

THESIS

THE PARADOX OF CELLPHONES: A MEDIA DEPENDENCY STUDY ON COLLEGE-
AGED TEENS AND THEIR CELLPHONE USE

Submitted by

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ABSTRACT

THE PARADOX OF CELLPHONES: A MEDIA DEPENDENCY STUDY ON COLLEGE-AGED TEENS AND THEIR CELLPHONE USE

The cellphone has become a common tool for entertainment, communication, and information in everyday American life. However, with increased dependency on the cellphone, users are also seeing negative repercussions of their relationships with them. Research has found that cellphones are associated with feeling social and job pressures, anxiety, and depression. The media available through cellphones are intentionally crafted to hold users' extended attention and keep them engaged and active for long periods of time. Those who find themselves fighting against their own habits of cellphone use may be struggling against the software designers who make it difficult for users to disconnect themselves from their smartphones. This thesis studies the relationships between college-aged teens and their cellphones to understand the potential tensions between depending on this technology and feeling it is too demanding and distracting. It uses a series of in-depth interviews to address the research question: **How do young adults view and feel about their relationship with their cellphone, and to what extent do they believe they are in control over their cellphone use?**

The theoretical framework of media dependency theory guides this project's approach by integrating considerations of how society plays a role in relationships with media technology. It also introduces key aspects of why users feel they want to escape their cellphones while examining the factors that make it so difficult for individuals to be without their cellphones. As a social level theory, media dependency theory aids in examining the role of the cellphone in

society as a whole, and how individuals' relationships with their phones influence their broader social world.

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CHAPTER 1. INTRODUCTION

For many people, it seems impossible to escape cellphones and social media accounts, or email and laptops. For some, the presence of a phone in their pocket causes the feeling of being constantly available, creating resentment. But few of us would choose to give up the convenience of our phones which, in turn, creates a paradox of reliance on the same device that places so much pressure on us. Research on phone use suggests this tension may be widespread. In the U.S., 85% of adults own a smartphone, and 100% of those 18-29 years old own one (Pew Research Center, 2021). However, through their study on phone use in social gatherings, researchers found that 82% of all adults felt cellphones were harmful to social gatherings (Raine & Zickuhr, 2015), and in 2020, 40% said they were bothered by how much time their romantic partner spent on their phone (Vogels & Anderson, 2020). It has also been found that 68% of parents say that they at least sometimes feel distracted by their phones when spending time with their children (Jiang, 2018). At the same time, cellphones have been found to make people feel more connected to family and friends, improve health resources, feel safer, aid memory, and improve work (Anderson & Raine, 2018).

This thesis studies the relationships between college-aged teens and their cellphones to understand the potential tensions between depending on this technology and feeling it is too demanding and distracting. It employs a series of in-depth interviews to address questions around this tension through a theoretical framework based on media dependency theory to integrate considerations of how social structures play a role in people's relationships with media technology. For this project, the terms *cellphone* and *smartphone* are used interchangeably (only

4% of U.S. adults 18-29 reported having a cellphone that is not a smartphone in 2021; Pew Research Center, 2021).

1.1 Teens and Cellphones

Trends of increasing dependency on cellphones may be even more pronounced for teens than for adults. In 2018, nearly all U.S. teens 13-17 years old (95%) said they own a smartphone (Schaeffer, 2019), and nearly half of those 18-29 (48%) say they are almost constantly online (Faverio, 2022), and 84% use social media. In 2021, 100% of U.S. adults ages 18-29 said they own a cellphone, and 96% own a smartphone (Pew Research Center, 2021). Pew Research also reports that 43% of teens say they often or sometimes use their phone to avoid interacting with people, and girls do so more often than boys (54% vs. 31%; Schaeffer, 2019). This is because phone use in a social setting tacitly implies one's availability to conversation or being approached. Phones are also seen as demanding: 72% of teens say they often or sometimes check for messages or notifications as soon as they wake up (Schaeffer 2019). Young adults ages 18-24 send or receive an average of nearly 110 text messages per day, which equates to more than 3,200 text messages per month (Smith, 2011). More than half of teens (56%) associate the absence of their phone with one of three emotions: loneliness, being upset, or feeling anxious (Schaeffer, 2019). This finding is related to the idea of *nomophobia* ("no mobile phone" phobia), which is the fear of being without a cellphone. Figure 1 shows smartphone ownership amongst teens in 2015 vs. 2019.

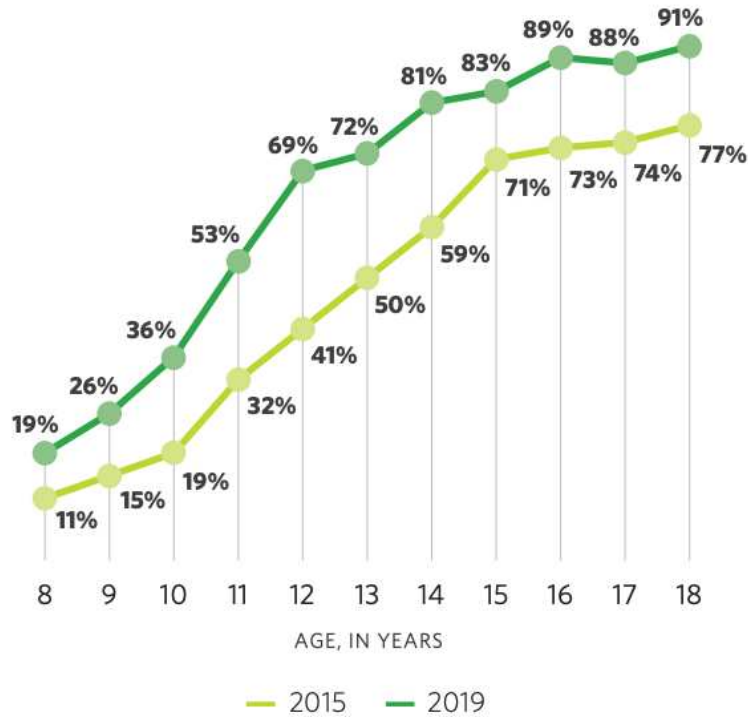


Figure 1. Teenage smartphone ownership in the U.S. by age, 2015 vs. 2019 (Rideout & Robb, 2019)

Research has shown that teens are aware of and are potentially influenced by a narrative that smartphones are addictive and can lead to negative, though largely undefined, consequences (Lanette et al., 2018). As a result, many teens may also try to limit their use. Indeed, about 54% of teens worry they spend too much time on their phone, and roughly 53% of teens indicate that they have tried at least once to cut back on the time they spend on their cellphone (Schaeffer, 2019). In their study on teens’ (aged 13-17) understanding of the personal data collection policies used by social media companies, Pangrazio and Selwyn (2018) found that some teens are aware of third-party privacy infringement by using social media, but still elect to use social media because “it’s not like it’s life or death or whatever” (Pangrazio & Selwyn, 2018, p. 6).

Lemola and colleagues (Lemola et al., 2015) studied adolescents and the implications of their cellphone use before bed. They found that electronic media use before bedtime was positively related to sleep difficulties, which in turn was related to depressive symptoms. A

nationally representative survey of teens and their cellphone use found that the frequency of social media use for teens age 13-18 who say they use it “every day” has grown from 45% in 2015 to 63% in 2019; 41% of those teens say they enjoy using it “a lot” (Rideout & Robb, 2019). Figure 2 shows teens’ levels of enjoyment, frequency, and time spent on social media by demographic in 2019.

Among 13- to 18-year-olds	Gender		Race/Ethnicity			Family income		
	Boys	Girls	White	Black	Hispanic/Latino	Lower	Middle	Higher
Enjoyment: Percent who enjoy it “a lot”	32% ^a	50% ^b	37% ^a	51% ^b	43%	37%	39%	45%
Frequency: Percent who use “every day”	56% ^a	70% ^b	62%	64%	63%	54% ^a	60% ^a	70% ^b
Time spent: Average daily time spent								
• Among those who use	1:31 ^a	2:17 ^b	1:35 ^a	2:15 ^b	2:23 ^b	2:23 ^a	2:06	1:36 ^b
• Among all	:51 ^a	1:30 ^b	:58 ^a	1:18	1:27 ^b	1:15	1:13	1:05

Notes: “Lower” income is <\$35,000; “middle” is \$35,000–99,999; and “higher” is \$100,000 or more. Superscripts (a,b) are used to denote whether differences between demographic groups are statistically significant ($p < .05$). Items with different superscripts differ significantly. Items that do not have a superscript, or that share a common superscript, do not differ significantly.

Figure 2. Enjoyment, frequency, and time spent on social media among U.S. teens, by demographic, 2019 (Rideout & Robb, 2019)

The pressures to use their phone that individuals face can be from a range of sources, including the need to be available to employers, school demands and work habits, pressures from friends and family, and the desire to stay informed about the world around them via the news as well as about their social group. Pew Research (Smith et al., 2011) reports that college students are the most rapid adopters of cellphone technology, and studies suggest that high frequency use of the cellphone may be influencing their health and behavior (Lepp et al., 2014). Lepp and colleagues’ study about the relationship between cellphone use and its effects on anxiety and GPA in college students concluded that cellphone use/texting was positively related to anxiety in college students, and those who had higher levels of anxiety had lower GPAs (Lepp et al., 2014).

Further research is needed to better understand how these tensions manifest and their consequences for teens, especially those in college, who may have even more intense

relationships with their phones. For example, the need to use cellphone apps from social media to meditation apps in order to manage anxiety may be greater for college students living on their own than other teens who live with their parents. Most teens have grown up and developed social and intellectual lives with cellphones as a part of their daily lives. Scholars are only beginning to understand the consequences and implications of this deeply embedded technology, and research is urgently needed to examine not just the habits people develop, but how those habits make them feel and impact their lives.

1.2 Cellphones and Their Use

Cellphones and their technological affordances have drastically improved since the cellphone's conception. The majority of cellphones people use today are smartphones – a term that has been difficult to define due to the constantly evolving nature of mobile technology. The line between “smart” and “dumb” phones is unclear as “dumb” phones can have “smart” phone features. Litchfield (2010) offered the definition of a smartphone as a phone that “runs an open operating system and is permanently connected to the internet” (Litchfield, 2010). Because the cellphone has evolved into a hybrid medium of communication, entertainment, and information seeking, media dependency theory is helpful for examining this technology's use and in studying its cognitive, affective, and behavioral effects in a broader social context.

It is important to note that throughout this thesis, the phrase *on the phone* does not only indicate speaking on the phone using voice to another person as it once did. Rather, this term has come to mean using the phone for apps such as social media, watching videos, exchanging text messages, or playing video games. Therefore, *on the phone* now means any use of the phone that requires sustained attention, including voice calls. For the population of interest, moreover, use of so-called “dumb phones” that only permit voice calls and text messages is extremely limited

(4% among those 18-29) and is not the focus of the current project. It is also important to know that the term *media* throughout this thesis does not exclusively indicate traditional media outlets such as newsrooms, print media, broadcasting, and advertising. Rather, this term has broadened in scope to include digital entertainment such as social media, streaming services, video games, etc. Thus, *media* as used here, encompasses content as well as the devices that can access media content, including cellphones.

1.3 Study Overview

Although considerable research has sought to understand the impact of digital technologies – especially mobile ones – on individuals, little research focuses on the tensions between feelings of reliance and control, especially from user perspectives. This topic is especially relevant in 2023 as society continues to struggle with COVID sickness protocols and social isolation during which people have no choice but to rely on their technology for work, school, and social interaction. For scholars, this study helps contextualize data on cellphone use within personal and broader social considerations in people’s relationships with their technology today.

This thesis project focuses on the paradox of individuals’ desires to escape their cellphones while feeling unable to or anxious about doing so. As suggested by media dependency theory, this thesis examines the social and technological forces that influence people’s perceptions of how mobile phones and the platforms on them fulfill their needs, how much control individuals feel they have over their cellphone use, and why they do and do not feel in control of their usage. The mobile phone is more than just a device for communicating and seeking entertainment; it flows from social and symbolic spheres – personalizing its aesthetics, ringtone, and feel, make a statement about the self that adds to scholars’

understanding of the role of the cellphone in modern society (Wei, 2007). This project asks, **how do young adults view and feel about their relationship with their cellphone, and to what extent do they believe they are in control over their cellphone use?**

To examine people's relationships with their cellphones, this project presents findings from a series of one-on-one, in-depth interviews with teenagers in college (aged 18-19). This approach allowed the researcher to examine a demographic who have grown up with cellphones – many of whom have used/owned a personal cellphone for their post-adolescent lives, or earlier. With this chosen demographic, there is research to back the cultural presumption that teenagers have a dependence on their cellphones and use them regularly/excessively every day, thus making them prime target participants for examining the relationship they have with their cellphones. These young college students are typically living away from home, may have gotten their first job, have multiple school, work, and social obligations, and are adjusting to an adult lifestyle. Examining the perceptions of this group helps researchers understand how and why teenagers consider their cellphones as something that they need and rely on to function in their adult lives.

This thesis is organized in the following manner: Chapter 2 presents a review of the theoretical framework and the prior literature on media use and cellphone use in specific. Then, Chapter 3 explains the method used to examine paradoxes in people's feelings about their cellphones and includes the analytical approaches used. Chapter 4 presents a discussion of the results. Chapter 5 presents conclusions, implications, and recommendations for future research.

CHAPTER 2. LITERATURE REVIEW

In order to explore the relationships between people's feelings of dependence on their phone and their desires to feel less burdened by it, this study used a theoretical framework based on media dependency theory. Prior studies of cellphone use and media dependency more generally suggest that individuals rely upon their goal-driven motives in order to fulfill three basic needs of *understanding, social interaction and positioning*, and *escape & entertainment*. This chapter discusses the theoretical framework and prior research on media dependency and cellphone use to identify key findings and themes that form the foundations of the study's design.

2.1 Media Dependency Theory

This project approaches questions of media use and control using a framework based on media dependency theory (MDT; Ball-Rokeach & DeFleur, 1976; Ball-Rokeach, 1985; DeFleur & Ball-Rokeach, 1989). Media dependency theory argues that the more functions a medium serves, the greater individuals depend on that medium. Importantly, this framework emphasizes the role of the larger social system in understanding the impact of media use and content. The theory is based upon the assumption that goal-attaining motives drive media consumption and proposes that individuals actively choose media content based on the pre-existing psychological need of dependency (Ball-Rokeach, 1998; Grant, 1996). Conceptually, dependency is defined as “a relationship in which the satisfaction of needs or attainment of goals by one party is contingent upon the information resources of another party” (Ball-Rokeach et al., 1984, p. 3). It is important to note that this notion is not the same as concepts of addiction, although they can be related. Instead, dependency is a more general term defined around needs rather than excessive

or problematic use. The range of motivational goals met in an individual's media dependency relations with a medium is known as the *goal scope* (Ball-Rokeach et al., 1984, p. 3). The three goals identified by MDT are: 1) *understanding* – the need for individuals to understand the world and themselves, including reading the news and social surveillance; 2) *orientation* – an individual's need to act and interact with others effectively while positioning themselves in the physical world, including practical actions and personal utility; and 3) *play* – an individual's need for entertainment, including escape.

An important factor in the model is how these goals and needs relate to structural aspects of society, including how dependency arises from specific relationships among society, the technology, and the audience. In considering dependency on cellphones, these relationships would be: 1) the relationship between *society* and *cellphones*, including level of access and how intertwined cellphones are with political, economic, and cultural systems; 2) the relationship between *cellphones* and *users*, especially how cellphones are used and how they relate to the needs stated above; and 3) the relationship between *society* and *users*, which emphasizes the social forces that influence users' motives and needs for cellphones, including social norms, values, and laws users face.

Although this approach shares some concepts with media addiction theories and scholarship, the current project does not approach cellphone use from an addiction perspective. It instead focuses on the social, cultural, and technological contexts that influence the development of users' relationships with their cellphones more generally, including positive and negative feelings and consequences. Researchers have also recommended moving away from a framework of addiction when studying smartphone overuse and instead recommend the term *problematic smartphone use* (Panova & Carbonell, 2018). While scholars have not agreed on a

universal term of problematic smartphone use, Ting and Chen (2020) offered a definition in their research that fits the general understanding of the concept between scholars: “A form of behavior characterized by the compulsive use of the device that results in various forms of physical, psychological, or social harm (Ting & Chen, 2020, p. 216). The term has also been described as individuals having a form of psychological, behavioral, or physical dependence on the cellphone that is closely related to other forms of digital media overuse such as social media addiction or internet addiction disorder (Yang et al., 2020); (Panova & Carbonell, 2018).

MDT also argues that when society is experiencing greater instability and social change, the media have stronger effects, including cognitive, affective, and behavioral ones. Further research has shown that dependency is activated during media exposure, and that the more intense the dependency is, the greater the cognitive and affective arousal effects will be, giving rise to greater audience involvement in the given media content (DeFleur & Ball-Rokeach, 1989). McQuail and Windahl (1993) added to this by noting the greater an individual’s activated dependency is, the greater impact on cognitive, affective, and behavioral change. Figure 3 shows the relationships among the various factors as theorized by MDT.

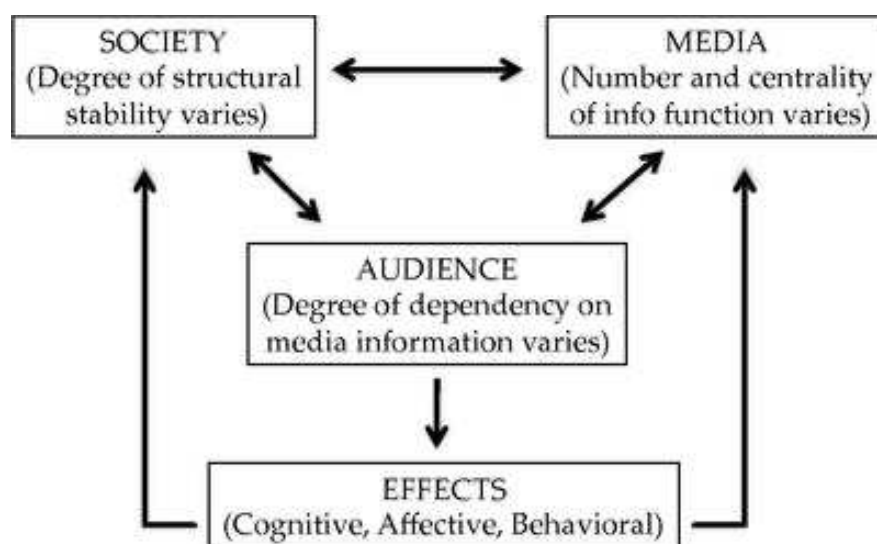


Figure 3. Media Dependency Theory (Ball-Rokeach & DeFleur, 1976)

2.2 Media Dependency and Its Impact

Previous research on individual media dependency has focused on the use of traditional mass media such as television, radio, and newspapers. Such studies tested the media dependency theory on TV shopping behavior, for example, and found that watching a TV shopping channel as well as other TV shows, both increased as the dependency relationship with the shopping channel increased (Grant et al., 1991; Skumanich & Kintsfather, 1998). The ability for the media to influence cognitive learning ability has also been documented. A study by De Boer and Velthuijsen (2001) demonstrated that watching TV news about the Euro affected peoples' conversations about the Euro, and that the levels of dependency individuals had on the news significantly correlated with the number of audience cognitive responses about the Euro. Another cognitive effects study demonstrated the learning power of the media by examining dependency relations with knowledge about AIDS (Power & Ball-Rokeach, 1988). These studies suggest that individuals use media to fulfill knowledge-based needs and are influenced by the prominence of specific topics in society.

Previous research on the emotional impact of media dependency relations investigated audience attitudes toward a given medium, and how their attitude affected the media they chose to use. In general, the more satisfied the audience members are while engaging in their chosen medium, the more favorable their attitude is toward the medium itself, and what the medium is portraying (Wei, 2007). In their study exploring the connection between media dependency and safe sex attitudes in a gay community, Morton and Duck (2000) found that media dependency was a significant predictor in formulating attitudes toward safe sex.

Previous studies have also examined the predictive power of media dependency on audience behavior. Grant and colleagues found that TV shopping behavior reinforced

dependencies on the programming and resulted in feedback effects of increasing intensity of personal relationships with the programming, exposure, and future purchase decisions (Grant et al., 1991). In their study on the relationship between users and their new media, and testing the relationships between media dependency and mobile phone personalization to express one's identity, Katz and Aakhus (2002) found that users develop a relationship with their technology over time and use it to express themselves.

Together, this research demonstrates that relationships among society, media, and users can have a significant impact on people's knowledge, emotions, and behavior. Applied to the current study on cellphones, it emphasizes the need to understand how this technology enhances or alters such relationships.

2.3 Prior Research on Media Needs

MDT argues that media fulfills three categories of needs: 1) understanding – information about the world and social surveillance; 2) orientation – practical actions and utility, including social interaction; and 3) play – entertainment and escape. Prior research has also examined the need for meaningful media consumption. In 2019, adults spent over 4 hours daily on their phones on average, and teens 13 to 18 spent over seven hours daily on their phones, not including time spent on homework or school (Rideout & Robb, 2019); people ages 16 to 24 spend an average of 3 hours per day on social media, almost exclusively via their phones (Georgiev, 2022).

This section discusses that media use in relation to the three categories of needs according to MDT. However, these categories are considerably less distinct than they once were. In particular, the goal of *understanding* as defined by MDT focuses on awareness and observation, but for cellphones, this overlaps with the goal of *orientation*, which is the utility of social connections and interacting with others. This blurred line stems in part from the fact that

MDT was developed before smartphone technology existed at a time when interpersonal communication – such as email and telephone calls – were generally discussed separately from media distributed by media producers such as television. As social media platforms emerge as a predominant form of media consumption, the distinction between the notion of consuming media content passively as a source of *understanding* and actively using media to exchange messages with other people as *orientation* is practically non-existent. This section, therefore, discusses understanding goals such as social surveillance and information in terms of the reception of information, including notifications. It discusses literature on the goal of understanding in relation to two-way communications on cellphones, including how they are used to learn about the world.

2.3.1 Understanding: Information and Social Surveillance

Awareness of and engagement in a user's social and informational world is the first need media dependency theory proposes, which Ball-Rokeach and DeFleur (1976) call *understanding*. The smartphone can be a useful tool for users to monitor their social networks. It allows users to stay current with their social groups and to stay aware of the social forces governing society. Literature indicates that users do not feel they can ignore their smartphones for a long time, because they start feeling stressed and anxious about missing important information about their social groups and interests (Mehrotra et al., 2016). Literature on the reliance of cellphones in monitoring proximity to others has shown that the ability to reach others in real-time allows for rapid communication, up-to-date information amongst social groups, and tracking each other's whereabouts. This information can then be communicated instantaneously and directly to members of a large network, reinforcing the processes of social surveillance (Church & Oliveira, 2013; Srivastava, 2005).

A prior study of mobile phone notifications revealed that on average, users receive almost 64 notifications per day on their cellphone (Pielot et al., 2014). While most notifications are typically from email and text messages, notifications from social media and other events deepen the types of messages users can expect. Users who receive an increasing number of notifications experience an increase in negative emotions (Pielot et al., 2014). Cellphone notification research suggests that despite the attention-grabbing, distracting nature of notifications, they provide connectivity and awareness of happenings that are important to the individual (Shirazi et al., 2014; Iqbal & Horvitz, 2010). Users acknowledge notifications as a disruptive force, yet opt for them because of their perceived value in providing awareness. Although notifications can and do come from a range of application types – and thus functions – on modern cellphones, the majority of those on users’ phones are notifications from social applications such as text messages, social media, and email.

Literature on cellphone usage and notifications suggests that the fear of missing out drives people to use their cellphones more often (Hampton et al., 2015). While notifications can be disruptive, it can potentially be more disruptive for users to turn their notifications off (or to silent mode) as users tend to check their phones more frequently to make sure they have not missed any informative alerts and/or communicative attempts from others (Iqbal & Horvitz, 2010). Users feel that the information being shown to them on their cellphones makes them feel connected to the physical and social world, and users who are physically/psychologically attached and dependent on their cellphones gives them the impression that they are constantly connected to the world, and therefore feel less alone (Clayton et al., 2015).

Cellphones are a major source of information about the world for most users. In 2020, 86% of adults used their smartphones to get the news “often” or “sometimes” (Shearer, 2020).

Most people access news from news websites or apps (68%), although television, radio, and print are still used for this purpose by many. A majority of adults aged 18-29 reported they “often” get news from a phone or computer (71%), and few turn to television (16%), radio (7%) or print (3%). This age group is most likely to use social media for news (42%) rather than websites (28%) or searches (28%) (Shearer, 2021). Overall, 71% of adults in 2021 got their news from social media platforms at least some of the time (Walker & Matsa, 2021). In addition, a report from 2019 showed that many teens 13-18 used their phones every day for listening to music (82%), watching online videos (69%), watching television (57%), and gaming (46%) (Rideout & Robb, 2019).

This research suggests that understanding the world around them, including their social world, is an important aspect of cellphone use for teens. While prior research has demonstrated the amount of awareness users prefer, more research on young adult college students is needed in order to better understand the frequency and volume of notifications they incur in order to stay connected, and how they navigate disruption.

