fueled by those connections with them by phone but not fulfilled by others' using their phones rather than engaging with them directly. When looking through a lens of self-interest, one can surmise that students see their use of mobile devices as urgent and necessary, but not when the actions of others are similar. One of our insights was the students' very apparent individualistic and self-serving use of the phone, which does not necessarily have to include the direct involvement of others. Future research might determine students' perceptions of the limits to which the phone is more important than those in front of them, particularly the context and source of the message they receive and the effects on their social and emotional well-being when prioritizing their mobile devices over face-to-face interactions.

Implications for Teaching and Learning Communities

Anyone who teaches college students likely recognizes the influence of mobile devices on their students' academic performance. Thus, students likely need support to develop self-awareness and self-regulation habits so that phone use does not interfere with their learning and the learning of others within and outside of the classroom. For example, if a professor is lecturing (or facilitating a learning activity) and students are distracted by their mobile devices, we wonder if the desired learning actually occurs. Understanding what students do (and do not do) when engaged in their courses is fundamental to finding productive strategies for improving their learning engagement. To assume that students "just need to put their phones away" misses an opportunity to understand why students feel compelled to stay connected with phones regardless of the expectations or established norms. Additionally, focusing on the phone as the issue rather than

students' feeling compelled to interact with their phones limits the opportunity to learn more about supporting and increasing students' motivations and self-regulation.

Limitations and Delimitations

There are several limitations of our research and delimitations that impacted our results. One delimitation was that we launched our research in the spring semester with first-year students. Students who have completed at least one semester in college may be more aware of the expectations within the classroom and less likely to use their mobile devices if prohibited. Because they were more experienced, they may have been more disciplined and prepared to avoid inappropriate use of their mobile devices. A second delimitation is that our participants were all first-year students. An important direction for future research is comparing students' perspectives at different stages of their college education.

One limitation of the study is the inability to determine if the students' actions were consistent with their responses or if they responded in socially desirable ways but not consistently with their activities. Thus, we could not confirm if the students told us what they thought we wanted to hear or created a persona of someone who controls their mobile device use for our benefit. Another limitation may have been the short length of the interviews and the long length of questions, which did not allow students to elaborate on their experiences.

Conclusion

We conducted this study to understand better the mindset and habits associated with college students' motivations for using their phones. We uncovered issues of identity, self-regulation, sense of urgency, and fear of missing out. We also found that students' social connections are always valuable to them, perhaps even more valuable than classroom learning. These students describe behaviors and motivations as individualistic rather than collective, which may be one reason their use of mobile devices at inappropriate times is justified. The practices may profoundly impact students' abilities to develop and maintain personal relationships, engage in learning communities, think deeply about issues over time, and develop social skills. Understanding these issues may provide a foundation for addressing the challenges while seeking to engage students in learning, particularly as a community. We hope others will join us as we explore the potential opportunities and challenges associated with student engagement in individual and group learning.

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