2.3.2 Orientation: Utility and Social Interactions

Media dependency theory also proposes that media fulfill practical needs, including logistical, social, and work tasks and interactions, which Ball-Rokeach and DeFleur call *orientation*. Literature on uses and gratifications of mobile technology demonstrates that many people depend heavily on the capabilities of their phones for a range of tasks – from social coordination and work activities, to entertainment and news consumption (Lukoff et al., 2018). Literature on receptivity to notifications indicates that users are more attentive to them during the morning and evening time when they are generally not at work (Mashhadi et al., 2014). If a user receives work-related notifications during their down time, it can make them feel as if their

cellphone is invading that time, which can increase frustration levels with notifications. Research has shown that affordances of cellphones, such as visual cues, sound, and vibration, have a high impact on users remembering to return to their unread notifications, and to quickly deduce the source and importance of the message they receive (Mashhadi et al., 2014). Research on cellphone dependency has found that smartphone users use their phone as an alarm clock, have it within arm's reach while they sleep, and rely on their phone to fulfill basic functions such as checking schedules and starting the day (Srivastava, 2005). Overall, the capabilities and utility of the technology intensifies the pressures to use it more often.

Cellphones generate considerable social pressures to interact with others. Prior research on instant messaging over cellphones, for example, has shown that there is a perceived pressure to respond to people's messages in a timely manner, which can cause a strain between people and their technology (Church & Oliveira, 2013). Since people can send and receive messages instantaneously, people feel a pressure to continue a conversation and not leave it unanswered. This has consequences for other types of interaction. The quality of face-to-face communication may be threatened by the always-on nature of mobile phones. Interaction with those that are present can be interrupted at any moment by interaction with a remote other – leading to a scenario of being 'always on, always there' but 'never here' (Srivastava, 2005).

Such pressures are important in work settings, too. Literature on information communication technology more generally demonstrates that people rely on real-time communication technology, including cellphones, to collaborate with work colleagues and complete work-related tasks more quickly (Mashhadi et al., 2014). While these affordances provide a significant benefit to completing work-related tasks, they have also shown to be counterproductive to task completion, as they can impede or delay individuals by disrupting

them during critical tasks (Adamczyk & Bailey, 2004). However, research on smartphone and email notifications shows how users can quickly preview a message's content and discern whether it needs immediate attention (Mashhadi et al., 2014). Phone users make use of notifications to provide passive awareness rather than as a trigger to immediately divert their attention to a notification. Because of this, workers in an office setting can utilize these notification affordances as a mechanism for maintaining their workflow. Further literature on individuals' acceptance of cellphone notifications has found that acceptance depends on the amount of perceived disruption. Users who perceive a notification as requiring little time to address are more receptive to engaging with a notification than those who perceive a notification as taking longer to deal with (Mehrotra et al., 2016; Shirazi et al., 2014). Disruptive notifications are accepted by users because they can contain useful information, including chances for meaningful interaction with members of their social groups.

Teens 13-18 also use cellphones for other practical purposes including creating content such as art or writing, doing their homework, and shopping (Rideout & Robb, 2019). The smartphone's technological features allow it to serve multiple functions that in the past, required separate devices. People rely on smartphones as a camera, GPS/navigation unit, calendars, flashlights, calculators, compact mirrors, wristwatch, printed airline ticket, etc. (A lot Living Team, 2020). People are dependent on the "all-in-one" capabilities of their smartphones because they allow them to possess – to a degree – a tool box and navigational kit in their pocket wherever they go. These tools extend to broader lifestyle options, such as leading a more healthy lifestyle. In their study on mobile phone health applications, Ross and Wing (2016) explain, for example, that health and fitness applications help people monitor their health, set personal goals, and compare them to others via customization, social, and notification features.

Cellphones can help people attain and accomplish real-world tasks to fulfill personal needs as well as social ones. Users rely on the cellphone's functionalities in practical ways in order to position themselves in the world. Because of users' needs to interact with others while positioning themselves in the world, the cellphone serves as an accessory to one's identity. The notion that mobile technologies can become an extension of the physical self is supported by Belk's extended self theory (1988/2013). This theory proposes that an individual's possessions, whether intentionally or unintentionally, can become an extension of one's self (Belk, 1988/2013). McClelland (1951) suggests that external objects become viewed as part of the self when one is able to exercise power or control over them, just as how one may control their arm or leg. This idea could influence the amount of perceived control users have over their cellphone use. Wei (2007) argues that young people's relationships with their cellphones is part of their need to establish their identity, and concludes that the cellphone is central to adolescents' paths to adulthood: the mobile phone reflects who its owner is, it is a fundamental part of the self, and it is a technology that can be used to define oneself (Wei, 2007). The practical action of portraying one's identity and the utility the cellphone provides in doing so, could be part of why some are highly dependent on a cellphone.

This research on the practical utility of the cellphone demonstrates the ease in which the cellphone can be incorporated into an individual's day-to-day tasks, their social lives, their health, work, school, and many other aspects of their lives. Despite the communicative affordances and ability to complete work-related tasks more quickly, these practical uses can become distracting and disruptive to one's daily routine and schedule. This research demonstrates how people use phones to act and express themselves in the world around them.

Because of this, users find themselves balancing between physical and digital reality in order to satisfy the motivational goal of orientation as MDT suggests (A Lot Living Team, 2020).

2.3.3 Play: Entertainment and Escape

The third category of goals in media dependency theory is *play*, or the need for entertainment and escape. Research on motivations for cellphone use indicates that people use their phones to pass the time and be provided with entertainment and passive social media usage, in addition to the uses identified in the above sections (Lukoff et al., 2018). Scholars have found that entertainment and escape uses were associated with a lower sense of meaningfulness, and users indicated feeling a loss of autonomy when using their phone in these ways. Such use may be intentional, with specific activities and goals identified in specific situations, or it may be habitual, which is less deliberate and less consciously planned or performed. Participants in Lukoff and colleagues' 2018 study reported that habitual use of the cellphone was generally less meaningful than intentional use, and that habit-driven experiences made participants feel a loss of autonomy over their own behavior (Lukoff et al., 2018). Quantitative analysis of the study's data was consistent with these themes, showing both that users turn to their phones out of habit and lose track of their intentions, and fall into habitual patterns of engagement with their phone.

Scholars have also found that users who consider smartphone use to be meaningless could still experience meaningful use in the context of broader life as a 'micro escape' from negative situations (Lukoff et al., 2018). Additionally, Rosen and colleagues (Rosen et al., 2013) found that some users rely on the cellphone as a trigger to switch tasks, making it a welcome reprieve from a non-cellphone related task. Social media or text messaging provides individuals with emotional gratifications, too; the researchers found that participants averaged less than six minutes on a task prior to switching their attention to their phone (Rosen et al., 2013). Other

findings demonstrate that while many users welcome the escape that their phone brings them, they feel regretful when the action of pulling out their phone replaces a different task, such as a work-related task (Lukoff et al., 2018). This research demonstrates that although some habits may be associated with negative feelings, the use of the phone for play has become a part of users' broader lives in ways that are seen more positively.

Smartphones and the media that can be accessed through them, can provide users with entertainment during their down time and a reprieve from their busy schedules. Because of this, users often opt to engage in certain media on their phone that will provide them with escape and entertainment. Research on social media usage shows that users feel entertained or an escape from their busy lives by managing their social media accounts and by producing and consuming content on social media (Anderson & Raine, 2018). Media they deem as less so (such as work email) will not be used to satisfy their goal of *play*. Notifications from certain apps, therefore, may be perceived differently than from others as some notifications may be interpreted as “disrespectful” (Adamczyk & Bailey, 2004). Prior research has not investigated these differences in-depth, and more research is needed to understand them.

People use their phones during their down time to catch up on events that occurred during the day, and to consume media that provide them a sense of escape and relief from their busy work schedules. Research on individual relationships with cellphones indicates that the physical and emotional attachments humans have developed with cellphones have increased and “function as comfort objects – antidotes to the hostile terrain of wider society” (Harkin, 2003, p. 9). Further research indicates that users can rely on their cellphones for a variety of entertainment options such as: music, gaming, TV shows/programs, and interactive media (Srivastava, 2005). Among U.S. teens, music is a favorite activity for escape and entertainment: 74% say they enjoy

listening “a lot” (Rideout & Robb, 2019). Video-watching is the next most-preferred way to provide escape and entertainment to users: 63% of teens watch videos about how to make, build, or do something that interests them. When it comes to other media that teens seek out, Rideout and Robb (2019) also call attention to the apparent gender gap for gaming as a preferred means in providing escape and entertainment: 41% of boys aged 8-18 years say they play video games “every day” compared to 9% of girls aged 8-18. Girls are therefore spending the majority of their *play* time listening to music, watching videos, and engaging in social media.

This research overall demonstrates that the cellphone and its properties can be a tool or an obstacle in providing entertainment and escape. Certain apps and messages can hinder the user’s experience in seeking out entertainment. Because of this, not all phone applications are deemed as entertaining, and users may feel less inclined to consume certain phone applications to satisfy their need for play.

2.4 Cellphones in Society

Media dependency theory addresses both individual and social level relationships between individuals and media. Research on the cellphone’s role in society indicates that this technology influences broader aspects of how individuals are positioned and position themselves in their social and cultural worlds. This section discusses the societal implications of the cellphone and how users think, act, and/or socialize through their cellphone.

2.4.1 Gender and Phone Use

There are many social factors that may influence cellphone use and its position in people’s lives, including class, occupation, national origin, physical and mental disabilities, region, race, gender, and more. One of these factors that has been found to be particularly widespread and discussed frequently in the literature is gender differences in the use of and

attitudes towards cellphones. Research has shown that men and women interact differently with their cellphones. Men primarily use their cellphones for entertainment purposes and accessing social networking sites, while women are more likely to use cellphones for email and texting to build relationships and have deeper conversations, and for using social media (Roberts et al., 2014; Chen et al., 2017). At the same time, current studies have shown that girls 13-18 use their phone to *avoid* interacting with people more than boys do (54% vs. 31%; Schaeffer, 2019).

Researchers at Baylor University found that female college students spend an average of 10 hours on their cellphones each day while male college students spend nearly eight hours (Roberts et al., 2014). Another key finding of the study is that 60% of the college students who were surveyed admitted that they may be addicted to their cellphone, and some indicated that they feel troubled when it is out of sight. The study also found that men and women send roughly the same number of emails in a day, but men spend less time on each email. This finding is consistent with one of the study's other findings that women use cellphones for texting or emails in order to build deeper relationships; thus explaining why women spend longer to craft the content of their digital messages. Men's primary use for the cellphone was for entertainment on social media sites, catching up on the news, following sports figures and teams, or as one male student described it, "wasting time" (Roberts et al., 2014). Chen and colleagues' study (Chen et al., 2017) found that factors associated with smartphone addiction in male students were the use of game apps, anxiety, and poor sleep quality. Noteworthy factors for smartphone addiction in female college students were the use of social media applications, depression, anxiety, and poor sleep quality (Chen et al., 2017).

In their fieldwork observation studies, Fox (2001) found lone females increasingly using the mobile phone as a form of 'protection' from the potentially threatening world around them.

Women on their own in public spaces use their cellphones as ‘barrier’ signals in the way that they used to hold up a newspaper or magazine to indicate to potentially threatening strangers that they were unavailable (Fox, 2001). The idea of having access to one’s social support network of friends and family through the mobile phone means that physically touching the phone gives users feelings of protection, and signals to others that one is not alone and vulnerable (Fox 2001).

Taken together, this research demonstrates that the smartphone is used somewhat differently by men and women. Men prefer quick interaction and entertaining content, while women use their phone to navigate meaningful and deep relationship building, and social media. However, it is important to note that both men and women use their phone for all these purposes frequently overall. The research suggests that both men and women are susceptible to smartphone addiction, and that they depend on their mobile devices to meet their needs.

2.4.2 Societal Implications of the Cellphone

The cellphone is a useful tool for individuals to function and participate in society, and has changed how people interact with each other, with businesses, and with their public and private selves. For example, most colleges across the United States have programs that allow students and faculty to register to receive emergency notifications and official information from the school (Mpofu, 2017); a range of apps offering similar services from crime to weather alerts provide information relevant to people’s local context. Cellphones provide security in the case of accidents, but also provide a movement from the extraordinary and unexpected life events, such as natural disasters, to be expected and routine (Geser, 2004).

A result of the advancement of mobile technology is that it has changed the way people interact, including how businesses and consumers interact. Whether individuals interact through social media, messenger platforms, or consumer services, these functions hold significant value

in an individual's ability to interact with society. The cellphone allows individuals to still have a stake in the micro-level of society, as well as the meso- and macro-levels (Geser, 2004).

Cellphones have allowed for social participation and integration for those who are "lonely" during certain times, for example, when they are physically distant from friends and family. Business trips no longer require family members to be without contact; the cellphone provides opportunity for constant connection and participation in the lives of those who are not physically present. On a larger scale, the cellphone has allowed for individuals to be aware of or participate in local community activities or national activities through its ability to be connected to the internet and social media.

The interconnectivity the cellphone provides allows for constant connection to society. The lines between physically-present- and non-present spaces have become blurred as households can remotely merge and stay connected with each other. Thus, "the mapping between activities and places will dissolve, and everyplace will be for everything all the time" (Agre, 2001, as cited in Geser, 2004, p. 35). Conventional communication media such as the mass media and corded phone, primarily had the capacity of empowering public agencies to intrude into private spheres. Bachen (2001) explains the intrusiveness of today's technology: "The home is no longer a sanctuary where the family is relatively shielded from intrusions from the outside world; the home is now a communication hub, infused with messages of diverse and increasingly global origins" (Bachen, 2001, as cited in Geser, 2004, p. 16). This is common in settings where families gather to eat at the dinner table in their homes and a phone call from an individual outside of the home interrupts the occasion. Additionally, the cellphone allows for the ebb and flow of global news and social networks/media to be accessed from the comfort of one's home.

Conversely, a major difference between the privacy of landline telephones and mobile phones has arisen with the prevalence of cellphone use in public. Privacy concerns have shifted from the surrounding public's infringement upon the landline speaker's conversational space (such as a pay phone), to the mobile phone speaker's infringement upon the surrounding public's space (Palen et al., 2001). Individuals who choose to make phone calls in public, especially in tight-knit spaces such as buses, are able to violate the personal and acoustical space of others. While cellphone technology has improved by allowing users access to connectivity from more obscure locations, it has in turn, allowed for people to be reached at inopportune moments and to infringe upon the personal space and privacy of others.

Cellphones also communicate a status of availability in society. Lasen (2002) describes cellphones as akin to "symbolic bodyguards." Mobile phones also contribute to the strategy of individuals to defend a minimal private space and the right to enjoy "civil inattention" within areas densely populated with – potentially intruding and irritating – unknown strangers (Haddon, 2000; Cooper, 2000). Sociologist Erving Goffman remarked that women especially often do not like to show themselves alone in public places, because it may indicate that they are without a relationship: a condition which provides a bad impression of their social status, and leaves them in an unprotected situation which can be exploited by predatory men. Although his observations were made in the 1960s when women's position in society was different than it is today, this use may still be relevant for women to feel safe, for example, walking alone at night where there may be dangers from others. For mitigating these circumstances, the cellphone is useful because it can signal to others that the carrier of the phone is not completely alone – despite physically being so – while still being embedded in their social setting (Plant, 2000).

Compared with reading newspapers or listening to music with headphones, using cellphones can be seen as an “offensive” way of disengagement. This is because conversations are apt to disturb others nearby, especially in conditions where these others have no freedom to withdraw (Geser, 2004). While interacting face-to-face, answering cellphone calls can also signal to an individual’s peers that they are not significant enough to deserve exclusive attention, or that the meeting is not considered important enough to disregard incoming calls. Switching off the cellphone symbolizes respect and presents peers with an attentive individual (Geser, 2004). Cellphones have, however, allowed individuals to be a part of multiple communities at one time (Geser, 2004). Wellman (1999, 2001) argues that cellphones weaken communities while simultaneously strengthening networks. The author explains this is because networks can be accessed and supported using the connective features of the phone and its applications, whereas communities depend more on physical proximity and interactions. This idea comes from the notion that face-to-face interaction is hindered by the cellphone, while the cellphone allows for social networks to disseminate information and organize in real time.

The cellphone is also a useful tool to navigate social needs that were once fulfilled by other people, including strangers. Before cellphones were widespread, for example, people often relied on the support of bystanders for fulfilling their needs such as asking for directions or learning about a place they are visiting. Mobile phone users instead are able to choose a person they know or use web searches in order to satisfy their informational needs at any given moment (Kopomaa, 2000). As a result, people generally have less need to speak to strangers for information and have fewer opportunities to connect with them personally.

Overall, research demonstrates that cellphones have a broad social impact and emphasizes that they do not simply change an individual’s access to information, interaction, or

entertainment activities, but that they also have an impact on broader social structures and systems. Cellphones restructure communities as well as public and private spaces, and they influence the ways and types of social interdependencies that form the foundation of communities and society.

2.5 Cellphone Design and Impact

Current research makes clear that cellphones are deeply embedded into users' lives on the micro-level and have a significant impact on social structures and systems on the meso- and macro-levels. However, these influences are not driven exclusively by user preferences and needs; the technological characteristics and features built into cellphones and digital platforms and apps play an important role in the types of relationships people have with them.

2.5.1 Technological Characteristics

The design of cellphones encourages users to feel unable to fully distance themselves from their cellphones and can be intrusive to physical reality (Mashhadi et al., 2014; Adamczyk & Bailey, 2004). One of Instagram's founding engineers, Greg Hochmuth, explained that he at one point realized he was building an engine for addiction. He said, "There's always another hashtag to click on. Then it [Instagram's algorithm] takes on its own life, like an organism, and people can become obsessive" (Hochmuth, as cited in Alter, 2017). Instagram, like so many other social media platforms, is bottomless. Facebook and Twitter have endless feeds; Netflix automatically moves on to the next episode in a series; Snapchat encourages users to maintain their usage of the app with "snap streaks" – all are characteristics of the technology that is designed to keep users engaged for extended periods of time. Users benefit from these apps and websites, but also struggle to use them in moderation (Alter, 2017). Former design ethicist at Google, Tristan Harris, explains that cellphones and applications by design steer people's

thoughts to spend more of their attention on the device. He argues that the problem is not that people lack willpower to disengage from their phone; it is that the phone is designed to push users to increased use by implementing features such as notifications, appealing sounds and colors, and seemingly-urgent messages (Alter, 2017).

In 2011, Harris helped develop Gmail's Inbox app. However, he later grew concerned about the failure to recognize how seemingly minor design choices, such as having phones notify the user of each arriving email, would cascade into billions of interruptions. Instead, the design team's focus was in crafting a more "delightful" email experience (Bosker, 2016). But to Harris, this had missed the bigger picture: instead of trying to improve email, he wanted to focus on how email could improve lives – or, for that matter, whether each design decision was making lives worse. In a 2017 TED talk, Harris described how notifications are micro manipulations by software designers to get users to log on, saying, "When you see a notification, it schedules you to have thoughts you didn't intend to have" (TED, 2017). Similarly, B.J. Fogg, who runs the Persuasive Technology Lab at Stanford, has helped pioneer "behavior design" into software design through a system of nudges that lead users towards habits and behaviors that best serve companies and brands. The apparent irony is that Fogg himself, admitted he no longer wears his Apple Watch – a product that resembles a wearable cellphone around the user's wrist – as its incessant notifications annoyed him (Bosker, 2016).

This research and first-hand experiences of developers demonstrate how the cellphone and its applications are designed to keep users' attention for as long as possible. As a result, cellphone and application companies collect more information about users and their habits, which are then leveraged to become even more compelling to users. This work suggests that the

relationships between users and their phones do emerge through users alone; they are part of how these technologies are designed.

2.5.2 Loss of Control

The design of cellphones along with social and societal pressures to use them may result in users feeling – and actually being – out of control of their cellphone use. This may be even more pronounced for teens. The formative years of an individual’s brain prior to college may contribute to increased susceptibility to cellphone dependency. Yang and colleagues (Yang et al., 2019) found that adolescents who were less mindful of their conscious mental state were more dependent on their mobile phones, and that mobile phone addiction was positively associated with adolescents’ anxiety and depression. Mobile phone addiction is characterized by negative psychological experiences such as the loss of control (Chen et al., 2016; Kim et al., 2015; Lepp et al., 2014), and thus, those who are addicted to their cellphone likely only have limited awareness of how much and when they use it.

While some blame tech addiction on personal failings, such as weak willpower, research indicates that perhaps the software itself is to blame – the desire for people to glance at their phones are natural reactions to apps and websites, which are intentionally designed to get people scrolling as frequently as possible (Bosker, 2016). When discussing self-control over digital media, Tristan Harris says, “You could say that it’s my responsibility [to limit my phone use], but that’s not acknowledging that there’s a thousand people on the other side of the screen whose job is to break down whatever responsibility I can maintain” (Harris, 2016, as cited in Bosker, 2016, para. 5). In short, users can lose control of their relationship with technology because technology has become better at controlling them (Bosker, 2016). If a user responds to a notification from Facebook about a friend request, for example, this task should take a matter of

seconds. However, research has shown that when interrupted, people take an average of 25 minutes to return to their original task (Bosker, 2016).

This research highlights cellphones and the software that they run are crafted to intentionally keep users engaged for long periods of time, demonstrating that individuals' choices about their cellphone use – especially in terms of time spent on it – are heavily influenced by design.

2.5.3 Repercussions of Cellphone Design

Considerable prior research on media use has examined the strain between people and their technology, including how and why that strain is present. A study of cellphone use by college students, who are among the largest consumers of wireless mobile devices, concluded that the physical and emotional relationships moderate and heavy users have with their phones are characterized by greater feelings of anxiety when they are distanced from their phones (Cheever et al., 2014).

Literature on the disruptive nature of information communication technology demonstrates how intensive ICT use can lead individuals to feeling anxiety and frustration that potentially leads to burnout over time (Berg-Beckhoff et al., 2017). This is mainly due to individuals needing to increase their multi-tasking, which can cause disruptions to their working routines. Berg-Beckhoff and colleagues (Berg-Beckhoff et al., 2017) expand the discussion by discussing the phenomena of *techno invasion*. Techno invasion is defined as, “The invasive effect of ICT in terms of creating situations where users potentially can be reached anytime, thus enhancing the feeling for employees to be constantly connected” (Berg-Beckhoff et al., 2017, pp. 160-161). With communication and information able to take place in real time, information

communication technology has given rise to individuals constantly feeling attentive and tied to their mobile devices.

Literature on work detachment shows that individuals who experience less detachment from work experience negative affective states and are actually less engaged at work and less satisfied at home (Sonnentag, 2012). This is because, scholars theorize, constant availability increases work duties and both physical and psychological fatigue (Bittman et al., 2009). Further literature on work detachment shows that the phone can be a direct link to an individual and their work, allowing them to avoid feeling detached from work during their down time (Sonnentag, 2012). Other research shows that overuse of mobile technology can lead to poor diet, less exercise, and poor quality of sleep (Allred & Atkin, 2020).

Research on cellphone addiction shows that mobile phone use is positively associated with adolescents' anxiety and depression levels, reduces interest in face-to-face communication, and impairs learning (Allred & Atkin, 2020; Lee et al., 2021). A study on the demands and pressures of social media usage on cellphones found that users are balancing between a multiplicity of social media platforms and perceived social pressures (Hampton et al., 2015). The study highlights the prevalence of social stress related to technology. The authors argue that it is possible that technology users – especially social media users – are more aware of stressful events in the lives of others. They conclude that this awareness carries a cost of empathy, which puts a strain on the observer as well. The perceived pressure to keep up with status updates from friends, the pressure to remain current with information, and the fear of missing out (FoMO) on activities in the lives of friends and family, all contribute to anxiousness in cellphone users.

In addition to FoMO, researchers have defined a new disorder they call *nomophobia*. This is pathological fear, anxiety, or discomfort related to being out of touch with technology

(King et al., 2013). Researchers have also found that symptoms of digital addiction associated with the cellphone are increased loneliness, also called *phoneliness*, anxiety, depression, and poor neck posture, or *iNeck* (Peper & Harvey, 2018). These pressures and effects may contribute to if, when, and why users may feel out of control in their cellphone use.

2.6 Conclusions

Media dependency theory states that the cognitive, affective, and behavioral effects from using cellphones increase as users become more dependent on them. This work suggests there are reasons to suspect many users feel a tension or paradox in their need for cellphones that simultaneously make them feel anxious, dissatisfied, or unhappy with their own habits. Use of cellphones to fulfill needs for understanding, orientation, and play as well as the broader social structures they influence, contribute to relationships between users and this technology. In addition, the design of the device and its software exert intentional pressures on use type, frequency, and context.

As Tristan Harris said, “Our generation relies on our phones for our moment-to-moment choices about who we’re hanging out with, what we should be thinking about, who we owe a response to, and what’s important in our lives. And if that’s the thing that you’ll outsource your thoughts to, forget the brain implant. That *is* the brain implant. You refer to it *all* the time” (Harris, 2016, as cited in Bosker, 2016, para. 26). The dependence on cellphones, and the reliance for it to satisfy basic human needs has in turn, perpetuated a paradoxical relationship with the cellphone. To understand how these individual, social, and technical forces combine to shape perceptions and use of cellphones, more research is needed. Teens may be even more psychologically and socially susceptible to these forces, and thus this project asks:

Research Question: How do young adults view and feel about their relationship with their cellphone, and to what extent do they believe they are in control over their cellphone use?

CHAPTER 3. METHODS

To examine people's relationships with their cellphones, this project conducted a series of in-depth interviews with teenagers; specifically college students (ages 18-19). This approach allowed the researcher to examine a demographic who have lived and grown up with the cellphone/smartphone technology for the majority of their lives. The data provides a richly-detailed thematic analysis and examination of relationships across the data with a focus on dependency on the cellphone for understanding (social surveillance), orientation (information and utility), and play (escape and entertainment).

3.1 Research Objectives

The main research objectives when embarking on this project were:

1. To identify key associations between increased cellphone use and the perceptions of the consequences of cellphone use among teenagers.
2. To fill in research gaps within the topic's field.
3. To examine the relationships that young adults have with their cellphones.
4. To identify potential paradoxical roles that the cellphone serves.

In order to achieve these objectives, as the researcher, I conducted and examined 12 one-on-one, in-depth interviews with young college adult students (ages 18-19). By transcribing the interviews, and conducting careful analysis, I was able to achieve the research objectives. Table 1 shows the relationship between the objectives and methods in which I achieved them.

Table 1. Research Objectives and Outcomes

Objective	Source Data	Method	Outcome data
1) Identify associations between cellphone use and psychological and sociological effects	Interview responses and current literature	Data/thematic analysis of interviews	Links between cellphone use and mental health and society
2) Fill in research gaps relating to topic	Interview responses and current literature	Data analysis of interviews	Contribution to scholarship
3) Examine the relationship young adults have with their cellphones	Interview responses	Thematic analysis	Trends and patterns in cellphone relationships
4) Identify potential paradox within individual cellphone relationships	Interview responses	Thematic analysis	Understanding of paradoxical phone use and phenomena that contributes to it

3.2 Theoretical Framework of the Method

The qualitative method of one-on-one interviews was suitable for this project because of its ability to discover in-depth answers on a broad, but relatable subject. Previous studies have relied primarily on surveys. Wei (2007) used a survey method, which consisted of 527 Chinese high school students. The goal of the survey was to examine the relationship between high school students and their cellphones and how the inanimate object of the cellphone can be an extension of the self. Clayton and colleagues sought to discover what psychological and physiological outcomes are associated with iPhone separation, and the inability to tend to a ringing phone while undergoing cognitive tasks (Clayton et al., 2015). They used a 2 x 2 repeated-measures experiment that used the variables of the cellphone being in possession/separated from the person while ringing, and the variables of time of possession and separation. This study demonstrates that there are objective qualities to this research area by employing quantitative and empirical methods.

Many other research studies have employed empirical experimentation methods, as well as qualitative methods. Surveys seem to be the most prevalent method, while interviews are used to gain a deeper understanding that observation alone could not provide. This project used one-on-

one interviews as a means to bridge the gaps between prior qualitative and quantitative work, and contributes to further understanding today's modern society and its relationship with cellphones and media.

The current project used a semi-structured interview format (Berger, 2000). This helped maintain the casual quality of unstructured interviews while still following a list of questions and follow-up questions to certain responses. Interviews allow for researchers to obtain deeper information that could not normally be discovered through observation. During all stages of the research project, high importance was placed on guaranteeing anonymity, asking for definitions/elaboration on vague language informants used, keeping the conversation focused, asking for specific examples, and avoiding leading questions (Berger, 2000).

Although there are many strengths and benefits that interviews can provide, there are also weaknesses to any methodological approach. Just because an individual has agreed to be an informant, it does not guarantee they will provide an abundance of rich and interesting data. Berger (2000), identifies five problems researchers face in dealing with respondents: (1) people don't always tell the truth; (2) people don't always remember things accurately; (3) people don't always have useful information; (4) people sometimes tell the researcher what they believe the researcher wants to hear; and (5) people use language in different ways.

Respondents may fear judgment when providing the researcher information about themselves. Because of this, they might withhold information, thus hindering the data's accuracy. People also want to paint themselves in the best light possible so they typically want to appear nobler than what they actually are. Recounting information with 100% accuracy can be difficult for people to do so; they may unintentionally fabricate the truth by misremembering experiences. Before conducting the research, I could not rule out the possibility that some of the

respondents may not have anything of genuine interest or significance to discuss, therefore I had to be prepared for some data to be nugatory. When people agree to be participants in a research study, they don't exactly know what the researcher's true goals are. They may begin to ponder if they themselves are the topic of the study, thus altering how they behave and interact. To negate this, I reassured participants that I was not looking for any answers in particular and that this project benefitted from any and all types of responses. I also reminded them that the interviews and the findings associated with them are to remain anonymous, and were to be examined without judgment from myself, the researcher. Because of this, some respondents may have provided information that they believed I wanted to hear in order to make a good impression and avoid being seen in a negative light. Lastly, language is versatile and the same meanings for themes can be carried through different messages. This made the thematic analysis process challenging because it made some efforts more difficult when determining what sort of language pertained to a certain theme. However, due to the consistency of the interview guide, I was able to find similar answers across all of the data to pinpoint themes; the differences in semantics between respondents did not prove to be an issue in properly analyzing the data.

3.3 Themes and Concepts

This research study searched for themes primarily along the lines of perceived control. This theme was a major focus of this study as it helped provide deeper understanding of how people perceive their own control over their phone use, how deep their attachment is to their phone, and ultimately when the criteria of the paradox between people wanting to distance themselves from their phones, but are unable to do so, is met. Other themes that were examined are the perceived psychological effects of cellphone use, motivations for using cellphones (especially those that correspond with understanding, orientation, and play), the invasive nature of the cellphone,

separation from the phone, identity and extension of the self, and the manner in which the phone's affordances and features are used in order to prevent certain feelings (e.g., using the "do not disturb" feature during certain times of the day).

As expected, other significant and relevant themes were discovered during the research process. The aforementioned themes were a good starting point in which to analyze the data, but it is no surprise that other significant findings were brought to realization given the extensive nature of the subject matter. These findings included certain social strains, pressures and interactions that are caused by the cellphone and its presence, and an individual's feeling that they need to justify their cellphone use compared to that of their peers' use. By being open to a variety of possible themes related to this broad topic, it helped in narrowing down what is significant and what is not. Analysis also identified participant responses that were contradictory to themes. This analytical approach ensured rigorous examination of the data and reduced researcher bias in order to identify relevant themes and concepts.

3.4 Instruments

Interviews were conducted following the open interview guide that was focused on keeping the topic of conversations on themes and ideas of interest to the study. The questions were based on themes in research as identified by media dependency theory, especially use of the cellphone for information, social interaction, and entertainment, as well as on notions of addiction or dependency, ways that the phone fits into social and cultural expectations, and perceptions of distraction and need. The questions served as a guide to the conversation, but due to the dynamic nature of the interviews, I had to remain open to responding to new ideas, including those which participants wished to focus on that I had not considered. The guide included ice-breaker questions at the start of the interview such as: "What is your age and major

in school?” and “What type of smartphone do you have?” and “What are the most common practical uses of your phone on a daily basis? *See Appendix A for the full interview question guide.*

In addition to asking open-ended questions, I asked participants if they were willing to share any screen time trackers or other built-in methods of identifying their hours of use on their phones. Additional questions about their perceptions of their personal use statistics were asked if participants did have such trackers.

3.5 Data Collection

Twelve interview participants were recruited from Colorado State University’s enrolled undergraduate students. They were a mix of male and female students who have had extensive coursework in media and technology, and those who have not. The interviews lasted approximately one hour. They were dynamic and conversational in nature – this was intentional as to provide rich detail. The interviews were recorded and transcribed so that the data could be analyzed carefully and accurately. A thematic analysis focused on themes from the project’s theoretical framework which guided analysis, but remained open to allow for associations and relationships amongst the discovered data. Unexpected revelations were discovered and gleaned from the data and were used to convey other phenomena present in this research study. A pilot study was used to help organize the question layout and overall approach to the official interview process.

3.5.1 Sample and Recruitment

The participant sample consisted of six men and six women ages 18-19 (a few participants had recently turned 20 when they were interviewed, but were still eligible due to the timeliness of their situations) who were recruited from two groups: those with extensive

coursework in media (Journalism and Media Communication and Communication Studies majors) and those who did not have this background (e.g., majors related to business, computer science, anthropology, etc.). Potential participants were given screening questions to determine whether or not they fit the criteria for this study, such as being in the proper age range, owning and regularly using a smartphone, and what their major or field of study was in school. The purpose of gathering participants for the sample in this manner was to provide a multiplicity of perspectives to the data. If the study only used participants who have never been in a position to study media in a college context, then the data would only reflect ideas, feelings, and attitudes toward cellphones from that specific group. This allowed the researcher to discover whether media exposure inside of the classroom is a significant factor in determining dependency on the media.

Research has shown that dependency is activated during media exposure, and that the more intense the dependency is, the greater the cognitive and affective arousal effects will be, giving rise to greater user involvement in the given media content (DeFleur & Ball-Rokeach, 1989). Assumptively, participants with a media studies background are more exposed to media during their coursework, thus giving them more opportunities to become dependent on their media devices. Because of this, it was considered that these participants may struggle more than participants with a non-media studies background in regards to managing the pressures of the cellphone; however, this was not the case. This study is not a comparative study of the two groups. Rather, the two backgrounds were selected for the increased opportunity in providing balanced results. In addition, twelve interviews were sufficient to reach saturation, or the point at which no more major or vital information was expected to emerge if more interviews were conducted.

I recruited participants on the Colorado State University campus primarily through snowball sampling methods. I used my connections on campus to ask potential participants if they were interested in participating in the study, and if they knew of others who fit the study criteria who might be interested in participating. It was later necessary that I used a recruitment email to recruit the remaining amount of participants that I needed. I reached out to professors who taught undergraduate courses across campus to see if they would allow me to email their students, and if they would pass along my recruitment materials to their students. Initial participants in this study were compensated with a \$10 Amazon gift card for their time; however, as finding participants for the last several interviews proved in being difficult, I decided to double the money amount to \$20 to further incentivize potential participants.

This demographic was targeted for this study because there is a cultural presumption that teenagers have a high dependency on their cellphones and use them regularly or excessively every day, thus making this group a suitable choice for examining the relationship they have with their cellphones. Young college students are typically living away from home, may have gotten their first job, are not in close proximity to visit their parents, and are taking on a more adult lifestyle. This demographic helped contextualize the situation in which teenagers consider the cellphone as something that they need and rely on to function in their adult lives, as well as their struggles to avoid their cellphones or reduce use. The cellphone is also a tether to home for these teenagers' close social circles, thus making them dependent on their devices to keep up with their friends and family.

3.5.2 Data Collection Procedures

In order to conduct the one-on-one interviews, I coordinated with participants to set up a date and time convenient to them. I had originally planned to do these interviews face-to-face;

however, given the ongoing climate of the world at the time of the interviewing process with the COVID pandemic, I conducted interviews via a video chat program called Microsoft Teams. I made sure in the screening questions that participants were able to meet over this medium. I video and audio recorded the interviews using the built-in features that Microsoft Teams provides. Microsoft Teams also possesses a transcription feature, which I used to provide me with raw data for each interview.

I later uploaded the transcripts into an automatic transcription application called Otter to provide more accuracy and efficiency to the transcribing process. Because automatic transcriptions are not 100% accurate, I manually edited the transcripts to ensure accuracy. I have stored the recorded interviews and transcriptions in a secure folder on my private computer for analysis.

3.5.3 Participant Profiles

Following is an overview of participant information and brief descriptions of each participant. Note that pseudonyms were used throughout this thesis, and these are not their actual names.

Table 2. Participant Overview

Pseudonym	Age	Gender	Major in School and Minor (if applicable)	Type of Smartphone Owned
Emily	19	Female	Psychology	iPhone SE (Special Edition)
Mandy	18	Female	Business administration; minor in natural resource management	Samsung Galaxy A51
Madison	19	Female	Political science; minor in legal studies	iPhone 12 Pro Max
Jessie	19	Female	Journalism & media communication; double minor in media studies & business	iPhone 12 Pro Max
Sabine	19	Female	Journalism and communication studies	iPhone
Mia	19	Female	Anthropology; minor in media studies	iPhone XR
Pierce	18	Male	Business marketing	iPhone 13
Dylan	20	Male	Computer network security	Samsung Galaxy S7
Allen	18	Male	Journalism and media communication; considering minor in education	iPhone XR
Grayson	18	Male	Journalism and media communication; considering minor in sports-related field	iPhone 8s
Nathan	20	Male	Journalism and media communication; minor in sports management	iPhone 12
Carlos	18	Male	Journalism and media communication	iPhone 13 Pro Max

Participant #1: Emily. Emily held a negative outlook on her phone, which was reflected by the uncommon measures she took to limit her phone use, for example, choosing certain days every month to turn off her phone and leaving it behind at home. Perhaps somewhat of an outlier in this participant group due to her actions she takes to limit her phone use, she still provides valuable insight into how even those who desire to get away from their smartphones are still drawn into using it.

Participant #2: Mandy. Mandy's smartphone is a Samsung Galaxy A51. She discussed that she was fairly aware of her smartphone usage and that she had more negative things to say about it than good things. She believes the positive uses and features of her phone outweigh the negative.

Participant #3: Madison. Madison had a mixed outlook on her phone where she discussed positives and negatives of the phone, but by the end of her interview, she held a more negative outlook on it.

Participant #4: Jessie. Jessie talked about her mixed feelings on cellphones and later mentioned that the interview helped her realize that her phone causes her some disconnect to her surroundings.

Participant #5: Sabine. Sabine's outlook on her phone before the interview was positive, but near its end, she switched to a more neutral outlook as the discussion that took place made her realize some negative aspects about the phone. This included how it is considered rude for individuals to give attention to their phone instead of those who are around them in a social setting.

Participant #6: Pierce. Pierce held a negative outlook on his phone but also recognized the phone's "many positives." He uses the phone primarily to maintain contact with social circles and for entertainment.

Participant #7: Dylan. Dylan held a more positive outlook toward the communicative capabilities of smartphones, but vehemently expressed his concerns over privacy and security issues tied to the phone and applications in a general sense. His field of study and household upbringing on this matter caused him to manually disable his phone's screen time reports, thus prohibiting the tracking of his phone use. Because of this, he was the only participant who was not be able to share his screen time data. Dylan could be considered an outlier compared to the other participants due to his strong stances on the phone's lack of security and privacy. He attributed the idea of "out of sight, out of mind" as to why others do not feel as strongly about cellphone privacy and security as he does.

Participant #8: Allen. Allen mentioned that he is frequently frustrated by his phone but maintains a more positive outlook on it. He tries to avoid the “bad” uses of the phone and gravitates toward the “good.”

Participant #9: Grayson. Grayson’s outlook on his phone is more positive than negative, but still mentioned that smartphones and social media use in particular, can lead to negative effects on mental health and self-image.

Participant #10: Nathan. Nathan is aware of his phone use and prefers to be efficient with how much time he spends on his phone. He holds a neutral outlook on his phone, and recognizes the ways that the smartphone can impact social situations.

Participant #11: Mia. Mia maintained a positive outlook on her smartphone before and after her interview. She uses her phone to keep up with her internet friends, some of which are in other countries, communicate with her social circles, and for playing games. She has been diagnosed with ADHD and has mentioned that although counterintuitive, being on her phone can help her focus better on the moment.

Participant #12: Carlos. Carlos maintained an overall positive outlook on his phone and praised the phone’s purposes for good. Despite acknowledging that phones can be a distraction or disruptive at times, the ability to communicate with distant friends and family highlight the phone’s importance to him.

3.5.4 Pilot Study

This project used a pilot study to gauge the overall experience and flow of the interview process and to practice conducting the interviews. The design of the pilot closely mimicked the official interview process. The pilot sessions aided in finalizing questions for the final interviews by helping workshop questions that needed to be re-phrased, omitted, or added. The pilot study

used two participants. For pilot study recruitment, I asked fellow peers of mine if they would be interested in being a participant to aid in my research process. Participants consisted of one man and one woman from a non-media studies background, and were in their mid-twenties, close in age to 18-19. This pilot study acted to serve as a preliminary interview process and did not count toward the final data set.

3.6 Trustworthiness of the Proposed Study

This qualitative study aimed to be rigorous and generate trustworthy, credible data and analysis. According to Korstjens and Moser (2018), trustworthiness in qualitative research consists of: credibility, transferability, dependability and confirmability, and reflexivity, discussed for the current study below.

3.6.1 Credibility

In a qualitative study, credibility refers to the confidence that can be placed in the truth of the research findings. Truly credible research contains minimal interference from the researcher's biases that would alter the interpretations of the participants' views. A strategy this project used to ensure credibility was prolonged engagement with the participants. By having long-lasting engagement with the participants during the one-hour interviews, sufficient time and effort was invested in order to build trust, become familiar with the participants and the data, and for rich information and data to be provided. Person triangulation (Korstjens & Moser, 2018) – the process of gathering data from different types or level of people – was also another strategy employed to ensure credibility. By collecting data using the same interview question process from individuals with different backgrounds and experiences, it helped ensure the data's credibility.

3.6.2 Transferability

In qualitative research, transferability is the idea that the results are meaningful to people – other than those interviewed or observed – to aid in demonstrating that the overall study is applicable and relevant to a larger audience. Transferable research identifies the cultural, sociological, and psychological significance of the topic studied (Korstjens & Moser, 2018).

Although no qualitative research is perfectly transferrable to all contexts and cultures, to improve the transferability of the present study, the analysis took context and participant characteristics into account, as well as the position of the researcher and his potential influence on the process. The current study generated data relevant to not only teenagers, but adults who use cellphones. The sample reflected a relevant range of perspectives as similar or dissimilar experiences with cellphones were documented to have been experienced by both teenagers and adults. The sample satisfied both parties by selecting adult-range persons to interview who happened to still be in their teen years. When discussing inclusion and exclusion criteria, the most salient piece of information is the participants' background. By including or excluding participants based on their school major, it was more feasible to gain the perspectives of those who are trained in studying the media and those who are not. In other words, this inclusion/exclusion method helped determine whether or not this phenomena transcends individual background and experience, and helped in being applicable to a broader demographic overall.

In addition, the twelve interviews that were conducted helped reach saturation, or the point at which no further major or vital additional information was expected to emerge if more interviews were conducted.

3.6.3 Dependability and Confirmability

In qualitative research, dependability is the idea that the project overall is consistent, especially across participants or events (Korstjens & Moser, 2018). For example, this notion requires the use of the same interview guide for all interviews. This project succeeded in being dependable in that it used the same question guide for all interviews and the length of each interview was approximately the same (between 45 minutes and one hour). The only variation between questions was for follow-up questions that were triggered by certain response types. For example, if a participant evaluated their cellphone use primarily for escape and entertainment (play), that follow-up question would be worded differently than a follow-up question for someone who evaluated their cellphone use primarily for social purposes.

Confirmability is the extent to which findings are able to be confirmed by other researchers, and that findings are traceable back to the data collected. To ensure confirmability, the interviews have been digitally stored in a manner to where if accessed by those authorized, the date an interview took place is traceable to its corresponding respondent and interview. This allows for transparency in the analysis and conclusions drawn, and shows that the data in which the thematic analysis was conducted upon remained true to the source material. The questions asked during interviews were not leading questions and they were phrased in a manner to elicit open responses; interviews followed this format throughout. The interviewer attempted to avoid influencing participants' responses and made sure to adhere to the interview script. It is the duty of the researcher to not psychologically prime the interview participants by giving them overly-revealing research or information relative to the study, thus I never revealed information relative to the study that would shape their attitudes and beliefs of the cellphone or their cellphone use.

3.6.4 Reflexivity

As the author of this thesis project, I wanted to pick a topic that was of great significance to me. As a 25-year-old male graduate student at Colorado State University, I am relatively close in age to the target participants for this study, and I use my cellphone on a regular basis, including for tasks related to school and work, for communication, for social media, and for entertainment such as video-watching, music, and games. I have noticed in myself both the feelings of need for my cellphone and feelings of frustration with how much I use it. It was the paradox I observed in myself, close family members, and friends that initially prompted this topic of research. As a student myself, I relate to and have particular insights about students' use and perceptions of their phones, and my perspective, although unavoidable, may also have helped me understand participant responses better than others might.

I chose the topic of cellphone relationship because it is something I notice in my personal life, and in the lives of others. I notice how the cellphone governs my own day-to-day functioning and how the cellphone can make people feel like they are truly never away from work or social obligations. I personally have noticed people who (whether it be from habit or some other factor) choose to move between their virtual social world and physical reality in real-time. An example of this I have witnessed is when people have their phones out at the dinner table and are balancing their focus between their interactions in the physical space and their screen; oftentimes being completely immersed in their phone and that they are oblivious to their physical surroundings. I have noticed similarities and differences in attitudes toward the cellphone amongst different generations, and I reflect on my own use frequently.

Since I feel strongly about this subject, I had to be careful as to not influence any of the research participants. This was done through careful wording of interview questions, refraining

from chiming in on a response in a manner that would reveal any stance or bias I had (especially if it is a point I agreed with), and adhering to the interview guide. Fellow researchers also reviewed my interview guide before I conducted the interviews to avoid unconscious leading or biased question wording. This helped ensure that an ethical, open, and rich conversation could take place during each interview. My own preconceptions of the topic before conducting the interviews were that teenagers are on their phones more often than those who are in older generations, the phone is overall perceived negatively by many people, and that younger generations are less concerned by the invasive nature of cellphone notifications. It was also a key point of emphasis for the interview questions to avoid making or implying judgments about cellphone use or needs.

3.7 Results and Analysis

To answer this study's research question, *How do young adults view and feel about their relationship with their cellphone, and to what extent do they believe they are in control over their cellphone use?*, a thematic analysis was used on the transcripts of the twelve in-depth interviews. This project's thematic analysis was based on Braun and Clarke's (2006) research that detailed the *six phases of thematic analysis*: 1.) Familiarizing oneself with the data; 2.) Generating initial codes; 3.) Searching for themes; 4.) Reviewing themes; 5.) Defining and naming themes; and 6.) Producing the report. This project's thematic analysis was thorough in its approach and used techniques recommended by researchers.

The analysis first identified themes from the literature and theoretical framework of media dependency theory to examine patterns in topics around use of cellphones for understanding (information and social surveillance) orientation (utility and social interactions), and play (escape and entertainment). In addition, themes from the literature including

perceptions of addiction, the disruptive nature of phones, and loss of control over phone use were be examined. The analysis also looked for emergent themes in the data around topics introduced by the participants themselves.

Thematic analysis is an open, flexible analytical approach that allows for discovery and development of themes as well as assessment of specific themes of interest to the researcher. A weakness of this approach is that because it is unstructured, the many ways it is possible to interpret the data collected can potentially lead the researcher to draw inaccurate conclusions, focus on ideas that are not important to participants or the study overall, or overlook key ideas that emerge. To address these risks, this project employed several approaches.

First, the researcher conducted all the interviews personally and read through the transcripts many times to become extremely familiar with the data. Initial notes from this process captured first impressions and major trends in the data. Then, loose coding was used to track themes across the responses to begin developing a set of patterns and meanings that were present. These loose codes were grouped into themes, which included those from the literature and theory, as well as unanticipated themes from participants. To ensure themes beyond those identified by the research questions could emerge, codes and themes were compared to the data, and supporting – as well as contradictory – evidence was also identified. Codes and themes were revised and refined iteratively as the researcher reviewed the data and the interpretations that emerged. The final narrative with the themes, implications, and conclusions were reviewed by other scholars.

3.8 Concluding Summary

This project executed an ethical, original, and insightful study. Through the method of in-depth interviews, the data provided rich detail and understanding about people's relationships

with their cellphones. The underlying social, cultural, and psychological aspects of this phenomena were an important aspect of this study, and participant responses revealed how individual relationships with this technology also relate to overall relationships between society and cellphones, as well as between individuals and society in terms of their technology use. Every effort was made to design a trustworthy and credible study, and to reduce researcher bias in the data collection process. The methodology was chosen to maximize the potential for revealing insights and to communicate powerful, and perhaps, eye-opening stories of peoples' relationships with their cellphones.

CHAPTER 4. RESULTS AND DISCUSSION: MDT AND PERCEIVED CONTROL

Cellphones play a fundamental role in day-to-day life of the vast majority of Americans. Through the use of media dependency theory (MDT; Ball-Rokeach & DeFleur, 1976; Ball-Rokeach, 1985; DeFleur & Ball-Rokeach, 1989) as its theoretical framework, this project reinforces prior findings that higher levels of dependency toward media are triggered when that media fulfills multiple needs/goals for individuals. The analysis and discussion in chapters 4 and 5 address the study's research question, "How do young adults view and feel about their relationship with their cellphone, and to what extent do they believe they are in control over their cellphone use?"

Data gathered in twelve structured, open-ended interviews with college-aged teenagers about their cellphone use and their relationships with their devices revealed factors as to why individuals are so dependent on their cellphones, thus making reduced use or removal of it in their daily lives seemingly impossible. With the cellphone being deeply engrained into the culture of the United States from a work, social, academic, and practical standpoint, this study demonstrates the ways in which these devices have become more than just a technological tool for participants.

The chapter begins with general findings and discussion of the cellphone relating to MDT and/or its constituents. Throughout this chapter, findings from individual responses regarding their relationships and views of their cellphones are discussed; perceived control over cellphone use and design dictating use will be discussed, reflecting this project's research question. This chapter also includes unexpected themes that emerged, such as how and why individuals are more susceptible to using their cellphones heavily and their justifications for it, and findings that

serve as counterexamples to prior literature. Pseudonyms are used throughout to refer to the participants.

4.1 Analyzing Screen Time Data to Understand Phone Use

A portion of the interview process included participants sharing the data from their smartphone's built in use-tracking feature. On an iPhone, this is a feature in the phone's settings labeled as *screen time* that tracks daily and weekly averages of the total amount of time spent on the phone, time spent on each application, notifications received, and pickups. A pickup is anytime the phone is unlocked and then an application on the phone is opened (simply tapping on the phone's screen does not constitute as a pickup). *Screen time* is a general term for the time spent on the phone and for what media is being consumed. One participant, Dylan, was not able to share his screen time data because he kept that feature disabled due to his concerns about privacy. Some participants shared a few days-worth of data while others shared an entire week or two. The interviews did not suggest there were significant differences of participants' phone use from week to week, demonstrating habitual use of the cellphone. Figure 4 is an image of data from Grayson's screentime report. The image is a typical layout of what a smartphone user can expect to see from screen time data.



Figure 4. Image of Grayson's screen time data for notifications

The most commonly used applications for participants were social media apps such as TikTok and Instagram, streaming platforms, such as Netflix, text messaging apps, including Snapchat, YouTube, Photos, Music, internet browsers, and navigation such as Google Maps. The total average screen time for the participants in this study was 6 hours and 8 minutes per day, with a majority of the time being dedicated to social uses of the phone (messaging and social media consumption). The highest daily average of time spent on the phone belonged to Jessie with 7 hours and 42 minutes, while the lowest was 2 hours and 50 minutes per day (Emily). The total average amount of notifications participants received per day was 207 notifications; the highest belonging to Carlos with 384 notifications per day, while the lowest was Pierce with 78 notifications per day. Due to the inconsistent timing between interviews and time of day interviews took place, some notification data is not reflective of the total numbers given, and these numbers should be considered slight underestimations of their actual values. For participants who owned an iPhone, the average number of times they picked up their phone to

look at or engage with something was around 130 times per day. The greatest average number of pickups belonged to Carlos with 253 pickups per day, and the lowest belonged to Jessie with a daily average of 52. These findings present a numerical picture of how participants are using their phones, as well as how much time they are spending on their devices in order to contextualize the comments analyzed in the following sections.

4.2 Using MDT to Contextualize Teens' Phone Use

Media dependency theory argues that the more functions a medium serves, the greater individuals depend on that medium. If a medium serves just one of the three categories of needs that MDT calls the *goal scope*: understanding, orientation, or play, then dependency is triggered. However, because the cellphone can serve any combination of the three of those needs independently or simultaneously, and individuals can seamlessly change between different needs, the more functions are being served for individuals, thus, the levels of dependency on the cellphone are greater than other media. The results of this study show that college-age teens use their phones by balancing between their needs. For example, individuals who use their phone to fulfill their need of *understanding* utilize the internet capabilities of their devices by using internet search engines on their phone daily, and keep up with their tight-knit and loose social circles on social media. Individuals looking to satisfy their goal of *orientation* use the phone in practical manners such as listening to audio books or using its navigational features, and to interact with their social groups via sending and receiving social media content to friends, text messaging individually, or texting in group chats. Lastly, when an individual wants to wind down and satisfy their goal of *play*, they have many options on the phone to do so, such as watching YouTube or streaming services, like Netflix, playing video games, listening to music, scrolling through social media, and more.

Another note about MDT is it is a theory based upon the assumption that goal-attaining motives drive media consumption and proposes that individuals actively choose media content based on the pre-existing psychological need of dependency (Ball-Rokeach, 1998; Grant, 1996). However, the results of this thesis show that pertaining to cellphone use, some use may not be goal driven, but instead, habit driven. Participants admitted that they will feel pulled to their phone and check it more often than they need to, which is discussed later on in the chapter.

4.2.1 Themes Related to Understanding (Information and Social Surveillance)

As discussed previously, the smartphone enables its users to access the internet and be aware of and engaged in their social and informational worlds. The interviews demonstrate how some smartphone users rely on their phones to engage in social surveillance. Mia talked about how social media helps her keep track of what her friends and family are doing:

It helps me connect with other people because there's a lot of people that I follow that I don't necessarily keep in contact with, but I'm still kind of curious to see what they're up to. Before social media, you would never really get that – I'm also kind of nosy so that also kind of plays into it, I guess.

Pierce also discussed his affinity for group chats, which enable him to engage in social surveillance, “I'm a fan of group chats, I actually really like them. I think they're a good way to communicate with people, and I kind of like to know what my friends are up to.” The practical motivations behind engaging in social surveillance, such as wanting to keep up with friends, has become a common use of the smartphone.

Participants communicated the phone's usefulness in providing quick and easy access to knowledge. Mandy discussed how she relies on the internet capabilities of her phone to satisfy her information-seeking needs.

I use my smartphone for looking up basic information. I look up things throughout the day all the time. I'm constantly looking up, “What's that song?” “Who's that artist?”

“What’s the capital of this random country?”, that kind of stuff. I definitely am always looking up little things like that. My phone is basically a little, portable encyclopedia.

Saying that the smartphone is akin to an encyclopedia in one’s pocket further demonstrates the deep capabilities of the smartphone and helps contextualize why and how participants view the smartphone as a versatile device that they can rely on for information regularly.

Madison added to this idea when she spoke on if she could not use a Google search for a week on her phone: “I would probably feel nervous, almost that I don't know a lot more than I think I do. I think sometimes Google is my own knowledge because it's just so easy to access. If I couldn't look up things, I probably would feel a lot less intelligent.” She then elaborates on what she meant by *intelligent*:

Sometimes, if I have a question about something, or if somebody asked something, I could easily just look it up and answer their question by using Google. I would feel a lot better about myself because I'm the one that provided them the information, even if I didn't know it myself, but if I couldn't look it up, then I'm just like “Oh, I don't know about that, I don't know how to answer that question.”

Allen also added to the idea that the phone’s information-seeking abilities help satisfy logical curiosities amongst social groups: “I use Google all the time. Usually, it's more like I get in a conversation, something stupid is asked, and I'm like, ‘I want to check on that.’” This further demonstrates ways participants depend on their phones to satisfy their need for understanding in social settings.

Jessie also experienced a similar feeling of lacking knowledge without her phone: “I would feel probably a little bit clueless [without Google searches] because I look up random facts or something that's on my mind about once a day. So yeah, I'd feel like I wouldn't be able to have any of my questions answered.” This demonstrates that while cellphones serve as a practical source of information, they in turn, are causing individuals to be over reliant on this technology and be less likely to retain information or use their own knowledge to provide

information. The phone has the capability to do the thinking process for its user, which reinforces the theme present throughout the data that some participants do not know how to access information without the internet on their phone or other devices. This function also seems to address anxiety participants around not having the information they need at any moment. In this way, the information accessed on the cellphone is satisfying more than simply a need for facts about a given topic, it is satisfying an important social need to feel and be perceived as informed and intelligent.

The cellphone's use in providing significant information during emergency situations was discussed by Mandy:

In 8th grade, we had a lock down at our school because there was a stolen car situation and the guy had a gun and he was very close to our school ... We were all trapped inside, didn't know what was going on, and some people could hear gunshots, and we were all very concerned. The way we got our information was through our phones. We were on our phones on the news sites, or texting people who were outside of the school to see what was going on. In that case, I was completely reliant on my phone to contact the outside world to see what was even happening right near me; it was definitely like the phone was the source of information for that and there was not really another way to get information there.

Mandy's experience details how effective the cellphone is in providing up-to-date information in real time and provides a detailed glimpse into why participants can be dependent on their phones in case of instances involving an emergency or crisis.

Other scholars have discussed how the abundance of available information and ease in which it can be accessed over the phone can cause feelings of burnout. A study on the demands and pressures of social media usage on cellphones found that phone users are balancing their time between multiple social media platforms along with the perceived social pressures that come with that usage (Hampton et al., 2015). The study highlights the prevalence of social stress related to technology. The authors argue that it is possible that technology users – especially

social media users – are more aware of stressful events in the lives of others. They conclude that this awareness carries a cost of empathy, which puts a strain on the observer as well. Grayson also confirms this finding when he discussed why he turned off Twitter notifications on his phone: “For Twitter, I was just getting so many notifications for awful stuff happening that I was like, ‘Screw this, I’m not dealing with that anymore.’” The constant stream of negative news available to phone users is conducive to participants who displayed empathetic qualities becoming desensitized and disinterested in further keeping up with news and information.

Participants also communicated that the interconnectedness of the phone leads them to filter information about the world. Mandy discussed some of the negative emotions that arise when she is informed of the news on her phone: “I try to avoid some of the news because if I get into a whole week of just looking at the news all the time, I end up getting in a bit of a depressed slump where I’m like, ‘The world is terrible, everything sucks.’” These responses from participants confirm that phone use can lead to depressive symptoms and feelings of anxiety, which is consistent with literature (Allred & Atkin, 2020; Lee et al., 2021). Although participants expressed ways that information on the phone soothed some cases of anxiety, it may also be simultaneously adding other types of anxiety to their lives.

4.2.1.1 It’s the Phone or Nothing

When asked what alternative sources participants would use to gain information about the world if their phone was not an option, some had no trouble in mentioning traditional media sources such as radio, television, and newspaper. However, some participants acted perplexed by the question, perhaps because they had never or seldom considered going elsewhere to find out what they wanted to know. This suggests that traditional media such as television, newspapers, and radio are waning in its appeal to younger generations. Some participants did mention that

social media use on their phone helped expose them to current events, but that they follow up on those topics with their own independent searches for news as they acknowledge social media is not entirely reliable. Despite acknowledging that social media can lead to situations of fake news and false claims, these teens still rely on it to get their news and an awareness of general current events. The analysis also indicated that some participants rely on the knowledge of current events they acquire by scrolling through social media, but that they do not actively seek out social media for this purpose.

Participants indicated how the presence and abundance of legacy media in their daily lives is dwindling. Sabine discussed her lack of legacy media use:

I don't do a lot of legacy media – hardly any, actually. If we're talking about news and legacy media, I guess the only legacy media I consume would be the CSU stuff like *The Collegian* or *College Avenue*, because I write for *College Avenue* when I'm in school so I would look at that.

If she were not writing for the school newspaper, her legacy media usage that she seeks out would be close to nothing. She added, however, that she preferred to not read on her phone:

I actually don't like reading on my phone though. If I'm gonna read something, I'll get an actual book, and I don't read that often ... Reading on my phone, reading on electronics, will give me a headache, so I don't actually like to do that, but I just like [hard copy] books more, rather than reading on the phone.

This suggests that devices are not a like-for-like replacement of some legacy media due to the differences in format and comfortability in its use.

Mia had some difficulty in answering where she would turn to if she was not able to access information about the world over her phone. After asking if YouTube was a valid option, she then said, “I would probably use some sort of traditional media news show, but I don't know which one that would be. My parents' generation is more into that, but my generation – at least the people I interact with – doesn't watch cable TV.” She struggled to think of a source other

than her phone, which highlights how phone use to find information about the world is the primary option for teens.

Pierce expressed his preference to avoid traditional media more strongly than other participants, “Definitely not, I’m not going to pick up a newspaper. I mean, I guess if there were no apps, it’d be TV, but definitely not newspaper ... [And] I wouldn’t use the radio.” Television is the only other traditional medium Pierce said he would use to seek out information. This is perhaps due to it being the simplest form of traditional media where all viewers have to do is watch and listen, and they do not have to do much work in getting access to it other than finding which channel to tune in to. Dylan also explained that if he could not access the internet on his phone for a week or a month that he would feel “Full-blown panicked, complete chaos. I’m failing half of my classes at that point, and I don’t know what to do.” This further demonstrates how participants rely on the phone and its capabilities to function in their day-to-day lives.

To identify the significance of teens not knowing how to function without their phone for information and keeping up with social groups, Madison discussed how she would operate if she would not be able to access social circles for a week:

It would be really difficult because you kind of make your social media apps and other apps a part of your routine. Like, if you don’t have it, what do you do with that time now since you were spending so much time on your phone?

The phones have become so deeply engrained into these participants’ daily routines that it is difficult for them to picture a scenario where they do not have it, and cannot quickly think about what they would do to fill the time without their phones. This reinforces the notion that teens have a strong personal and practical dependency on their phones. These findings also reinforce prior research that found most young adults “often” get news from a phone or computer, and few turn to television, radio, or print (Shearer, 2021).

4.2.1.2 Notifications

Analysis found that the participants were more accepting of notifications when the sender was of higher importance to them, thus placing a higher priority on responding to some people over others. All participants discussed that they keep the notifications for their personal emails turned off because of incessant and non-personable emails, such as marketing emails from companies. The frequency of and generally non-important messages those emails carry cause participants to leave their notifications turned off.

Some participants indicated that while they leave notifications for their personal email notifications turned off, they keep notifications for their work-or school-related emails on so that they can be aware of and monitor more important information. Thus, this caters to what analysis uncovered; notifications become annoying to participants when they are not relevant to the individual and when they are sent in-mass, making them less individuated and personable. Because participants leave their personal email notifications turned off and make their motivations clear for doing so, furthering the discussion on email notifications in this project would be redundant and unnecessary. To negate receiving potentially irrelevant and/or large amounts of notifications, participants are taking advantage of the smartphone's design and features in order to maximize opportunities to see notifications that carry important information, and to limit notifications deemed as less significant to the individual.

Analysis indicated that despite the benefit notifications provide in giving individuals important information, it can also feel like a task or a "chore" to tend to each one. Mandy talked about how even notifications from apps, such as TikTok, that are centered around entertainment and escape, can contribute to this feeling:

There were a lot of them [notifications from TikTok]. They were all just my friends sending me TikTok's to watch, and I knew I would get around to those eventually. So, in

the app it tells me how many notifications I have, but for a while, one of my friends would just send me 20 TikTok's a day, and they pile up and then you have 187 notifications. When that happens, I'm like, "Oh my God, no," so that was stressing me out.

However, she later mentioned that because she regularly uses the app, she found no further reason to keep the notifications for TikTok turned on.

Sabine added to this feeling of stress and annoyance with notifications by talking about which apps she leaves notifications turned off for:

For Instagram, I keep it off because whenever I post something, it gives you a notification every single time someone interacts with that post, which annoys the crap out me, so I just do not want to deal with that. I actually had my notifications on for a while for Snapchat, and I literally just turned it off two days ago because I just got annoyed by them [Snapchat notifications]. I get them and I feel like I have to look at them, and I don't feel like looking at them or responding to them, so I just turned it off.

This shows that individuals also need to be in a receptive mood to notifications, which increase their likelihood of keeping them turned on, especially if they are notifications that are delivered at opportune times. Other significant factors determining the participants' receptivity to notifications were if they contained important information to the recipient and whether the frequency of notifications received were deemed as manageable, and not as excessive.

When asked about if she engages with notifications that apparently contain no personable elements upon initial glimpse, Madison said,

I do look at it as if it was something important. If somebody tagged me, or commented, or mentioned me in a social media post or something, I'll kind of open it almost more urgently. But then you realize that it's not something important and I just kind of close it again.

Emily also noted that it's the "intrigue" of what a notification could contain that draws her into checking notifications right away. Participants are interested in the possibility that a notification can be important or of significance to them so they elect to check their phone quickly. If the notification fits their description of important, then the act of checking the phone

is warranted. They would rather quickly discern if a notification merits their immediate attention than to pass up on it in case it does contain useful information. Madison added to this by saying there is an “urge” of wanting to know what a person is saying to her. Even if she is in a situation where she cannot respond or shouldn’t be on her phone, such as in class, it is that urge of wanting to know that draws her to the phone. This is another explanation for why smartphone users could be drawn toward their phones.

Grayson talked about how he would rather check a notification on his phone and find it be insignificant than to ignore potentially important information.

Let's say I get a text over Snapchat from my friend, Nick. I might wait a little bit to open it, depending on the circumstance. If I'm not doing anything, I'll probably check it, but if I'm studying or playing a game or something, I'll get to a stop point, and then I'll just do a general break and see what's going on. But if mom texts me, especially if I'm expecting something, then I'll be like, “Okay, put down what I'm doing, what have we got? Oh, it's just the cat. Well, better I checked than not.”

This finding demonstrates a “better safe than sorry” approach that participants have adopted when it pertains to engaging with notifications. Further analysis revealed that knowing there are notifications to tend to can also pull users into using their phone and can be distracting. Mia’s experience sheds light onto this idea best:

On Tuesdays and Thursdays I have an 8 a.m. class, so a lot of times, if it's Monday or Wednesday night, I like to go to bed early. Especially those kinds of days where I kind of want to just go to bed, it's a little distracting if there's a million notifications going off because I want to know what's going on.

Pierce discussed how group chats can add to the feeling of excessive and unwanted notifications, but expressed his preference for personally-tailored messages.

There are times where like, for example, I have a group chat silenced and you get a notification when somebody tags you personally, and if they tag me personally and it was actually something I wanted to see, they're talking to me or they need something from me, that's pretty helpful. I'm like, “Okay, thank you for tagging me so I could see this or know what we're doing.”

This further reinforces that participants prefer to be aware of and receive notifications that are relevant to them, thus increasing their favorability toward them.

Some participants mentioned feelings of disappointment when they open a notification that they think will be important to them, but instead, it turns out to be trivial or of little significance to them. It is important to note that levels of importance placed on notifications are unique to the individual. Being notified that people engaged with an Instagram post is of little significance to some, but of higher importance to others as it heightens their feelings of social connection and *orientation*. This demonstrates that when notifications stop being relevant to its user, they are easier to ignore. However, because of the potential presence of significant or important information, it makes it difficult to fully abandon the phone. Madison discussed her feelings of frustration and boredom when she is not contacted by someone she deems as important to her or with information she deems as important:

A lot of the time, it just ends up me being more bored or frustrated with an app in the sense of it almost not being like I actually need it, or somebody contacting me isn't actually important or anything – I would say that's more frustrating ... so then, you're just spending time almost waiting for someone to contact you with something important.

Situational preferences also dictated participants' receptivity levels to notifications and responding to them, as described by Madison:

It depends on the situation. If I do want to respond or if I was waiting for someone to respond, then it will make me feel fine when it disrupts, but if it's kind of an annoying work-related text or something where somebody's asking me a question that probably didn't have to be answered right then, but I do need to respond to them right then, that gets frustrating.

Jessie also added to this by discussing the feeling that at any given moment, she could receive a notification, "I guess it's just the *FOMO*, fear-of-missing-out-feeling. It's kind of interesting because even when I don't get a lot of notifications in a day, I feel like in that one moment that

I'm walking to another room, I'm gonna get a notification.” She further discussed how the lack of being able to keep up with notifications intensifies feelings of missing out:

It definitely makes me anxious. If do walk out the door and forget my phone, I'm like, “Oh, I hope that it's actually at home and I didn't just happen to drop it on the street,” or then it also makes me feel like I'm missing out on something, on any notifications, even if my phone hasn't been blowing up at all.

Combined with elements of intrigue, relationship to the sender, relevancy of information, frequency, and timing of a notification, fearful feelings pertaining to missing out on information also plays a role in participants keeping their notifications turned on. Analysis also found that when participants perceived a lower time commitment for checking notifications on their phone, they were more accepting of notifications, and justified checking unimportant messages with the potential that important information could be present. This is consistent with prior findings that users who perceive a notification as requiring little time to address are more receptive to engaging with a notification than those who perceive a notification as taking longer to deal with, while disruptive notifications are accepted by users because they can contain useful information. (Mehrotra et al., 2016; Shirazi et al., 2014).

4.2.2 Themes Related to Orientation (Utility and Social Interaction)

The use of cellphones for utility and social interaction emerged for participants in several ways. Carlos perhaps spoke most comprehensively on how the phone serves practical purposes on a day-to-day basis:

There's a big safety aspect behind it. It's important for people to know where you're at, and what's going on, and if there's emergencies and stuff like that, that's probably the biggest reason. For school and stuff, it's always nice to keep up with assignments, put things in my notes, or look at emails, and then, I'm pretty infatuated with music; I listen to music pretty often, so that's a big part.

All of the interviewees discussed various types of daily uses, but they all expressed that the cellphone provides uses for and feelings related to safety.

The majority of participants discussed the ability to contact emergency services as a practical use of the phone. Mandy spoke to this best when she said,

Having the capability to contact my parents, the police, or my friends in an unsafe situation, or if I'm somewhere that I don't know as well, I can turn on my location and have people know where I am, which can also be practical if I'm feeling unsafe.

This practical use reflects feelings of individual safety when in public, and demonstrates how the cellphone makes one feel comforted just by having it with them. Pierce also added his reasons for why he prefers to always be with his cellphone outside of the house: "I'll never leave anywhere without my phone, I'm not gonna lie. Safety reasons, number one, if I ever need to reach out to somebody, and two, I like to see what's going on. I can't miss a text, I like to see it." The phone's capability to orient its user to the world demonstrates its practical, yet complex significance for participants.

Phone users also rely on multiple messaging platforms to communicate with their social circles. Participants who used Snapchat regularly considered it less as social media, and more as a messaging platform. Mandy explained, "Snapchat I almost don't consider social media. I use it more as a texting/messaging source less than an actual social media source." Allen also shed light onto how teens consider Snapchat as more of a casual texting platform in contrast to other, more formal channels:

Today, people don't really use regular texting that often. People tend to go to Instagram, to Snapchat, to text you. I feel like there is this kind of formality with regular texts that maybe wasn't there before. If it's an important thing, it will happen over text, not Instagram, or anything like that.

While participants recognize that Snapchat is an app for sharing pictures with one another, it more often serves as their primary application for private messaging.

The phone is also used to facilitate in-person interaction and is often the catalyst in initiating in-person social events and contact. Pierce discussed his heavy reliance on his phone in order to feel more connected to his friends:

I definitely feel more connected because if I wasn't on my phone, I feel like I wouldn't talk to any of my friends back at home – I wouldn't talk to a lot of people really. Pretty much most of my connections are through the phone.

The interviews confirmed prior research that found the cellphone offers support in fostering and maintaining physical health and wellbeing (Ross & Wing, 2016). Some participants indicated that they used their health apps often to keep track of their distanced covered and calories burned during their workouts. Madison spoke about how she regularly uses the phone's health-tracking capabilities to aid her workouts: "I also look at my health app a lot because I go on runs, I do use that a lot."

Sabine discussed the utility her phone provides in serving as a camera for her photography needs: "I take photos of everything, I'm a big photographer. I take photos of the most random things – that would be another reason why I like to have it with me, so I could take photos – I just like taking pictures." In addition to its other practical uses, participants discussed that the phone is also something they count on for conducting business, staying on top of school work, and making money. Sabine's comments on why she has email, text message, and phone call notifications kept on cater to this idea:

I do a lot of work through my email, especially when I'm in school, I get emails all the time, because as a journalism major, I conduct a lot of interviews myself, so I'm always interviewing back and forth with people, setting things up, asking questions, stuff like that. Even now, I have this business over the summer where I teach swim lessons, so email is my main form of communication with parents and stuff. It's mostly just a business type of thing and a school type of thing. So, that's pretty important, that's why I keep those [notifications] on.

Nathan also talked about how he relies on his phone to make money and conduct business:

I'm making money off of my phone by contacting clients. Contacting other people that I care about comes first for me besides the business ... I've honestly thought about turning off notifications for some of the apps, but I've just never done it because most of the time, all of these apps could be ways of making money, and I don't want to lose the job.

Dylan discussed how the phone can also serve as a digital ticket to gain access into physical places, but can lead to unwelcome situations when it is left behind. He described a time when he was not able to get into a testing center for an exam because he had forgotten his phone at home, which caused a great deal of frustration for him.

Sabine discussed how her phone typically starts and ends her days: “Usually my phone is the last thing I look at before I go to bed, and it's usually the first thing I look at in the morning too when I wake up.” This is consistent with prior findings where 72% of teens say they often or sometimes check for messages or notifications as soon as they wake up (Schaeffer 2019), and also use the phone as an alarm clock and for checking schedules to start the day (Srivastava, 2005). Not only are smartphone devices starting days, but they are also ending them. Jessie talked about how using the phone at night prolongs her bedtime by a considerable amount:

When I start getting into the three or four [a.m.] range, it definitely starts catching up to me. At that point, normally, I'm able to identify that that's a little bit too much and I kind of try to fix my phone use habits.

She is aware of her excessive phone use, yet, because it is so ingrained into her nightly routine, making it difficult for her to break these habits around her phone use.

4.2.2.1 External Tools and Devices to Support the Phone

In addition to the utility the phone provides on a day-to-day basis, participants revealed that they own and regularly use external devices to support their phone in order to maximize its utility. Analysis of the interviews also revealed that the phone is used to access other devices and accounts because of dual-authentication features, further displaying the interconnected nature of the smartphone. It is this interconnectedness between devices that demonstrates how the phone is

more involved in a practical sense on a daily basis. Participants also mentioned the use of the Apple Watch, an accessory worn on the wrist like a traditional watch that pairs with a user's iPhone and allows for functions of the cellphone, such as text messaging and notifications, to be used and accessed, in addition to keeping the time. Comparable devices such as the *Fitbit* that can be paired to Samsung smartphones provide similar features.

To present a clearer idea of how phone users rely on external devices, Nathan talked about his reliance on his Apple Watch:

Sometimes, it does get annoying, I'll be honest, just the constant buzzing of the phone ... but it's nice to have it on the wrist for me, because most of the time I'm in a situation where I can't look at my phone, or I don't really want to look at my phone screen.

Even for cellphone users who do not like to be on their phones for long, the Apple Watch, for example, gives them the ability to passively monitor the activity of their phones. Nathan added that if he loses his phone or misplaces it, he can track down its precise location by using his Apple Watch. He also discussed a time where he left his Apple Watch at home and turned back around to go get it after leaving his house. The finding that smartphone users would rather turn back around after leaving home to make sure they have their devices to support their phone for the day shows just how deep the connection is between users and their devices, and the phone with external devices.

Not only does the phone provide for various practical uses such as a calculator, flashlight, and navigational system, to name a few, non-digital products have also been created to pair with the smartphone. For example, participants indicated that smartphone users use phone cases that serve more functions than just physically protecting the phone. Phone cases also serve as a wallet to house credit cards, money, a driver's license, or other similar items. Emily highlighted the versatile use of a phone case best saying that she keeps her driver's license stored in her phone

case. This contributed to why she does not leave the house without her phone – the phone functions as storage for important documentation. This allows for cellphone users to make their essential wallet items more compact by creating an all-in-one housing area in spaces as big as the inside of their pockets.

Another external device that users mentioned was ear buds. Many iPhone users mentioned their use of Apple's *Air Pods*. It is interesting to note that the brand of external products that users purchase align with the brand of its compatible smartphone – despite there being other brand options – demonstrating brand loyalty based on the type of smartphone individuals own. This could be attributed to Wei's (2007) study that found young people's relationships with their cellphones is part of their need to establish their identity, thus demonstrating that external products that pair with the cellphone can also aid teens in establishing their identity through their technology.

4.2.3 Themes related to Play (Escape and Entertainment)

Participants indicated that video-watching, listening to music, social media consumption, and talking with friends over the phone were all forms of entertainment and escape. MDT argues that an individual's satisfaction of needs is contingent upon the information that media provides (Ball-Rokeach et al., 1984, p. 3). This contingency is noted by Mia when she discussed certain media on her phone she typically relies on to give her feelings of entertainment and escape, but that those feelings are not guaranteed every time she uses that media:

Usually, if I had a hard day and I just go on TikTok, then that makes me feel a bit better to just have something lighthearted and dumb to do, but sometimes it'll kind of be a negative experience. Sometimes, there's something going down on Twitter, for example, then it can get kind of stressful, but usually, it's not.

When cellphone users are not able to satisfy their need of play or escape through the media on their phone, it can cause them to experience stress because their needs are contingent on certain media that is typically reliable in doing so.

Allen painted a clear picture of how college teens think about the entertainment apps on their cellphone:

TikTok is fast and easy, except you get stuck in that rabbit hole ... Then with YouTube, it's a more structured, longer video, I'll put that on and I'll clean up my room, or get some sort of work done in the background, I use that more as background noise. Netflix I'll use if I want to watch a movie, if I want to catch up on a show, or rewatch a show – that's when I would go to there.

This highlights how different media platforms compete for an individual's attention. Because TikTok has shorter videos that can be consumed quickly, it is easier for participants to engage in TikTok compared to watching shows or movies on a platform such as Netflix. However, despite the videos being shorter on TikTok, which would presumably lessen the time spent on the app, users said they often end up spending more time scrolling on TikTok due to what they call the “rabbit hole” or “death scroll,” compared to a 45-minute episode of a show on Netflix, for example. These concepts also apply to all social media platforms, not just TikTok.

This does not suggest that movie and TV streaming has no appeal, however. Pierce discussed why TikTok, Instagram, Twitter, YouTube, and streaming apps, such as Netflix, provide him with feelings of escape: “It's kind of like you leave the real world for a minute, and you just watch a show and you're trapped in that show for an hour, and you don't really worry about other things.” Participants indicated they can experience escapism from being immersed into their media, whether it is social media such as TikTok, or more traditional formats such as a movie or series.

4.2.3.1 Phone Use as a Reward

Analysis suggests that participants look forward to using the phone while they are busy completing a task, such as homework, which helps motivate them to complete it or reach a point in which they feel they deserve a break as a reward for doing their work. The phone is a welcome break, but it can lead to regretful phone use, however. Madison talked about how breaks intended to be shorter can pile on screen time:

Sometimes, I'll find myself being like, "Oh, if I put an hour into this then I can go on my phone for another hour. I can take a break and leave or go hang out with my friends or something." When I'm doing school or work or anything, I will kind of turn to my phone, to social media.

Social media use was a popular choice amongst participants looking for a break from their work-related tasks or school work.

Carlos talked about how the expectation of phone use is motivation for keeping focused on work or important tasks:

I'll wait until I'm finished with a task before I go on my phone and stuff, especially during class. If I have classes consistently throughout the whole day, then I'll probably keep it on do not disturb until my last class. So then, when I get home, I'll take it off and just go through everything.

Madison discussed how not using her phone for extended periods of time is a rewarding feeling, and intentionally engages in this behavior with her phone:

It's more of a reward too, when you come back to your phone and there's more notifications and more people to respond to at once, instead of responding every second that they're already responding to you or they're texting you. I think it's sometimes more satisfying when you come back to your phone after you haven't been on it for a few hours and then there's a lot of notifications waiting for you.

Jessie also talked about how she uses her phone as a reward for task completion saying,

I feel like when I'm writing an essay or something, I am aware of the notifications going off, but normally I'm able to hone in on my assignment, and then, it's kind of like a reward at the end. If I say, "I'm gonna write a page" or "I'm gonna finish the essay before

I look at my phone,” then you have other stuff on your phone waiting for you, but you're able to still complete your task.

These findings demonstrate that participants are motivated to stay off of their phones so that they will be rewarded with its use later. By staying off of their phones for an extended amount of time, they see it as gaining access to an excess or abundant supply of media that they would have already consumed.

4.2.3.2 A “*Distraction from a Distraction*”

The cellphone’s distracting qualities have been well-documented in literature. Prior research indicates that users are frequently distracted by sound, vibration, and the lights on their phones when trying to complete work (Adamczyk & Bailey, 2004). Participants in this study discussed how the phone can distract them from an important task, or distract them from other media consumption, as well as distract them from being engaged and attentive to their physical environment.

Mandy noted that the cellphone is a “distraction from a distraction,” and described how the phone can disrupt other media consumption:

There are definitely days when, of those entertainment things, or even the productive things I'm doing, where I'll be like, “Today, I want to read my book, I'm going to read my book, it's gonna be great” ... and then I sit on my phone for two hours and do not read my book. So, in that case, I do think my phone is disruptive. I'm still doing something that's entertaining, but it's not the entertainment that I was planning on doing ... it is disruptive just because it provides another distraction ... So, the phone is like a distraction from a distraction.

Mandy shed light onto this phenomenon further by saying, “If I'm watching a video on my phone and then somebody texts me, I read the text because it popped up in the middle of my screen and I scroll it away.” This idea that media pulls an individual’s attention away from their current media is also discussed by Pierce: “I definitely used to be really good at watching shows, and nowadays, it's tough for me to finish an episode because I'll go text or I'll get distracted by

TikTok, and that will get me all the time.” This shows how difficult it can be for phone users to focus solely on one medium because of the distracting nature of the phone. However, Madison discussed how a distraction can be welcomed during times where she is doing chores:

Sometimes, I put off tasks because I will just be doing things on my phone that I’ll just wanna put off, like doing my laundry or something. It’s easier to just sit on your phone or continue to sit on your phone instead of putting more effort into those tasks.

This finding shows that cellphone distractions are sometimes welcomed and used in order to put off or delay other tasks.

Interruptions to the use of one app by another can also happen during more pragmatic tasks. Grayson recalled a time when he was driving and relying on his phone to navigate:

Sometimes when I'm driving, I have Google Maps on ... you go to zoom in to see where an upcoming turn is at, and then a notification pops up right as you're clicking that, and it's like, now I got to go and do this whole separate thing, which is prolonging looking at this, which in the meantime, what was supposed to be a two-second thing, turns into a five-second thing, and then that's never good in the car.

Participants also discussed how being on the phone can make them unaware of their surroundings and that they prefer to not be focused on their phones when out in public. Mandy talked about only partially dividing her attention between her media and her physical environment:

I usually try to keep one earbud out of my ear just so that I can hear my surroundings. If I'm just staring down at my phone the whole time, then I find it distracting. I find that out in public, I wanna be a little more aware of my setting, so I don't always dedicate 100% of my attention to my phone.

This instance demonstrates a manner in which phone users compensate for the phone’s visual and acoustical distractions.

As discussed, prior research found that when perceived disruption of tending to the phone is lower, notifications are accepted more often (Mehrotra et al., 2016; Shirazi et al., 2014). Dylan also supports this finding when he spoke about how he feels during times where he is pulled

away from his current task to tend to his phone: “It’s definitely frustrating [to be pulled away in the middle of a task], but at the most, I think something like that would last three to four minutes, so it’s a distraction I’m okay with.” However, due to many phone users being prone to falling into the rabbit hole or death scroll when consuming social media, three to four minutes can easily turn into far more time, as discussed in the next section.

4.2.4 Regretful Phone Use

Although the phone does provide feelings of entertainment and escape, it can also cause its users to be resentful or regretful of spending time on their phones. While this theme partially overlaps with the theme of perceived control over the cellphone, it focuses more on the feelings that arise from excessive phone use rather than on the ability or inability to control cellphone use. The findings indicated that when participants had a task or chore that they needed to complete but did not do it because they spent too much time on their phone, it led them to experiencing feelings of regret. However, participants felt more positive toward entertainment phone use when their schedules were clear and/or when their workload was lower.

Mandy discussed the feelings that arise when she realizes she is spending too much time on her phone:

I think it's just maybe a little annoyance with myself [when spending too much time on the phone]. I could have literally been doing anything else and I’m just sitting there watching TikTok, and again, it's totally within my control to not do that. I think that often I justify it because I'm like, “You have been working hard all day, you can sit here and do whatever,” and sure, maybe it isn't productive, it's entertainment, but it's not productive entertainment – like I would consider playing guitar or reading a book to be productive entertainment, even watching a movie is more productive than just sitting and watching TikTok.

This finding suggests that while media provides feelings of entertainment and escape, some media, such as reading a book, is deemed as more productive and engaging which can lessen feelings of regret when spending time on that type of media. The role of the phone that these

participants described was as a less helpful, beneficial, or respectable activity compared to some other types of entertainment.

In addition to feeling annoyed with herself, Mandy also described feeling lazy when she spends too much time on her phone in one sitting: “I feel lazy, but also I think that I'm a little bit tired. Usually if I'm on my phone, I'll lay down 'cause I don't like my neck hanging down, so I'll usually lay on my side and then I'm basically getting out of bed midday – I just feel unproductive.” Pierce similarly described how it makes him feel when he scrolls on social media in lieu of fulfilling his responsibilities: “I feel kind of gross in a way. It's like, I didn't do anything productive, I just sat there and scrolled through all those apps. It's frustrating to know I wasted all that time when I could have been sleeping or doing work, or something else.”

Madison provided perhaps the most telling explanation of regretful phone use:

It makes me feel good in the short term when I'm actually doing it [scrolling on the phone], but then in the long run, you realize that you spent all this time doing something that was virtually just not important at all, and you could have just been spending your time doing something that would have benefited you. So, in that way, you kind of feel defeated too.

The idea that phone use provides short-term but not long-term benefits demonstrates the phone's efficacy in pulling participants away from their goals and tasks, and underscores participants' sense that they are not completely in control of their own use. These feelings of regret and defeat are intensified when time-sensitive tasks are replaced by phone use.

Allen also added to the discussion of regretful phone use:

I'll know fully well that I need to get a chapter of notes done by that night, and I'll be sitting in my bed like, “I'll start in 10 minutes.” Then it's, “I'll start it in 20 minutes.” Then it just builds up, and I'm just sitting in bed getting no work done. I regret it every time after just because I don't get my work done. It's like now I'm procrastinating, I'm crunching to meet that deadline.

This finding further demonstrates how the distracting qualities of the phone causes individuals to choose the phone over their responsibilities, which leads to feelings of regret. Mia talked about how she justifies her regretful phone use: “Sometimes I'll feel kind of guilty like, ‘Oh, I should be working on my paper, but I also want to go on TikTok right now.’ Sometimes I'll justify it and be like, ‘Oh, it's a little mental break’ and then three hours later, I'm still on my ‘mental break.’” Mental breaks intended to be only a handful of minutes can quickly propel into hours of phone use, leading to regretful phone use.

Some participants noted the “rabbit hole” or “death scroll” as reasons for getting drawn into extended phone use. Nathan talked about factors leading to his regretful phone use:

The death scroll could be really affecting everything ‘cause if you're sitting on your phone for say, an hour, and you're like, “Dang it, I should have gone to bed,” that is one form of regret of just being on your phone for that long. It doesn't make you feel that good. I just don't think it is beneficial at that point to fall into the death scroll on TikTok and Instagram with how many apps there are that just can push you to keep scrolling.

Nathan was the only participant to use the term “death scroll” during the interviews for this research project. While researchers have not formally adopted the term into academia, its cultural significance still provides an adequate explanation for the phenomenon of regretful phone use. A definition of the term found online from *Urban Dictionary*, which is a crowd-sourced website that defines the most current slang, defined the term death scroll as “The habit of getting stuck scrolling through an endless social media feed and no longer having the willpower to stop consuming content until you are exhausted, similar to being in a death spiral” (Urban Dictionary, 2020). During his interview, Nathan provided his definition of the term, resembling the meaning found online, “Falling into a hole on your phone of using multiple social media apps for longer than 20 minutes.” Many participants described this feeling with other language, however,

reinforcing the notion that the device and apps themselves are exerting influence over user choices in ways that did not feel entirely welcome for these participants.

Mia discussed how timing is also a factor in whether or not she feels regret when using her phone:

It depends on what day it is, for example, if it's the weekend I'm like, "Okay, whatever, it's the weekend, that's kind of what the weekend is for," but if it's during a weekday when I have stuff to get done, I'm like, "Oh, that wasn't a great use of my time," but I usually just make up for it by doing more work later.

This regret went beyond considerations of completing tasks or sleeping, however. For example, Jessie discussed how excessive phone use socially isolates her from her family, noting, "I always feel like I get carried away with my phone usage ... I will be up in my room and maybe 2 hours will go by and I'm like, 'Oh, shoot! I've been on the same app for the last two hours and haven't spoken to anyone.'"

These findings establish the smartphone's power in drawing these participants into excessive phone use and how it can overtake plans or preferences to do other things. Whether the regret this unplanned use causes is from lack of productivity or from social isolation, participants are drawn to their phones even when they know they should not be. The regret they feel is lessened when they do not feel pressure to spend their time productively, however.

4.2.4.1 The Phone As a Means To Alleviate Boredom

Many participants explained that they turn to social media on their phones to alleviate boredom. However, some participants said that the effort to alleviate boredom by using their phones actually caused them to be more bored, yet they opt to continue its use in that manner. Emily, who tries to limit her phone use every few weeks by leaving her phone locked away for the day, discussed how she still gravitates toward her phone: "I still find myself wanting to grab for my phone, or if I'm bored then I'll think to myself, 'Wow, I'll just go on my phone and do

something.” Sabine similarly discussed how she gets bored of scrolling through social media: “I’ll look at social media, but I’ll just get bored. I’ll be like, ‘I’m sick of looking at social media,’ but I won’t feel like doing anything else at the same time.” Participants indicated that despite the plethora of options they can choose from to keep entertained, they find themselves becoming increasingly bored of using the phone, even as they turn to it to alleviate boredom.

Madison pointed out how certain apps that once provided her with entertainment no longer have the same effect,

Sometimes, I get sick of [TikTok] though just because of the shorter videos – it’s weird because I used to watch YouTube for the longer videos, but then those almost became too boring and long. Now, I go to TikTok, but those videos are almost too short and are kind of frustrating to have to constantly scroll on something.

This pattern suggests that participants feel put out by having to seek out content for entertainment, yet, they continue to turn to the same sources that give them feelings of frustration. If cellphone users have to work for their entertainment, they become easily bored and move on from the media they initially selected to give them a reprieve from boredom.

Not all teens use their phones to alleviate boredom, however. Dylan discussed his intentional phone use, specifically not to alleviate boredom: “I really only have the phone on if I’m looking to do something; I’m not actively scrolling through it when I’m bored or something like that.” Although some tried to avoid using the phone to alleviate boredom, most participants turned to it when they were bored, which in turn, most often generated feelings of regret afterwards. This suggests that the phone is actually not effective at fulfilling their needs around alleviating boredom for most participants, despite consistent attempts to use it for that purpose.

4.3 Perceived Control Over Cellphone Use

This project’s research question sought to understand how college-aged teenagers view and feel about their cellphones, as well as their perceived levels of control over their devices,

including design's influence on control. This section discusses themes in participant perceptions of control over the smartphone.

4.3.1 The Devil Makes Work for Idle Hands

Levels of how busy participants were dictated the amount of time they spent on their phone. For example, when an individual is in class all day, followed by an after-school activity, or work, they are less likely to use their phone for extended periods of time. While this is not a surprising revelation, the key finding is that phone use drastically increases for individuals who have free time. Participants revealed that on days they do not have work or school, they are more susceptible to being drawn into the rabbit holes of social media and video-watching. Overall, the phone is used most often to fill time not otherwise scheduled for work or school.

Excessive phone use is not only limited to conventional video watching or social media browsing, but for information seeking, as highlighted by Mia: "I get sucked into Wikipedia a lot. I'll look up one thing, for example, I'll look up a country, and then I'll end up on some law that was passed 300 years ago, just random things. I love Wikipedia, I think it's fun, so I'll just kind of see where it takes me." Wikipedia still contains similar properties of social media outlets such as Instagram, in that the stream of knowledge provides the same feelings of endless scrolling and seeking of information.

Carlos presented a significant insight related to control over the cellphone and dependency:

We have all this information and we're constantly learning – whether we recognize it as learning or not – we're constantly learning about things just by going through our phones and keeping up with people, but also, it has taken control of a lot of people, and it's pretty tough to break that control, and there are a lot of people who will prioritize their phone over things that they shouldn't.

It is important to note that excessive phone use is not only limited to uses that participants have deemed as wasting time, but also its uses for productivity or conducting work, for example.

Carlos spoke about how his higher screen time should not be viewed negatively:

I noticed if I'm on a school break or during summer break or something, that number [hours per day on the phone] will definitely go up, but I think six hours or so [of screen time per day], I don't think that's bad, especially because not everything that I'm doing on my phone is not productive. There's a lot of positive use that I get out of it when it comes to talking to parents or talking to professors, whatever it may be.

Madison talked about how her phone use increases during her free time at night:

That's when I get more sucked in because during the day, I feel like there's other things that I could be doing, so that's more of a motivator to get off of the app or I just don't feel the need to get on the app as much, but at night definitely, the time does kind of go away when you're just lying there in a comfortable position watching new videos and everything.

Nighttime phone use was one of the most popular times for these participants to use their devices.

Jessie mentioned how control over her cellphone use is dictated by how busy her schedule is:

I notice that when I have other things taking up my time, my screen time is way down, but during the summer, if I have a bunch of free days, I feel like I don't really have control over it because even though I could spend my day doing so much else, I choose my phone over anything, and then that's where I kind of lose control because that's the only thing that I resort to.

She admitted that she chooses the phone over anything else during her free time, which is consistent with some of the other participants. She later mentions that her plans for the following day also dictate her screen time: “A lot of times, in my mind, I'm like, ‘Oh, I don't have anything tomorrow, I can just sleep in or something,’ and I'll continue on my phone, even onto a later time where I'm like, ‘I probably should have gotten off when I first noticed it.’” This is another example of an individual having free time and filling that time with the phone, which also

suggests that these teen participants may resort to using their phones during their free time out of habit.

Sabine also discussed how her schedule the next day dictates her phone use,

If I have nothing going on the next morning and I can sleep super late, then it doesn't bother me as much ... I always hate it whenever I go to bed at 2 or 3 in the morning and then I don't get up the next day until noon. I don't like that and I've actually been trying to work on going to bed earlier and getting up earlier.

This finding is significant because it reveals a direct link between phone use and its impact on wellbeing and lifestyle. Excessive phone use grew into such a problem for Sabine that she mentioned she is trying to get to bed earlier, meaning she would have to decrease her phone use at night.

Dylan also contributes to this theme when he discussed how having an open schedule is conducive to higher screen time:

I'd say that I'm spending a bit more time on it than I'm realizing, especially with video-watching, because while I do probably spend about an hour or half an hour every day doing so, there's definitely those moments in time where it could skyrocket to four or five hours just on a lazy afternoon.

Allen added that since he is busy with school, he uses his phone less: "Over the summer, I was definitely way worse at it [being on the phone more], but it was more that like, 'I have no scheduled plans, I guess I've got nothing to do,' and I'd pull out my phone. Right now, since I am in school, I feel way more reassured about my phone usage."

Analysis revealed that self-imposed limits of phone use are not sustainable over long periods of time since the individual is responsible for adhering to those limits. Mandy discussed how self-imposed measurements are not effective for her during free time:

I don't have really good ones [measurements in place to prevent excessive phone use] ... There's a thing on my phone where I can put time limits on apps, and then you have to put a password in to add more time. Usually it's a parental control, but you can just do it yourself, so I set it to have an hour and a half time limit. I thought, "Oh, this is great,"

and I stuck to it for a few days. Then I got to one day, and it was a day when I didn't have that much stuff going on, and I was like, "Oh, I need a break. I'm going to take it easy." I got to the end of my 90 minutes, and I was like, "I can do 30 more minutes, that's not that bad." The time limit at this point, it's so off, I just kept adding time until I didn't even know where it's at anymore. It's not a limit, I don't even reach it anymore.

This finding demonstrates that certain self-imposed limits are not powerful enough to curb the habits of phone use. Because Mandy knows the password to extend the time limit for using her apps, it is ineffective as she can input the password to remain on her phone. The cellphone seems to lower an individual's levels of discipline and accountability.

Grayson also added to the discussion on why self-imposed measures of the phone are difficult to enforce,

I've tried to put measurements in place, but the thing with self-imposed measures is that they're really hard to enforce. So, I've tried, but I haven't found any that work for me yet. I tried keeping my phone in the kitchen when I was in high school – keeping it in the kitchen when I went to bed. But then, once or twice, you forget to put it in the kitchen, and then that once or twice turns into two or three times a week, and so forth. When trying to impose time limits, then it's like, "Oh, well, I have a day off, I don't really have anything to do today, there's no reason I should follow the time limit today, of course," and then it's like, "Oh, well, that didn't really mess with me too much today," and then it just doesn't really work.

Instead of pursuing hobbies, reading a book, or spending time with friends, many participants reach for their phone because of its abundance of entertainment options. In response to if she has any measures in place to limit her phone use, Jessie discussed how she relies on her intuition and does not have concrete methods of limiting her phone use:

I feel like I really don't have that many [measures in place] because it's normally kind of just my internal clock or how I feel. If I'm tired, I'll go to sleep, but a lot of times, my sleep schedule is just so messed up already that I can keep going for so long and not really feel the effects of it. A thing that actually stops my excessive use is being able to keep myself occupied, so I made sure that I got a summer job this summer to make sure that I wasn't just on my phone all day, because that would have been one of the only things [I would have been doing].

Jessie explained that a major factor in seeking a job over summer break was to avoid “wasting” the summer by being on her phone. She took a more active approach compared to other participants to prevent her from using her phone excessively and noted its effectiveness in doing so. This finding demonstrates that individuals try to use self-imposed limits for screen time when they are not busy or are prone to excessive smartphone use. Part of the reason she took a summer job was to ensure that she did not waste the summer away by being on her phone. This demonstrates that less active approaches to curb cellphone use are not as effective as ones that necessarily require an individual’s time and focus to be away from the phone.

Sabine also contributed to the finding that self-imposed measurements are ineffective in reducing phone use. When asked if she felt that she should have some measurements in place to limit her cellphone use, she said,

Maybe, I've just never thought about it. Maybe I should, and maybe I will after this conversation, I've just never really felt the need to actually do that. I just don't know how effective it would actually be because I had friends who would do screen limits on certain things, and I remember I would be with them and they would be on an app, and then they would get the notification that said, “Your screen time’s up, get off,” and then they would click “ignore” and keep doing it.

This finding is consistent with the experiences of the aforementioned participants. When faced with an option to extend phone use or cease in doing so, individuals demonstrate the ease of ignoring the measurements designed to reduce their use in the first place.

The adage the devil makes work for idle hands means that when individuals don’t have anything to do with their time, they are more likely to resort to trouble. For participants, the cellphone is a source of “trouble” because they do not feel the time spent on their phone is helpful, productive, or even, for many, particularly entertaining or pleasant. Many of them, however, do not seem to know how else to spend their time – they have formed habits around particular types of phone use and many do not know how to break them. This theme relates to

control as these participants attributed their lack of control or ability to get carried away with their phone use during free time, reinforcing the notion that the device has a powerful influence over their abilities to make choices about their media use.

4.3.2 Loss of Control or Losing Track of Time?

Analysis revealed that although some participants agreed that they lose control over their cellphone at times, others described this phenomenon as “losing track of time,” rejecting the notion that this indicated a lack of control. Still, other participants used language reflecting both notions. For example, when asked if he had control over his cellphone use, Grayson explained that he felt he had control of when he picks up the phone, but less control over when to put the phone back down. He said, “I have control of when I pick it up, and I theoretically have control of what I use while I'm on it, it's just sometimes, the serotonin and dopamine take over for a little bit too long.” Unlike some other participants, Grayson was aware of the specific ways phone use can influence the brain. Despite this, he was vulnerable to its appeal.

Other participants explicitly stated they had no control over their phone use. For example, Pierce explained,

I definitely feel like I do not have control over my cellphone use. I used to be really good at it in middle school. I was a guy who was always not on my phone, but really the group chats, as those kept going, and I kept getting more involved on social media, I'm realizing I'm on my phone way more often than I want to be ... It makes me feel almost powerless, because you hear that noise and you click it instantly; that's just what I do every time.

Certain features of the phone, including notifications, lure phone users into using their phones, which makes them feel like they do not have control over their cellphone use.

Sabine explained that she does not try to limit her phone use while admitting that she lacks control over her cellphone use,

I guess I could definitely say that there is some extent of a lack of control when it comes to looking at my phone, but it makes me wonder though, if I actually were to put my foot

down and be like, “Okay, I’m gonna limit my screen time,” I wonder if I could actually do it, and part of me feels like I could, but I’ve just never tried.

Sabine later added that it is her conscious lack of discipline that causes her to not have much control over her smartphone: “I don’t feel like I lose track of time on my phone, I feel like I’m always glancing at the time. I feel like I always know what time it is and it’s more of a conscious choice like, ‘Darn, I wanted to go to bed early but it’s fine, I’ll keep scrolling.’” She acknowledges in those instances that she should not be on the phone, yet, she disregards those thoughts and justifies her actions by continuing to use her phone to the point where she chooses the phone over physiological needs, such as sleep. Jessie, in contrast, attributed her excessive phone use to losing track of time,

It’s kind of just the thing where I lose track of time when I’m on it. You won’t realize how long you’ve been scrolling, but a lot of times, I’ll look at my clock and it’ll be like, 1:15 a.m. It seems like I’ve only been going for 10-20 minutes and then it’s actually been 45 to an hour.

This finding demonstrates how participants who are aware of their excessive phone use and their ability to lose track of time, still may not take any measures to break these habits, further demonstrating the hold they perceive the cellphone has over them.

Allen also discussed the feelings he experiences when he loses track of time when using his phone:

When I lose track of time, it’s just frustrating. I had this whole day, and I spent so much of it on basically useless tasks. There was no point, I didn’t gain anything from looking at 20 people’s stories or 20 people reposting the exact same post, that does nothing for me. So, it’s frustrating because I could have done something with today, and I didn’t.

Nathan rejected the notion that losing track of time equated to lack of control, however: “I definitely don’t lose control, I just lose track of time. You don’t realize how many 15-30- or 60-second videos that you’ve watched, or an 18-minute YouTube video, those add up really quick.”

Mandy attributed her excessive phone use primarily to losing track of time, but did acknowledge that this was a type of diminished control:

I wouldn't say a complete lack of control because I'm coherent. I'm sitting there and I'm like, "I can be doing other things right now," but I'm also making the conscious decision to not do other things right then. I'm just on my phone and that's a choice I've made. So, I think I have control over what I'm doing, but I do lose track of time. I'll be sitting there watching a video that I'm aware it's 20 minutes, but then I watch two of them, and then it's been 40 minutes, and that kind of gets away from me. So, even though I am making conscious decisions and that is within the bounds of my control, time does escape me a little bit.

The feelings of losing track of time or feeling out of control were associated with regret, as previously discussed, and an overall diminished awareness of their phone use. Sabine discussed how she feels when she spends longer amounts of time on her phone in one sitting:

I hate that feeling. I'm like, "Why did I do that? Now life is gonna be more difficult." Come to think of it, I do that a lot in college. I will get home from class or dinner and have this plan to grind and get everything done, and then I would just be like, "Oh, just a short break, I'll scroll on TikTok until 8:30," and then I'll look, and it's 8:32 and I'll be like, "I'll go until 9," and it'll just keep getting later and later and then it's midnight, and I'm like, "Crap!" I always felt so bad for my roommate, she would be going to bed and I'd still be up doing my homework because I didn't do it earlier, because I was on my phone.

She acknowledged that the phone delaying her homework completion has happened on more than one occasion and that it leads to negative emotions and instances, yet, she still continues to choose her phone over her responsibilities.

Madison was one of the few participants to say that she has control over her cellphone use and does not attribute her phone use to losing time or a lack of control. She explained, "I do think I have control over my cellphone use because I've realized that I know what activities fill my day, and I specifically set times to be away from my phone or to be on it." However, later in the interview, she contradicted her estimations of her own control. She described using an app called BeReal, which encourages users to share a photo of themselves during a specific, randomly selected window every day. Madison noted,

The other day, I was hiking with my friends and everybody was like, “Oh, can my BeReal go off right now so it looks like I’m doing something with my day?” But then it's like, “Wow, that should not be your thought,” is this app that's almost controlling your life, because then you're waiting for it to go off so that you can show other people you're doing this super interesting thing.

This suggests that some perceptions of control are related to the design of specific apps. TikTok, mentioned by many participants as the app that they most often found themselves using for longer than anticipated, may have a stronger influence on participants’ abilities to make conscious choices of their phone use than other apps. More generally, certain apps exert influence over the day-to-day actions of some of these participants and those in their social circles, reinforcing pressures that stem from individuals wanting to satisfy the needs of orientation, and play, as suggested by MDT. Moreover, these apps influence social perceptions of the self, simultaneously creating feelings of belonging and the stress in doing so. Identifying this influence specifically as “lack of control” did not resonate with all the participants, but the result was often the same.

Sabine discussed how the phone has control over her and partly “manipulates” her into using it: “It’s definitely a mix of being desensitized, but then, also highly aware and almost manipulated by technology.” This finding demonstrates that phone users have grown accustomed to the influences of their phone and, despite being aware that they are not independently choosing to use it, they respond to its various notifications and demands. This may be explained in part by the ideas of digital ethicist, Tristan Harris, who discussed the ways phones and their apps are programmed and have the potential to dictate unintended thoughts into their users (TED, 2017).

Perhaps because the phone is so deeply engrained into the day-to-day lives of the majority of American teenagers, these participants struggle to gain full control of their

smartphone use. When asked if the interview had changed her relationship with her phone, Madison spoke of habit-driven phone use restricting her plans to change her phone use for the long term:

I think my use will change for the first few days. Today, now, I'm probably not gonna really go on my phone at all, but after a while, I'm probably just gonna continue back with my everyday function of being on it, but I'll try to be more aware – I continue to try to be more aware and get off of it.

Teens are deeply involved in – and aware of – their phone use habits and routines. Despite expressing feelings of dissatisfaction with those habits, none of the participants felt reducing phone use was sustainable for them. Perhaps, this is partly due to self-imposed measures not being effective in sustaining the reduction of cellphone use in the long run. Although many participants discussed their attempts to limit their phone use, few explicitly mentioned the systems they have put in place to draw them toward using their phones.

During her interview, Mia presented a recommendation to being more aware of time spent on the phone from a user perspective:

Maybe put on the little screen time monitor [while using an app]. Even if I don't use the limits, it's still nice to have a two-hour limit, for example, to see that, “Oh, I've been using this for two hours, this is how long two hours is,” when using TikTok, for example. I think that might be helpful, even if I don't fully use them, it'd be nice to use it as kind of a time-telling mechanic.

Participants indicated their desires to change their propensity in getting drawn into excessive phone use, and wanted better methods of monitoring their time spent on the phone. This could potentially aid in alleviating feelings of losing track of time.

One participant who did have strategies in place to limit phone use was Grayson, who explained, “I make an effort to stay off of it, but I have the measures so that if I need to get on it, I know when to.” Another, Mia, talked about how she relies on custom phone vibrations to direct her toward her phone: “If it's in my pocket and I feel the *message* vibration, then I'll always

check it, but if it's just the *regular* vibration, I don't check it because it's just TikTok or Twitter, so it's not urgent, but text messages are usually urgent so I look at those first.” The smartphone allows its users to customize vibration patterns so that users can deduce the source of a notification just by using their sense of touch, which may provide some slight improvements in their abilities to manage their phone use. These customization features can help some users prioritize which notifications they respond to.

Combined with previous findings, these findings suggest that while the smartphone has the capability to influence users in ways they cannot control, they also at times, take back some control by personalizing their phones to reflect their own needs and goals. However, users still depend on the phone to alert them of general information – especially when it is desired information – reinforcing the central role it plays in their daily lives.

4.3.2.1 *Design Catering to Cellphone Use*

Another key focus of this project was furthering the understanding of how and why design contributes to cellphone use. The data reveals that participants are influenced by a number of design factors to use their phones, for example, application designers blocking the visibility of the phone’s clock to lower a user’s awareness of the time, inopportune delivery of notifications when using other apps, and the process users must go through if they desire to personalize their notification intake. Prior research findings discussed the deliberate design tactics employed by cellphone and application designers to steer individuals toward using their phone and pulling their attention toward it, such as notifications appealing to an individual’s curiosity. Prior research found that the problem is not that people lack willpower to disengage from their phone, it is that the phone is designed to encourage increased use through the use of features such as notifications, appealing sounds and colors, and seemingly-urgent messages (Alter, 2017).

The smartphone, specifically iPhone's, have implemented positive design features in order for phone users to gain control over their phone. The use of "focus modes" where users can customize what notifications they receive or limit when they are working or sleeping, for example, are also designed for users who wish to take advantage of these design features. The "do not disturb" focus mode was discussed heavily throughout each interview. This feature was found to limit overuse of the cellphone and to personalize notification intake. However, just because notifications are off, it does not equate to less time on the phone. Pierce's discussion explained this idea: "I'm on my phone a lot, so even though I have my notifications off, I'll be within the group chat, but there are times where I had them off or something, and I missed a funny convo or something small where I kind of wish I was a part of that." This finding is consistent with prior literature that found it can potentially be more disruptive for users to turn their notifications off (or to silent mode) as users tend to check their phones more frequently to make sure they have not missed any notifications from others (Iqbal & Horvitz, 2010).

Participants also indicated how phone design can hinder the user experience and keep them using the phone for extended periods of time that are unintended and/or unwanted in those instances. Jessie noted,

It's honestly a little bit annoying [to have notifications appear during media use on the phone]. On a streaming service, I have every intention of watching my show or movie, but when I see the notification, I can't help but go and click on it. So yeah, it's like that entertainment taking away from entertainment. I'm a little bit less annoyed about it now because a lot of streaming services on the phones have it where if you exit out of them, they'll just go in the corner, so you can still be watching it while you're doing something else, so I just get double the entertainment.

This finding shows how some application developers are evolving the design of apps. Instead of a video-streaming app fully closing when phone users try to respond to a text message, it will stay open and shrink in size while remaining within view as to not take up the whole screen, and

still play audio and video so that users can multi-task with their media. When this feature is not present, participants indicated their annoyance of having other media pull them from their current media consumption. However, the feature also reinforces the ways in which multiple applications on the phone pull at a user's attention and lead them to make specific choices around how they engage with it. Rather than decreasing the control the phone exerts on users, this feature encourages moving even more rapidly from one use to another, even when the individual is already engaged with the phone.

Grayson discussed how despite being aware of the intentional design to draw users into using their phones for longer, he is still susceptible to its forces:

I know that those apps have designed the algorithms that make it as hard to pull away as possible, because if you pull away, then they lose money. I know that specifically with YouTube, if people leave the app or website after watching a video, it actually negatively affects those creators. So, they've specifically designed their algorithm and the way that they pay their producers to keep you there for as long as possible, which is honestly pretty messed up on their part, but they're a business trying to make money, but it gets me frustrated with myself for falling for it.

Nathan, who works as a freelance social media manager, talked about how Instagram is designed to get users to spend more time on the app:

Because you can't see the message from an Instagram notification, you have to go all the way into the app. They want to bring you into the app to get you spend more time in their app, and then they learn even more about your preferences. In the social media arena, when you post a picture on Instagram, you're not supposed to go into Instagram after that because they'll send you multiple notifications to try to get you back in. If you don't go back in, your post gets boosted up to show more people, so then it gets more interaction so you have more reason to go back into the app, but if you resist that, your post boosts.

This finding suggests that Instagram uses tactics to exploit the intrigue and curiosity of phone users. Participants who have higher levels of curiosity around receiving a message on their phone are intrigued by notifications and are more inclined to open them as soon as they see they see it. However, Instagram also counteracts individuals who are less curious by rewarding them for not

using the app by giving them more exposure on the app in the hopes that they will notice, causing them to open the app. All of these methods are subtle attempts to make an individual get drawn into the app and direct them into a rabbit hole or death scroll.

Mia also talked about how apps are designed to keep its user for longer: “I have a digital clock adjacent to my bed so I can always see it. It's kind of always in the background, so I always know what time it is.” When asked about why she doesn’t rely on the clock on her phone during these times, she said, “With TikTok, it doesn't show the time, I think on purpose.” This finding Mia provided is another example of the subtle tactics app designers employ in trying to keep users on their apps for as long as possible. Carlos also discussed how he noticed that apps are modeling themselves after the addictive design of TikTok:

A lot of social media apps are trying to take a page out of TikTok's book, because they realized how successful it is. Even if you go on Instagram and stuff, it's easy to just scroll and continue to see new stuff. On Snapchat, you can go through people's stories – there are stories by companies and celebrities and all that type of stuff – pretty much any social media app I think could be pretty easy to get lost in. Now, I feel like a lot of other apps are choosing to go that way because they saw how successful it can be.

This “success” that he spoke of refers to social media app designers being able to retain their users’ attention and engagement on their apps for extended periods of time.

Carlos also discussed how accessing certain features on his phone to limit phone use can be quite tedious, thus keeping him on the phone longer: “I think the process you have to go through – going into your settings or going into the app and their settings and adjusting notifications – is kind of a hassle, which I feel like is a reason why a lot of people just keep their notifications as is and just kind of deal with it.” Carlos further explained why he sees personalizing notifications as a hassle:

It's hard to just put time aside and be like, “Let me go through all my apps and label which notifications I need and which ones I don't.” It's kind of just easier to keep them

on, and then if there's a notification that I see that I don't really care about, I just swipe it away, which isn't bad.

This pattern suggests that customizing such features is seen as less important than avoiding the pull that they have on these participants. They are keenly aware that they are more susceptible to being drawn to the phone because of notifications, but do not choose to shut them off. This also demonstrates how smartphone users prefer convenience when using their phones, and the perceived amount of time it takes to tend to a phone-related task dictates whether they will engage with it or not, consistent with prior research (Mehrotra et al., 2016; Shirazi et al., 2014).

Jessie also described the appealing nature of certain notifications that make her open them right away, leading to feelings of intrigue:

Definitely my Snapchat notifications and my Instagram ones make me open my phone right away because I think it's just that you see the specific person who's sending it to you. Especially in Snapchat, you have all of your fun names for your friends and you'll see that one pop up and it's very simple. I think with Snapchat, I get a lot more invested with the notifications because you don't know what you're getting. With Instagram, it's kind of like this person sent you a meme from that person so you can kind of piece together what it could be, but Snapchat is so random it always catches my attention.

These findings perhaps suggest that cellphone and app designers are aware that the recipient's relationship to the sender of a notification is an important factor in determining whether they will open a notification or not, thus shaping the process of notification design. Participants indicated that some notifications do not reveal all of the information of a message, thus mystery takes precedence and causes an intrigued phone user to open it.

4.3.3 Constant Stimulus

This study found that phones were not only used for focused tasks, but also as a way to fill in background stimulus while doing other things. The majority of participants mentioned the phone's capability in providing "background" stimuli or multi-tasking between different media. They said that they listen to music or audio books with head phones when walking to and from

class, at the gym, or out in public. Listening to music in the car through the phone was another use cited. Others mentioned having their phone play music or a YouTube video in the background while they eat, do homework, complete household chores, such as laundry, or even while they are messaging people on their phone.

Jessie discussed how she uses her phone to listen to music: “I will pretty much always have music going in the background, or sometimes, I’ll even have it playing in the background while I’m using another app.” These simultaneous uses of the phone generate a type of constant stimulus in the background. Sabine discussed the background usage of media when performing tasks: “I’ll put a YouTube video on and I’ll draw, or I’ll journal, or I’ll be folding my laundry or something, and I’ll put YouTube on and kind of watch it while doing something else.”

Mia talked about the apps that offer her entertainment and escape, but how background media use is paired with those apps: “A lot of times when I’m playing games or doing something else, I’ll have a YouTube video on in the background.”

Something interesting to note is that background media ensures there is no letup in entertainment media consumption, whether it is active or passive, participants are comforted by the presence of media. This was most apparent during meal time; participants indicated that while waiting for food to be prepared, on their way to get food, or while eating their food, they are consuming media. Sabine discussed her media usage during such instances:

Sometimes if I’m watching TikTok and then I go get food, I wanna keep watching while I go get food. Or if I’m waiting for food, I feel like I almost get bored, which sounds kind of sad. I’ll either get bored, or I’ll get impatient and I’ll wanna be doing something on my phone while I’m waiting for food, getting food, or doing whatever.

This finding shows that individuals rely on the phone to help them pass the time and its presence in the background can still alleviate feelings/symptoms of boredom or other needs for stimuli.

Madison discussed her comfort with using media in the background, but noted that it can cause feelings of sensory overload:

I listen to music at night too, and I put it on my speaker a lot of the time. It's almost like overstimulation, though, because you're doing multiple things at once. I'll listen to music while I'm on my phone, but it's almost like you forget you're listening to music, it's just second nature.

This finding sheds light onto how media dependency is not a conscious decision, but can be derived from unconscious habits. This finding also indicates that teens normalize the use of multiple forms of media at once. Pierce adds to this idea of overstimulation: "As I've gotten older, and the more I've used my phone, I'm just super overstimulated, I just need to see something. I get bored really easily nowadays, I just want to see something." This finding indicates that teens have grown accustomed to having a constant stimulus and that the lack of a media presence creates a dull or boring experience for them. They are aware that at times, the phone provides too much stimulus, but as noted previously, few suggested they took steps to avoid this.

Grayson discussed that he uses background media to help him focus better on his current task:

A lot of my usage with YouTube, putting on studying music, or while I'm playing a game or something, I've got some sort of video going. I know some people can't work when they have something going [in the background], but I can't work when it's quiet. A lot of my media use is just background noise.

The participants in this teen demographic have grown so accustomed to media use that if it is not present, they feel uncomfortable, even distracted. Importantly, this type of use was often not associated with particular goals or purposes. For example, Madison talked about how she has noticed her friends endlessly scroll on their phones with no apparent goal in mind:

I have a friend that will respond within the minute I text her or Snapchat her. It seems that everybody constantly needs to be on it, even if nothing's going on. She'll just be on the Explore Instagram page, interacting with people that she doesn't know, or for her, it's

just something to do, you're just familiar with that, and so you just kind of keep scrolling. You just keep looking at things, even if they don't interest you.

Jessie provided her explanation for why she enjoys continuing to scroll through media on her phone: "It kind of just gives me something to do while I can just also relax. I don't need to think too hard about it when I'm just sitting there scrolling through my feed or watching a movie or something." This finding demonstrates that casual scrolling on the cellphone does not require a great deal of focus which leaves room for individuals to consume other media at the same time, leading to a multi-tasking, constant stimulus. A deeper question arises from this finding. When phone users have no clear goal in mind, yet they keep scrolling, what exactly are they gaining from that type of phone use?

4.3.4 Justified Phone Use – "Addiction is the new normal these days"

When participants were asked about whether or not they believed they were addicted to their cellphone or if they thought their use was normal or abnormal, the majority of participants admitted that they were addicted to their cellphone. However, key insights arose when analyzing participants' rationales upon admitting that they were addicted. Participants who said that they were addicted often explained away the statement by comparing themselves to their peers, saying, for example, that they knew of others who are on their phones "way more" than they are, thus making their phone use tolerable and normalized. Because of this, they did not see their phone use as a problem, and did not express that being addicted to their phone is of great significance. Another way some explained their behavior was by blaming certain features and capabilities of the phone or the apps themselves. Carlos noted,

I think social media is probably the biggest addiction on the phone ... There's so much you can do on a phone, you can just search up anything, you can watch basically anything, you can read about stuff, play games – there's just so much opportunity for you to waste time on it that it's pretty hard not to when you're given all these options in the app store or in a phone. I think anybody who says that they're not addicted to their

phones, that's maybe not the truth because I think we're all somewhat addicted in a sense, but there's a lot that we do on our phone that is a necessity for day-to-day life, so I think that adds to it too and can cancel it out a little bit.

Carlos suggested that some of the daily uses of the cellphone are a necessity which contribute to excessive cellphone use and increased levels of dependency on the device. He recognized that those necessary uses of the phone can negate perceptions of addiction, but can also contribute to them.

Sabine proposed a notion that normalizes social media and cellphone addiction for people her age:

If I'm trying to be really honest, I probably have a little bit of a social media addiction too, especially in social situations, because if I'm uncomfortable and I don't have my phone to scroll on, then I'm just like, "Ah! I don't like this." I also feel like addiction is the new normal these days. I feel like so many kids are like that. If you ask me if I think my phone use is normal in terms of the average – I don't know the stats – phone use for my demographic these days, I feel like I do use it a normal amount.

She also tried to redefine cellphone addiction by saying that she's addicted to certain media on the phone, not the phone itself. She then compared herself to others close to her age and tried to rationalize her individual phone use through how others use their phones. By calling phone addiction "the new normal," she separated herself from feeling as though she was personally making poor choices. This was a common theme in participant responses.

Mandy explained to the normalization of phone addiction saying, "I wouldn't say I'm addicted to my phone; I do know when to put it down. I would say I'm normal for my age group. I think that phone usage differentiates between people, but I think for an 18-year-old college female that it's fairly normal for my age group." Participants relied on their past observations of their peers' cellphone use in order to compare their individual cellphone use to others, and even made comparisons when their peers' phone use was unknown. Grayson's response to the question of being addicted to his phone shows this idea clearly:

I want to say that I think I'm at about the normal area [of phone use], but the truth of the matter is, I don't really have anything to compare it to. I haven't seen anybody else's data on their usage, so I can't truly compare it. I know compared to some people, I certainly use it less than some people that I know, but then, other people use it in a similar way to me. I don't know how they use it at home, so that makes it a really difficult question to answer.

An interesting item to note from this finding is that Grayson never answered the question. He focused his answer on comparing his phone use to his peers, and therefore, by doing so, he deflected the question, perhaps intentionally or unintentionally.

Jessie also contributed to the idea that cellphone addiction is a “normal” occurrence for people her age:

Yes, I would say that I'm addicted to my phone because when I leave the house without it, I'm like, “Oh my God, where is it?” I will take it into other rooms of the house with me, even if I'm not gonna use it. I just always have it on me, even if I'm not using it. So, I think I'm definitely addicted in many ways, but in all honesty, I would say that that's normal for people of my age demographic or my generation – Gen Z, I suppose you could say – just because our generation grew up heavily influenced by technology ... Even though I am on my phone a lot and I am addicted to it, I do think that that's normal for people my age.

The participants seemed to have this notion that if their peers also used their phones excessively, then that justified their phone use and absolved them from being negatively labeled as “addicted” to their phone. However, because they grew up with this technology, this suggests that they are comfortable in knowing they are addicted to their phones because they have grown accustomed to its presence. Pierce also justified his phone use by comparing it to that of his peers:

I always feel like I'm addicted to my phone. I'm always disappointed, but when I look at other people's screentime numbers – I'm around six to eight [hours per day] normally and I see some people at 10-12 hours, which that's been my worst ever – I feel like compared to them, I'm not nearly as addicted, and I definitely have times where I can put it down, and I know kids that are on their phone every single second.

Being “not nearly as addicted” as their peers is just a means for teens to further justify their phone use and make them more at ease about their phone use situation. Carlos described himself as addicted to his phone, but also justified it compared to his peers’ phone use:

I think there's definitely addiction, but I don't think personally that I'm as bad as a lot of others seem because I can still recognize and put in measures, like reading before bed and not being on my phone, or doing different things such as that to make sure that I'm not spending all of my time on my phone, and I definitely do know people who spend all of their time on their phone, but it definitely is an addiction I think.

Allen presented a unique response to if he considered himself as addicted to his phone or if his usage was normal. He took a comparative approach to his peers, but rather suggested that his efforts of using traditional media over the phone is what differentiates him from his peers:

I know in my age demographic and stuff, I feel like generally speaking, people would be a lot worse than I am. I feel like I'm better than a lot of people in my same situation, but I think that's partially because I'm trying to listen to the radio, I'm trying to read the paper, I'm trying to do more stuff that gets me out of my phone.

Mandy asserted that despite averaging nearly 2.5 hours a day on TikTok alone, she is not addicted to social media on her phone because she is a consumer of content rather than a producer, and because she does not use certain apps that, presumably, would have indicated genuine addiction in her view. She explained,

I don't think I do overuse social media ‘cause I've actually made a specific point in my life of – I don't post on TikTok, I never post on TikTok. I only watch TikTok, but I don't post anything about me. I barely post on Instagram, and when I do, it's because I've had a fun thing and I wanna share it with my friends. But Snapchat, I almost don't consider social media. I use it more as a texting/messaging source less than an actual social media source. I don't use Twitter, I don't really use Reddit. I don't use a lot of the social media to talk about myself. In that regard, I don't think I'm addicted to social media because when I hear that, I think of oversharing online, and I don't do that.

Since the participants considered Snapchat as more of a messaging platform instead of social media, they discounted it when talking about social media overuse. Because she does not post

anything else online, but rather, consumes what others post online, in her eyes, she is exempt from being labeled as addicted to social media.

Conversely, Dylan did not compare himself to his peers to justify his phone use, but justified his addiction through his need for it:

I would personally classify myself as – yeah, I’d say I’m addicted because I carry it around with me everywhere. I need it for basically anything I do online; it’s the reliance on needing it. If I didn’t have it, I’d be concerned immediately. So, it’s that immediate response of, “Could I stop using it right now and be fine?” I don’t think so, there’s a lot of stuff I need it for.

Despite Dylan not being on social media platforms like Instagram and Twitter, he considered himself addicted because of his regular reliance on his phone. By just having the phone physically present with him, he considered that as an addiction, but also, justified it because of the phone’s ability to help him meet his daily needs.

Mia also did not make a direct comparison to her peers, but still tried to modulate the severity of her phone addiction: “I think I’m mildly addicted, but not to the point where it’s a giant issue. Also, so much of my life is online, not just socially, but for school, too. So, it’s kind of hard to not use the phone just because so much of my life is on there.” However, when presented with the definition of problematic smartphone use (Panova & Carbonell, 2018; Yang et al., 2020), she admitted she fit under the criteria of problematic smartphone use and then proceeded to make comparisons to her peers, saying, “Honestly, most people my age have some form of that issue. I think it’s just kind of how it is, since there’s so much of an over-reliance on the internet. I think it’s a generational problem, not just a *me* problem.”

When also asked to elaborate on why she considered herself as mildly addicted to her smartphone, Mia said,

Because I find it really difficult to be without it. Like I said earlier, I never leave anywhere without it, and I never have. I need it on me constantly. It is for people to

contact me, but also, I have a hard time staying away from social media sites just because I want to keep up with the trends.

This finding that participants find it difficult to be without their phones in their day-to-day lives is consistent throughout the data set, and demonstrates that overlap between dependency and addiction exists, and further establishes the difficulty in transitioning toward the reduction of individual smartphone use. However, Mia later outright admitted that she is addicted to her cellphone, which exposed a profound underlying phenomenon behind smartphone addiction amongst teens: “I mean, technically, I probably am addicted, but I don't really see it as that big of an issue, which sounds terrible, but I don't really care that much.” Her apathy toward her smartphone addiction is the ultimate justification. By not caring, she feels it absolves her from taking any responsibility or issue with her phone use. This attitude towards phone use amongst participants was prevalent through the data set.

Sabine also justified her cellphone use by highlighting the generational differences in attitudes toward the cellphone and its use:

I like to think I exercise a little bit of control, but then I feel like my screen time is really crazy, so then it makes me think maybe I don't. At the same time, I've never really felt the need to try and limit my screen time or anything. I've never really been bothered by that. My mom is constantly telling me, “You're always looking at your phone,” but I feel like that's just a *parent* thing.

This data suggests that there is a generational outlook on the cellphone and its use amongst teens. Sabine appears to disregard what her mother said about her cellphone use because she considered it a “*parent thing*,” which she uses to invalidate her mother’s attempt in making her realize that she is on her phone a great deal. Furthermore, Sabine admitted that her phone use distracts her from completing homework in a reasonable time frame, yet, she justified this use through task completion and by comparing her phone use to her peers’:

Honestly, I feel like in my mind, I'm getting things done – even though it's a little stressful and it's a little annoying – I ultimately am getting things done and what I need to do ... I feel like when I'm out with friends, I'm really not on my phone that often, and I noticed this because they're always on their phones and they're always posting on Snapchat or whatever ... I definitely do that less than I think a lot of kids my age do ... Like I said, I get everything done, so maybe that's why I don't feel like I need to, because in the end, it's not really interfering with my responsibilities – I mean, it is, but not to where it's like super bad – it is bad, but it's not like I'm failing school or anything, or I'm messing things up, or messing my business up because I'm on my phone. I get things done, even though it's under a time crunch and it usually involves a lot of tears and stuff.

Despite contradicting herself and saying that she doesn't need to limit her phone use even though it causes her distress at times, she justified her use with an ends justify the means approach. It does not matter to her how her responsibilities and tasks are completed, just that they are. She also discussed that her friends are on their phones more often around her than she is on her phone; however, she assumed that they generally use the phone more often than her just because she saw them on their phones in those moments.

Excessive phone use amongst teenagers today is not an uncommon occurrence. However, because of its commonality, participants justify their cellphone use by labeling it as normal, even if they consider themselves as being addicted to their devices. Some cited the necessity of needing to use the phone to justify their excessive phone use, while others discussed being addicted to media on the phone, not the phone itself. Regardless, participants felt it was necessary to defend their phone use, perhaps because of apparent negative social perceptions and judgments associated with excessive phone use. These types of social pressures on cellphone use are discussed in the following chapter.

4.3.4.1 Music Use is Viewed as Favorable

The interviews suggested that there are certain aspects of the phone that participants feel less guilty about using or engaging in compared to others. For example, despite being heavy music listeners on their phones daily, most participants seemed to disregard their use of the

phone for music until the interview was almost over, or until they were specifically asked by the researcher about it. It was not until these moments that they would recall music being an important aspect of their daily cellphone use. Mia was asked why she did not initially mention listening to music as one of her main uses, and she offered a potential explanation for this phenomenon, saying, “I think I didn't remember it because music is always on in the background, and I'm not actively on Spotify, it's always on in the background, but if we're counting just listening to music, then I definitely listen to it for a few hours daily.”

Emily also contributed to this trend of music being forgotten about because it did not seem to be part of their narrative about concerning or absorbing ways they use their phones. When asked if she was an avid music listener on her phone, Emily quickly mentioned her heavy music use: “Oh, yeah! Actually, I forgot about music before, but I would say that's what I use my phone the most for ... I listen to music when walking to and from class, at the gym, and when I am alone in my dorm room.” She was not the only participant to mention music use in this fashion. Despite music-listening being a top use of her phone, she had forgotten to mention it when she was first asked about her primary uses of the phone. When Allen was asked if he used music on his phone over halfway through the interview, he said he used his music app, Spotify, “constantly.” The researcher followed up by asking Allen if he had not been asked about his music use if it would have come to his mind at all, to which Allen replied, “No.”

Compared to music, social media use seems to have substantially more negative judgments attached to it. No participant in this study indicated that they would like to reduce music use. This suggests that some media is looked at as more problematic than other forms of media, perhaps because many participants use music in the “background,” they do not consider it as an active use that would contribute toward being considered a problematic level.

Mandy discussed how social media use over the cellphone carries a generally negative connotation despite it being a form of media that serves similar purposes to other media, and highlighted a double standard when it comes to certain media types:

I don't think I'm addicted to social media because when I hear that, I think of oversharing online, and I don't do that. I watch it for entertainment value. If I watched a couple movies every day, that would be a lot of movies, but also, it wouldn't be a "movie addiction," it would be like, "Oh, she just watches a lot of movies."

This finding reinforces the theme that there are certain types of media use that participants perceive more favorably over other media.

A few participants, however, did mention their music use early in the interview without being prompted. Mandy, for example, mentioned that she uses her music app "a lot." However, she did not bring up music again until the very end of her interview when asked if she wanted to add anything else about her cellphone use. She said,

Oh, yeah, music use! Listening to music on my phone is something that is really big. I think that music is something on your phone that you don't have to look at, and you also don't have to talk to anybody. It's really just an audio device. Same thing as an MP3 player, Walkman, or something, it serves that purpose. So, in that regard, I think phone usage can look different for different people, because some people are listening to music all the time.

These findings reiterate how participants have grown accustomed to the presence of media in their daily lives and that the use of background media, such as music, can be easily forgotten when considering different uses of the phone.

4.4 Summary and Conclusions

This chapter discussed and presented findings related to media dependency theory and its significance in relating to cellphone use in teens. Participants met their need for *understanding* by using their phones to seek information about the world and to keep up with their peers on social media. However, some participants indicated that they felt a sense of over-reliance on their

devices for information because they would lack knowledge or abilities to properly function without it. The pressure to use the phone for information was tightly bound to concerns about how others might see them if they did not know something important. In this way, the phone was fulfilling both information and social needs simultaneously. Notifications provide heightened feelings of *understanding*, but participants discussed that their acceptance of them relied on certain factors, such as the perceived disruption in tending to it, timeliness in their delivery, the recipients' relationship to the sender, and the degree of the message's importance. Participants satisfied their need for *orientation* on their cellphones through interactions between friends and family over the phone, and by maximizing its practical uses, which includes supplementing the phone with external digital and physical products.

The need for entertainment and escape, or *play*, was satisfied through media consumption that includes watching YouTube, watching TV shows or movies on streaming services, such as Netflix, listening to music, scrolling through social media, and communicating with friends. The distractive capabilities of entertainment media were also clear to these participants. Some explained that when they used entertainment media excessively, it caused them to neglect their responsibilities and tasks, leading to feelings of regret. Many participants also use the phone as a means to feel rewarded for completing tasks or schoolwork. Findings pertaining to the research question were also discussed by participants regarding their levels of perceived control over their cellphone use. Some participants discussed having little control over their devices, some attributed their excessive phone use due to losing track of time, while others discussed the cellphone's ability to control its user. Participants' phone use increased during free time, and seemed to pose as a time that invited them into excessive phone use. These acknowledgements were most often tempered with comparisons to others' excessive use, providing a justification for

this habit. Forces pertaining to the cellphone's design that cause participants to use their devices, even unintentionally, were also discussed. These findings indicate that cellphone use may be less goal-driven as MDT would suggest, and more habit-driven for college-aged teens.

CHAPTER 5. RESULTS AND DISCUSSION: THE CELLPHONE'S EFFECTS ON SOCIETY

Media dependency theory addresses both individual and social level relationships between individuals and media. Research on the cellphone's role in society indicates that this technology influences broader aspects of how individuals are socially positioned and how they position themselves in their social and cultural worlds. This section discusses the societal implications of the cellphone and its impact on how users think, act, and/or interact because of the cellphone, in addition to underlying social pressures that steer individuals toward using their phones.

5.1 Social and Cultural Implications of the Cellphone

An important factor in the model of MDT is how the goals and needs of *understanding*, *orientation*, and *play* relate to structural aspects of society, including how dependency arises from specific relationships among society, the technology, and the audience. In considering dependency on cellphones, these relationships would be: 1) the relationships between *society* and *cellphones*, including level of access and how intertwined cellphones are with political, economic, and cultural systems; 2) the relationships between *cellphones* and *users*, especially how cellphones are used and how they relate to the needs stated above; and 3) the relationships between *society* and *users*, which emphasizes the social forces that influence users' motives and needs for cellphones, including social norms, values, and laws users face. The findings demonstrate that cellphone use is influenced by society and culture and its use is normalized and expected, thus pressuring individuals to keep pace with the rest of society and stay informed through its use.

5.1.1 External Social Pressures Dictating Phone Use

The findings suggest that feelings relating to the perceived pressure to respond and be available may be factors hindering participants' abilities to exercise control over their smartphones. Mandy noted the tensions behind feeling why she needs to be available and attentive to her phone, explicitly citing societal pressures:

I think that it's a societal expectation, especially from family and friends who want to get in touch with me, that I will eventually respond to them. There is that pressure to have to look at your phone occasionally just to make sure that you're not missing out on that. Technically, I could control everything if I wanted to and not look at my phone ever, but because I have an obligation to some other people, I think that does create that pressure from the outside that I don't quite have control over my phone usage in that particular regard.

This highlights the external social forces that contribute to the importance of using the phone, including pressure to not disappoint their social circles by being inattentive or unresponsive.

5.1.1.1 Perceived Pressure to Respond

In Church & Oliveira's (2013) research on the messaging capabilities of cellphones, they found that cellphone users experience a perceived pressure to respond to notifications in a timely manner, which can cause a strain between people and their technology. Findings from the current project confirm Church & Oliveira's work, but also offer deeper understanding of how and why feelings of the perceived pressure to respond circulate. In line with prior research that found individuals are dependent on their cellphones as a safety net (Geser, 2004), the current study found that participants not only prefer to have their phones with them at all times in case of an emergency, but also because they want to be available to their social circles. The perceived pressure to respond stems from concerns of being perceived as unreliable by being inattentive to the phone or of giving the impression that they are disregarding others. It also leads individuals

to be apprehensive of the potential repercussions of not responding to phone notifications right away.

Feelings of the perceived pressure to respond can be intensified when users know that the other person is expecting a reply. The feature on the iPhone, known as *read receipts*, notifies senders of text messages that the recipient has seen their text message. Grayson described how not replying to a text message when read receipts are turned on can cause others to perceive that you are not invested in them: “I care more about keeping in touch with the people that I’m real close to. If my dad just texted me, I wouldn’t want him to think that I’m blowing him off because I leave him on read.” The notion of “being left on read” mentioned here is a core aspect of phone etiquette for many in this age group, and seeing a message without acknowledging it or responding is considered insulting. For others, read receipts create too much pressure, leading them to keep the feature disabled. Jessie also discussed her feelings of pressure that arise when expectations of responding to others in a timely manner are present:

Sometimes, when you’re in person, you’re able to separate yourself from that communication with people by physically being apart, but when you have your cellphone, it’s kind of always in front of you, and so you don’t really get a lot of that free time away from it. That’s probably where I get annoyed with it because I’m wanting to take time to myself, but then, I’ll see the notification pop up and I’m like, “Oh, I have to respond to them.”

Mia talked about why she leaves her read receipts turned off:

Sometimes, I’ll want to look at a message, but not quite respond to it yet. Something about having read receipts on kind of makes me nervous almost ... Especially the places on the internet I occupy, nobody has read receipts on because it’s kind of like a cultural thing on my side of the internet not to have them on. But I know this: a lot of older people usually have them on and people my age don’t.

Mia later discussed how read receipts create situations of interaction that are uncomfortable:

It kind of makes conversations more complicated when you have the read receipts on ... If somebody leaves you on read, you’re like, “Oh, what was that for? Why did they do

that?” But if you don’t have it on, it just looks like you’re busy doing something else instead of ignoring them.

This shows that for phone users who leave their read receipts on, there is a pressure to respond quickly because if they do not, it can cause the other person they are messaging to unintentionally feel like they are being discarded. This can result in social disapproval that has a significant impact on these participants.

Carlos also discussed how read receipts can create undesirable situations over the phone and explains why he leaves his turned off:

There are people who I know if they see that you read their message and you don’t reply right away, they can get irritated or upset by that without understanding right away what situation you were in for why you didn’t reply and stuff. Also, there’s some times if I want to see what somebody said, but I know I can’t reply right away because of what I’m doing, then I’ll still want to view the message, but I don’t want to give them the impression that I’m ignoring them on purpose or something like that.

Because participants prefer to monitor their incoming messages, especially during times where they may not be able to respond, they keep their read receipts disabled in order to avoid negative social situations, such as the ones Carlos and the above participants have discussed.

Mandy, who is a Samsung phone user, discussed her delight in not having to worry about read receipts because it is a disabled feature by default between Samsung smartphones and iPhones:

It’s really nice because, obviously, I’m on Samsung, so no one with iPhones can do read reports on me. I really like that freedom because a lot of people are like, “Oh yeah, I can’t read this text, I can only preview the first few words of it and I don’t want to deal with it right now.” I don’t have to deal with that, I can read texts at my leisure and not respond to them.

However, despite not having to worry about read receipts because of the type of phone she owns, Mandy still feels pressure to respond. She mentioned that when texting is convenient for the sender of a message, it is not always convenient for the recipient to respond and reciprocate. She

explained that serious conversations that take place over text at inopportune times can add unwanted tension, noting, “This person is obviously dealing with this serious thing right now or they need advice or something, but I'm already doing something else. So, if I'm like, ‘Hey, can we do this later?’ it feels like I'm putting them off.”

Grayson brought up an apparent double standard of responding concerning communication with his parents:

I think it's part of the culture. When my dad got me my phone, it was a big thing where he said, “If you get a text from me, you better respond.” In contrast to if I called him three times and texted 20 and he never responds – even though it's an emergency – for some reason, I don't have the right to be mad.

The rules that teens feel they must follow thus may be related to generational norms rather than being universal.

Madison discussed instances where she is watching a movie or TV show on her phone during her downtime which can lead to frustration when someone is trying to contact her:

That can also be frustrating just because you're trying to enjoy something, but then you feel like you need to be pulled away constantly. Even though you probably would be fine if you just leave it unread for a while, you do feel just the need to keep up with everybody and make sure everybody's satisfied with your responses and everything.

This further supports the idea that the perceived pressure to respond is a socially-driven response, derived from a feeling to be viewed in a favorable manner by one's social circles.

Similarly, Jessie discussed how leaving read receipts on can amplify feelings of the pressure to respond:

I feel like I don't want people so aware of when I'm responding to them because I feel like people already know that I'm always on my phone and that I always have my phone on me, but that doesn't necessarily mean that I'm looking at it all the time. I feel like once they see that I have opened it, I have that obligation to respond to them because I already took the time to read it, so I might as well give them some sort of response. It's a lot of pressure, so that's why I keep the read receipts off because, sometimes, I'll read a message and then I have to go run a quick errand or something; I'm not gonna respond to them, but then they probably will look at it and be like, “Oh, I was really interested to

hear what she had in response to my message, but it seems like she doesn't care." So, it puts that pressure on you [when people know you have seen their message].

Other applications, such as Snapchat, have also implemented a feature that gives senders of a message notice that their message has been viewed. Sabine discussed that despite sometimes being ignored by people who did not respond to her and feeling upset from this, she admitted that she wants to use her phone less, but is fearful she will make others feel the same way. She explained,

I'm the type of person who if I get left on open on Snapchat, I'm kind of offended. I'm like, "Why did they leave me on open, are we not friends anymore?" Even though it's really not that deep. I have had the urge so many times to just stop snapchatting people altogether because I'm just so tired of keeping up with it, but I feel like if I were to stop doing that and leave people on open, I feel like other people would be offended too, like, "Why did she do that? Did I do something?"

For participants, past experiences of being left with the knowledge that their message was opened and not responded to, paired with the concern of not wanting to offend who they are messaging, are also significant factors that contribute to feelings of the perceived pressure to respond. This generates a general social expectation for specific behaviors around receiving, viewing, and sending text messages.

5.1.1.2 *Perceived Pressure to be Available*

This project also found that participants feel a more general pressure to be available when others reach out to them. This pressure stems from external expectations for individuals to be readily available to take phone calls or exchange text messages/emails. While similar to the perceived pressure to respond in that they are both socially-driven responses, the perceived pressure to be available differs in that it arises from feelings pertaining to the fear and/or anxiety of being reached and not being able to communicate or receive the information an individual is being contacted with. Allen talked about his fear of being reached while unavailable due to

forgetting his phone in the past: “I'm afraid someone's gonna try and reach out and I won't be there to pick up, or there's something that's going to happen and I'm gonna just not know about it until too late.” These fears drive participants to keep the cellphone on their person regularly.

Grayson discussed how a past experience causes him to keep his phone on him as much as possible:

Personally, I know the chances of it happening are low, but if some sort of accident happens, or mom calls me and grandma is in the hospital or something, I'd just feel really uncomfortable with like, “Oh, crap, grandma wanted me to send her a text on her deathbed and now she's gone!” because that's happened to me before.

The fear of being reached with important information by not being attentive to the cellphone also steers participants to their phones more, and strengthens feelings of the perceived pressure to be available. Emily similarly explained, “If I'm out for a long time [without the cellphone], then I'll be a little bit more worried that my parents would contact me and I wouldn't be able to reach them.” These findings demonstrate a two-way fear that arises due to participants not having their cellphone nearby; the fear that their loved ones will worry about them, and the fear that they experience by missing out on potentially important information.

Feelings pertaining to perceived pressure to be available and attentive to one's cellphone can be exaggerated when people are aware of an individual's schedule. Dylan discussed his experience of trying to communicate over the phone when he knew the person was not otherwise occupied:

I've had group projects where everyone's active in the chat, but then you'll have one or two people that only send a message every 20 minutes or so. You know they're not at work, you know they're not busy ... I can't confirm that [they are not busy] or anything, but I have suspicions, knowing them.

Dylan's experience presents a scenario of expecting others to respond based on the assumption that they are available. Participants described an unwarranted, holistic approach related to this

scenario; just because an individual is not at work, it does not mean that they are available, yet, individuals engage in this logical fallacy when it comes to phone communication.

Feelings related to the perceived pressure to be available can be negated or nullified, however, as presented by Nathan: “I have people in my life that understand that I'm busy, and they will just be fine without reaching me for a little bit. I don't really need my phone on me at all times.” This demonstrates that when the perceived pressure to be available to others is lower, it helps participants feel like they can be without their phones for extended periods of time. Some participants indicated the fear they do or would feel if they were not able to access their social circles over their phones for an extended period of time. These findings demonstrate that the perceived pressure to be available and the perceived pressure to respond are both factors in why participants make great efforts to not leave the house without their phones, and to regularly check their phones for incoming information.

5.2 A Disconnected Connection

While participants held a positive view of the cellphone because it provides crucial connection to friends, family, and distant others who are not present, they acknowledge that the cellphone disconnects them from their current surroundings and those around them. The data suggests that there are elements of social contagion in regards to using the phone around others. When others around them use their cellphones, participants feel more inclined to use their phones as well. When presented with a scenario of being at the dinner table with friends who are on their phones, participants spoke on their experiences of this. Emily mentioned that her friends seem to not be aware of their cellphone use around others which, in turn, makes her also reach for her phone: “I would say 90% of the time I don't pull out my phone, but sometimes, I do as well, because it's kind of just the groupthink thing where everyone's on their phone so why

shouldn't I be on my phone?" A driving factor behind this phenomenon could be that the individual had desired to use their phone the whole time, but did not out of fear of being perceived as rude. They use the opportunity presented by their friends being on their phones to mask their phone use in order to avoid being judged by their peers.

Mandy highlighted the positives and negatives of having her phone during times of socialization:

I think the phone makes me a little more disconnected from the people I am around on a daily basis because when I'm in social settings with these people, I'm also checking to see if I have a connection with other people because of my phone. I feel like there's definitely a little interconnection between the two where one hinders the other to a degree. I think overall, it's a net good because I'm able to contact more people that I want to contact.

This finding demonstrates that phone users are able to switch between physical and digital spaces in rapid time and provides more understanding on an individual's motivations and justifications for doing so.

Some participants said that phone use around their friends is considered impolite as their attention is not focused in the moment. Nathan discussed how it is disrespectful to be on the phone around others in more intimate settings:

There's certain people that are on their phones more. It just kind of annoys me to be honest, because if you want to be present in the situation and present with the people who actually matter, you would put your phone down and just interact with us because it's just kind of disrespectful in my eyes. But when we're all in a social setting, and are all on our phones doing separate stuff, it's totally fine, I could care less, but when it's at the dinner table and we're all interacting and doing stuff, I just think it's disrespectful for that conversation to be more important than what's happening in front of you.

Sabine discussed how her balancing between phone communication and in-person communication is perceived by her friends:

With friends, someone will be having a conversation with me and I'll just be scrolling, half listening and not fully listening, which could definitely be considered rude. It's not like I'm trying to ignore them or something, I'm still half listening, but they don't have my full attention. I didn't really think about the effect that could have on them until just now,

whenever you asked me about it. People will also joke about my half listening sometimes.

Sabine's thoughts exhibit the levels to which individuals are sometimes unaware of how their own cellphone use impacts and is perceived by others. She continued this discussion by talking about how her friends make fun of her for being on her phone during social hangouts:

There's this one friend that I had, she would always make this joke – she made this TikTok meme of me where someone is telling something crazy interesting, and then I'm on my phone like, "Uh-huh," just blankly responding. It was laughable, but also it's something that I feel like I definitely need to work on as far as my social phone use.

Other participants shared similar judgments and perceptions as Sabine's friends regarding individuals who use their cellphone in social settings. These findings suggest that there are concrete social repercussions participants face as a result of being on the cellphone excessively around their friends, but that this is not always a strong deterrent.

The cellphone can cause participants and those around them to experience a sense of disconnect from reality. Some participants said they avoid being on their phones in public because of its ability to make them feel unaware of their surroundings. Madison discussed how cellphone use in social settings implies one is not living in the moment:

It's really frustrating to me because, sometimes, it's like what you're saying isn't even important – it feels like they're not listening to you. I even have specific friend groups who I know are always hanging out, but they're just on their phones, it's like you're not even there. I don't even go hang out with them anymore because I could be sitting at my house more comfortable if I wanna just be on my phone, instead of with people where it's almost more like I'm being ignored anyway. So, I have feelings of hopelessness, almost.

This finding highlights how the phone can hinder and detract from the quality of face-to-face interaction and shows why some participants would rather just stay at home and interact over their devices instead of attempting to interact in person. Despite this, Madison acknowledged that she falls into the same trap of using her phone in social settings:

Personally, I try to be aware of it, but I realize sometimes if there is somebody that I just want to talk to over the phone, I'll be kind of distant to those around me. I feel bad for the people I'm with, but sometimes, you don't even realize because the phone sucks you in so much, and you don't realize how it's affecting other people around you when you are just constantly using your phone.

This shows the fragile balance of cellphone use in social settings and how common it is to use the cellphone during a social event. She then talked about the hypocrisy she experiences when she tells her friends to get off their phones:

Sometimes, you'll tell people to get off, and then 15 minutes later, you're on your phone too, doing the same thing that already frustrated you with people being on their phone. It makes me feel bad, though, it almost does keep me accountable, because then I'm like, "I just yelled at people for being on it," which helps me get off of it. It is embarrassing to be doing the thing that you told other people not to do.

Some participants discussed how the phone is beneficial for connecting with people over long distances, but hinders the quality of social interaction in person. For example, Jessie said,

Now that I'm away from my friends and am not able to see them in person all the time, or even just the people that I can't see in person all the time, it makes me feel more connected with them because I'm able to be in constant communication, even if we're in a different state or something. But for the people that I am with in person, I feel a little bit disconnected, because oftentimes, I'll pick talking to the people on my phone over talking to the people that I'm sitting next to.

Jessie also discussed how she feels disconnected from her surroundings when spending longer amounts of time on her phone:

In all honesty, it kind of makes me feel pretty disconnected from the people around me because now that I'm living at home – or even when I was living in the dorm, my roommate and I would be on our phones a lot and so we wouldn't really communicate that much, but we'd be sending stuff through the phone to each other. So, it's like you're interacting, but you're sitting right next to them and you're interacting through a phone. It's kind of the same with my parents, or just whenever I'm at home with family or something. I'll choose to be up in my room for hours on end without talking to them. I think it would just be nice to be able to interact more in person and choose that over being isolated on my phone.

This shows that the phone not only tempts participants into using it for extended periods of time, but that it can lead to feelings of social isolation and a lack of in-person interaction.

Other participants, however, noted that in a calm setting where the action of the evening has died down, phone use amongst friend groups can be enjoyable and they can still experience meaningful levels of socialization and camaraderie. Allen discussed his thoughts on how phone use during longer stays of hanging out is to be expected:

There's times if you're hanging out with your friends for hours on end – let's say it's six hours or it's an overnight thing – it's totally understandable that you need to check in on your phone, have a conversation with someone, maybe catch up with someone. But when they meet up and then the first thing they do is pull out their phone, I feel like that's just kind of a waste of everyone's time.

Allen discussed phone use amongst friend groups positively, but also acknowledged that he would rather be around people who are not on their phones: "It's nice just being in the presence of others. I do appreciate when I'm just around people, not even necessarily talking to them, but I do feel like if I go somewhere to be with someone, I kind of expect to be with them, not them on their phone." He further explained that these instances can cause him to feel frustrated as it hinders the group's ability in taking action or making a plan:

It can definitely be frustrating, especially if we didn't have a plan going into it. So when I arrive, it's like, "Okay, what are we gonna do?," and they're like, "I don't know," that's a little frustrating, because they're just going to be on their phones while we figure out a plan. There's times where you literally don't do anything, you're there, and you maybe have a conversation with them once, but you're pretty much all on your phones and you might be like, "Hey, check out this meme," like, that's it.

Carlos also discussed the prevalence of phone use amongst his friend group when spending time together: "I feel like if it's with friends and stuff, it's pretty common for us to just eat and relax on our phones because a lot of times, we'll share the same interests. So, if we're on Instagram or Snapchat, we'll just be showing each other different things on our phones, and that can be cool." Male participants indicated more often than female participants that the phone can be used to strengthen the quality of hangouts instead of detracting from them. Males in this study also indicated that they intentionally use the phone around each other and enjoy using it during

times where it is deemed appropriate. Similarly, Grayson added to the theme of phone use during social hangouts by discussing that it is an experience of its own that can be enjoyable:

We don't even necessarily have to be doing anything, but it can just be all of us relaxing in one place. On its own, it can be a bonding experience. I've been a part of groups where we all just kind of have a good "Okay, let's just sit back and relax for a little bit," and we just chill and we're in the same space, but we're not at the same time.

Another theme that emerged was phone use negatively affecting the quality of social interaction. Sabine, for example, explained:

I definitely do get a little annoyed sometimes whenever I go to either hang out with my friends, or we're at a restaurant and they're all sitting on their phones, and I'm just drinking water or something, waiting for them to get off so we can talk or do something together. Other times, I'll go to the hangout house, we're all there and everyone's sitting on their phones. Sometimes, I'll be like, "Let's talk about something, let's play a game or something," and half the time, I'm ignored for a little bit 'cause they're just focused on their phones.

A recognition of both the damaging and beneficial aspects of the cellphone in social settings was expressed by many of these participants. These findings suggest that although they recognize the problems, many of these young adults have developed habits around the phone that they are unwilling or unable to change. These findings also reinforce prior research that suggests the quality of face-to-face communication may be threatened by the always-on nature of mobile phones where interaction amongst physically present individuals can be interrupted at any moment by interaction with a remote other – leading to a scenario of being 'always on, always there' but 'never here' (Srivastava, 2005).

5.2.1.1 Privacy Concerns Over Phone Use in Public

Prior research found that privacy concerns have shifted from the surrounding public's infringement upon the landline speaker's conversational space (such as a pay phone), to the mobile phone speaker's infringement upon the surrounding public's space (Palen et al., 2001). However, analysis reveals that participants feel their privacy is being infringed upon by the

surrounding public just as they would when using a landline. Some participants indicated that they feel self-conscious when answering the phone in public mainly due to the fact that they do not feel that their privacy is being respected. Others indicated that they simply do not care what strangers think since they do not know them, and strangers only hear one half of the phone call conversation, therefore lacking context to gain knowledge of the full conversation.

Mandy's prior experience with talking on the phone in public casts a greater understanding on this concept:

I am very self-conscious of taking phone calls in public locations, especially in close places where other people can hear what I'm talking about. If somebody calls me while I'm in my dorm room and my roommate is there, sometimes I'll stay because we're cool with each other, but occasionally, if it's a longer call, I'll go try to find a study room that I can be in by myself where there's nobody else. This one time, I had to take a call with my mom, and I had to go down to the lobby of my dorm because there were no open rooms anywhere, and people would pass me and I would get a little quieter as they did and say, "Hey, there's somebody passing by, one second."

Similarly, when asked if he had ever considered cellphone use in public as an invasion of other people's privacy and acoustical space, Dylan said,

If we're in the middle of maybe a class lecture or at the library, then yeah, you're definitely invading their privacy. They're doing stuff that they're focused on that they need their attention for, and you're being distracting and taking it from them. However, if you're just walking about on the streets, you take a phone call, and there's people around you, then no, probably not.

Dylan also mentioned that if he takes a phone call in public, he is conscientious of others around him and feels that his privacy is infringed upon: "At that point, I'm trying to keep my voice down so at least people aren't snooping in on the conversation." This finding also shows how participants are aware of appropriate and inappropriate public uses of the phone in order to respect others, even if they still use the phone in places people could overhear them.

When asked if she would take a call on an aisle in the grocery store, Madison also discussed concerns over privacy: "Yes, I would stay on the aisle and take the phone call, but if

there were a bunch of people, I would leave and go somewhere else because it doesn't feel very private if I am talking to someone, or I don't want to annoy people that are just trying to do their own thing.”

Participants also discussed times where others take phone calls around them and how it makes them feel. Pierce discussed an occasion where he experienced this:

I've seen where it's two people hanging out, or it'll be me and a friend hanging out and they start talking to somebody who I don't know. The call will go for 30 minutes, and I'll be kind of sitting there awkwardly, not knowing whether to chime in since I don't really know who they are talking to. The phone call kind of just diverts away from what we were doing.

While there are individuals who lack concern over invading the acoustical privacy and space of others, and lack concern over feeling that their phone calls are not private, the majority of participants are conscientious of these matters, and try to maximize privacy over their phone calls in public while mitigating any potential discomfort or discourtesy to others around them.

5.2.1.2 The Phone's Effects on the Relationships Between Parents and Their Teens

Prior research found that 68% of parents say they at least sometimes feel distracted by their phones when spending time with their children (Jiang, 2018). Analysis of the data found that parents are also distracted by their children's phones when spending time with their children. Referring to parents and their cellphones, participants indicated that there is an apparent double standard where it is acceptable for parents to be on their cellphones around their children, but not for children to be on their cellphones around their parents. Furthermore, participants discussed instances of how the cellphone is causing an apparent strain between them and their parents, which adds additional pressure on teens to navigate social interaction with their parents.

When Jessie discussed why she does not have her ringer turned on for her cellphone, she mentioned it is turned off because everyone around her would know that she received a text or

some other notification. When asked why it mattered if her parents knew that she received a text notification, she said,

Every once in a while, my phone usage seems like it should be a little bit more private. Sometimes, I'll feel a little bit of judgment from my parents if they're like, "Oh my gosh, your phone is lighting up," or something. Sometimes, that gets a little bit annoying 'cause it's just how I wanna spend my time, and I don't want other people to judge me for it ... I think it's just the type of thing where my parents always say, "Your phone is taking over your life," even though they use it just as much as me. They will ask me, "Who is that?" and I don't always wanna have to tell them what I'm doing or who I'm talking to.

She further explained this strain that her phone use puts on her and her parents when asked to expand on if her parents use the precise phrasing of the phone "taking over" her life: "They'll kind of just be like, 'You're on it a lot,' or my mom will do a thing where if I'm sick, she'll say, 'You've been on your phone too much.'" When asked about her mother's rationale in attributing sickness to phone use, Jessie said, "Oh yeah, she'll kind of go into stuff like that. I'll have a headache and she'll be like, 'You're on your phone too much,' and I'm like, 'Well maybe the reason is I haven't drank enough water today or something.'" This finding shows how navigating everyday social situations for participants can be challenging because of the presence of the cellphone, and how it is causing tensions between parents and their teens. A clear linkage can be seen between the cellphone and how it effects the interactions and relationships of these participants and their parents.

A salient finding in Jessie's experience is that she mentioned her parents use their phones just as much as her, yet, they seem to be more harsh on her phone use. By these participants' parents showing their disapproval for their children's phone use, it causes the participants to perceive judgement of their phone use in the future. However, other participants indicated that when they stare at their screens for too long, they start to feel symptoms of headache and dry

eyes, suggesting that Jessie's mother in the scenario she described, is not entirely off base when she tries to advise her daughter.

Sabine discussed that her lack of control over her cellphone use affects her interaction with her mother:

When I'm sitting in the living room with my mother, she'll be having a conversation with me and I'll be looking at my phone, which is kind of rude, but I feel like that usually happens most often. There are also times where she will just say that because I'll walk in the room looking at my phone and she's like, "Gosh, do you ever put that down?!"

Even if the use of the phone does not include heavy involvement, parents will draw on their previous experiences of their children using the phone, which fuels their perceptions that their children are "always on their phones," similar to how children will draw on their previous experiences of their parents chastising them for their phone use.

Some participants cited that they feel their cellphone use and relationship with technology is misunderstood by older generations. Mia discussed how there are generational differences on the perception of technology:

I think a lot of older people who didn't grow up with the internet in their lives don't really understand the role it plays in the lives of Millennials, and especially, Gen Z's lives. Me personally, I've never lived in a world without the internet, I wouldn't know what that's like. I've been using it regularly since I was 12, so I think a lot of older people don't realize how much younger people's lives are on the internet; it's an unavoidable part of being my age.

These findings demonstrate the apparent strain that cellphones have caused between these participants and their parents. Attempting to navigate everyday interactions while a cellphone is present has made it more difficult for these participants and their parents to do so.

5.2.2 Formalities of Phone Communication

The cellphone and its features such as read receipts, have made an abundance of unique communication scenarios possible. There are certain protocols that individuals follow pertaining

to phone calls versus a text message, stemming from societal perceptions of phone communication. This section presents these findings as well as other emergent themes.

Participants indicated that the content of a message and the displayed effort that goes into crafting a text message shapes their view on whether or not the individual they are messaging is invested in the conversation. Sabine spoke to this idea best on how being personable or not can cause individuals to question their status in a relationship:

I have this friend who her texts are usually super dry and short, and that's just how she is. I know she doesn't mean anything by it, but sometimes, it's just got this negative connotation to it whenever people text that certain way. I'll think about it for a while afterwards and I'm like, "Are they mad at me or something? Why are they texting so dry?" I think there's a lot of miscommunication that can come by just texting.

Participants also indicated that miscommunication and misinterpretation of a message's intended meaning can commonly occur depending on how individuals are communicating in their text messages. This finding highlights the importance of following accepted norms around the content of messages for these teens.

Some participants discussed social perceptions of phone communication. Dylan discussed how an individual can be perceived if they are a prompt repplier to messages: "There's a stigma of messaging right away, because it makes it look like you have nothing else going on, and people like to have the appearance of being busy ... it appears like desperation for social attention." This finding suggests a possible reason for why participants or the people they are messaging wait substantial amounts of time to respond to a text message; they would rather be labeled as a poor and slow communicator than as an individual who is desperate for social attention, and seemingly has nothing else of importance keeping them busy in their life.

These formalities extend beyond interaction over the cellphone. Nathan also shed light onto how the phone itself can be a vessel for communicating and sending messages to others in one's physical environment:

I always remember what a teacher told me a while back that stuck with me: "Where you have your phone in a situation, it tells a story." This interview re-ignited that thought. If the phone is face down on the table that tells the other person something, or if it's face up it tells somebody something, or if it's all the way in your pocket it tells the person something, or if it's in your bag, etc. That's something that I've always tried to be aware of.

This finding demonstrates the signaling capabilities of the cellphone, and even though it is not being used by an individual, the physical presence of the cellphone and where it is located in proximity to its owner communicates to others around them. For example, if the phone is face up on the table, it would be perceived that the owner of the phone is expecting a notification and will interrupt conversation to tend to the phone, whereas a phone that is facedown or in its owner's pocket will communicate that they are invested in the shared physical space and interaction, and not concerned about the dealings of their phone.

5.2.2.1 Text Message or Phone Call?

Analysis indicated that there is no clear direction in which participants sway regarding their preferences for text messaging or phone calls. Some revealed that texting is more efficient than phone calls because they are able reply on their own time and not be disrupted by the act of answering a phone call, while some said that phone calls are more efficient because they can quickly use their voice to communicate meaning instead of having to type out their messages where its meaning can be misconstrued.

Dylan discussed his preference for text messages and presented his rationale:

Honestly, I wish people would text me more than call me. When I get a call, I feel like it's more urgent or that I'm inclined to pick it up as fast as possible because I know someone's on the other end, waiting for me to pick up. Most of the things I get called for could just

be simply sent in a text. I don't need to have a 15-minute conversation to know that you want to hang out later.

Participants discussed their preferences and desires to maximize efficiency when communicating over the phone, and remarked that responding to a text is seen as less commitment to time spent on the phone compared to a phone call.

Pierce discussed his stance against phone calls:

I don't really like being called, I'm more of a text person. I hate when I get a call or FaceTime notification anytime I'm at the gym or in class – those are my two big ones. I'm kind of just like, “Let me do my thing because this is my time to relax while I'm not in class.” I get if it's something urgent, but the last thing I want to do is spend 20 minutes on a tedious FaceTime call where we're not really talking about anything important.

This data demonstrates that participants are affected by the method of a message's delivery, whether it is a FaceTime notification, phone call, or text, they seem to contribute toward annoyance and tolerance levels of being contacted.

Pierce also discussed how the quality of in-person social interaction is hindered when a member of the group answers or initiates a phone call:

I think the difference between a text and a call is you can text somebody and hold a conversation with somebody in person, and still be at least semi-engaged in the conversation; versus if you're on a call it almost becomes the focus of the event. You're not going to hold a conversation with me while you're on the phone, you're not going to do something else while you're on the phone. I mean, you could, but it's not the same as a text in my opinion.

Pierce believes that when it pertains to text messages, the cellphone user can at least be partially engaged and aware of their surroundings, but phone calls take up most, if not all of a phone user's focus.

Sabine offered understanding as to why phone calls could be more preferable than text messages:

There's so much that could be misconstrued over a text because you can't see people's faces or hear how their voices sound; you just see text and it could be taken in so many

different ways. There's so many situations that could be avoided – drama situations – if people were to just talk face to face instead of trying to do it over text.

Because text messages can be interpreted in various ways, it can cause negative interactions between others on the phone. These “drama situations” as Sabine referred to them as, are times where the meaning behind a text communication is wrongfully misconstrued, which causes individuals to feel that the sender of the message is being rude. Madison provided understanding for why both a text message and phone call might be preferable depending on the situation:

I don't mind phone calls because I do think that they sometimes get more straight to the point. If it's a quick question, I think text is better. But if you're catching up with family members or you need more clarification on something that you don't want to explain over text, or can't really explain over text, then phone calls are definitely more useful.

This finding provides a comprehensive view of this concept and details a simpler, yet deeper understanding of when exchanging text messages is preferable, and when answering or initiating a phone call is preferable.

Nathan discussed his preference for phone calls, arguing for its efficiency in communicating as opposed to a text message:

A phone call is way more efficient, it's way easier. Over text, it's hard to understand a tone of voice. You could literally have a two-to-four minute phone call for 30 minutes' worth of texts. I'm usually driving a lot, so I call people because I'm not gonna text and drive, or I'm walking and I'm not gonna look at my phone and try to. I'm a horrible speller so I'm like, “Just talk on the phone, pick up for like two minutes, and then we'll be fine to not talk for like, four or five hours.”

Some participants view phone calls as more personable and efficient than text messages, thus increasing their favorability to communicating in this manner. Some participants perceived text messages as a higher time commitment than answering a phone call, whereas others viewed phone calls as being more invested in the phone, thus increasing their time spent on the phone.

Carlos discussed his affinity for phone calls while clarifying the benefits to both text messaging and phone calls:

I enjoy phone calls. I would honestly probably prefer a phone call over a text, but I think text is just more convenient and efficient for a lot of people. While they're out doing things it's not always the best time to pick up your phone and call somebody, but I really enjoy phone calls. I have a lot of friends back in Denver so I love FaceTiming them and talking to them, and I think it's a lot more efficient. Sometimes, when you're just trying to let somebody know information, it's a lot easier to understand and communicate with a phone call than a text, but they both have their ups and downs.

Mia provided a unique counterexample to preferring phone calls over exchanging text messages, and was the only participant to regard phone calls in the following manner:

There's a lot that can get lost in translation on a phone call because you don't have that face-to-face component, and you don't have their body language and stuff, you just have their voice. It can also get awkward when there's lulls in the conversation, because at least in person, there's a little bit more of a cushion, but if it's just on the phone talking, there's not because it's just your voices, so you have to keep talking. So a lot of times too, I feel like phone calls can get really tedious because there's nothing to talk about.

These findings make the potential ambiguity of this situation more clear and reveal that exchanging text messages and making phone calls are deduced to personal preference. Factors that influenced the participants' preferences for text messaging or phone calls were perceived efficiency, clarity in delivering and receiving a message, and perceived levels of time commitment.

5.2.3 The Phone as a Social Pacifier

Analysis found that a majority of participants rely on their cellphone in some capacity to alleviate social tensions such as awkwardness or the desire to fit in. Those who suffer more from symptoms of social anxiety seem to gravitate toward their cellphone more in social settings than those who do not.

Jessie, who admitted that she gets anxious in social situations, discussed how she relies on her phone when she feels out of place:

Sometimes, I feel like people use the phone as an escape from a situation being awkward or something, or if they have anxiety – I know I do the same. Sometimes, if I'm in a social setting, I'll use it if I'm really anxious ... I might be flipping through Instagram or

sometimes, I'll even just be swiping back and forth on my phone, not even in any apps, just because it gives me something to do and it makes me look like I'm doing something.

This finding is consistent with prior research that the cellphone can be used as a barrier signal to offer an individual protection from the potentially harmful outside world to indicate that they are unavailable (Fox, 2001). In the instance of this finding, however, it demonstrates that participants use the cellphone to signal to others that they are busy for the purpose of making the individual feel more comfortable in their social setting by feeling like they fit in, not to turn people away.

Sabine discussed how she is able to use her phone to foster a more comfortable social situation:

Whenever things are quiet or awkward, I will go on my phone. I think that's a little safety net in social situations. For me, that's also music. I don't go anywhere without these Air Pods 'cause if I'm somewhere and I either feel overwhelmed, or if it's just not fun, I will put my Air Pods in and tune out whatever situation I'm in until it gets interesting.

This finding demonstrates that participants can create their own sense of reality by using their cellphone and the media they have at their disposal to increase individual levels of comfort in their social environment. For example, Pierce explained why he reaches for his phone in social settings:

I get a little nervous sometimes in social settings. I'm not horrible with social anxiety, I've definitely gotten better at it, but it definitely brings me comfort to know that at least if I'm on my phone I don't feel like I'm being weird. I can just look down and at least I'm doing my own thing, it does give me some comfort.

Pierce also noticed how he is not alone in being comforted by the use of the phone in public: "It's a joke a lot of me and my friends have. We'll open the weather app, we'll open the calculator app if we're just sitting there. You don't want to be the awkward guy that's looking around." When asked why it is considered "awkward" to be looking around without a phone, Pierce added, "There's really nothing awkward about it. There's just some feeling in your head

that tells you ‘I should just go on my phone.’” When asked to elaborate on the innate feeling that urges him to go on his phone, Pierce said that he had been experiencing it for years:

Recently, last year or so, I'm noticing you can look around, it's not a big deal. But when I was a little younger, maybe 15, 16, 17 [years old] my social anxiety was a little worse. I almost always thought about it and I just felt the need to go on my phone because I was always like, “People are judging me if I look around. If I'm on my phone, at least I'm safe looking at it, I at least look like I'm talking to people,” but now definitely, I say no to it a lot of times. A lot of times, I will just embrace the awkwardness, almost.

Similarly, Mia discussed how she tends to rely on her phone in social situations where she is uncomfortable, saying, “Sometimes, I use my phone as a crutch” to reduce feeling awkward. Sabine also described using basic applications on the phone in order to avoid social awkwardness: “If I'm in any sort of situation where I'm just not really feeling super comfortable, I'll put in my Air Pods and just recenter for a second with music, or I'll chill out for a minute with music.” She also explained this is so common that it is discussed on social media:

There's this joke I've seen on TikTok a few times where people will go on the most random apps whenever they're in a social situation when they're not being talked to or anything. There is this one thing I saw on Barstool (*a popular social media account amongst college-aged individuals*) where somebody posted a photo of a guy at a bar and he was on the weather app. The caption said, “That's when you know it's bad” whenever you're scrolling on the weather app in the middle of a bar.

These findings demonstrate how not using the cellphone has provided new ways in which an individual can be judged, and that new social standards are being adopted amongst college students, specifically college-aged teens. The ability for participants to create their own sense of reality is also apparent in the findings. A few questions to consider from this discussion is that before cellphones existed, what was the perception of individuals who were present in a room and were seemingly without a task or lacking interaction with others? Were they thought of as “awkward” or “weird?” Is it similar to how people view those individuals today?

Analysis also discovered that the phone can be used to deliberately avoid social interaction, consistent with similar findings from Fox's (2001) study that found lone females increasingly use the mobile phone as a form of 'protection' from the potentially threatening world around them. Emily spoke to this scenario when she discussed noticing this in others around her: "I know a lot of people who if they don't want to deal with a social situation, then they'll just go on their phone to ignore it ... Specifically, if they see somebody approaching and they don't want to interact with them, they'll just go on their phone until they pass." This finding indicates that cellphone use in social settings is situational and unique to the individual regarding their motivations for wanting to use it.

As a counter example, Carlos discussed how he does not rely on his phone during social events to alleviate social tension: "Specifically at parties, I don't really go on my phone. I'll go on it periodically just to make sure everything's okay and that I don't have any important messages or anything like that, but if I'm just talking to somebody and a conversation dies, it's pretty common for me to maybe just say I have to go use the restroom." Carlos added, however, that his phone still gives him comfort in public, despite not relying on his phone to counteract uncomfortable social situations:

Being around a bunch of strangers and just even walking around on campus, it's just nice to have music, put in my earbuds, or I can walk and look at my phone, or go on Snapchat or something because there's not necessarily people that I know.

Past research on individual relationships with cellphones indicates that the physical and emotional attachments humans have developed with cellphones have increased and "function as comfort objects – antidotes to the hostile terrain of wider society" (Harkin, 2003, p. 9). Thus, the findings from this research project are consistent with prior findings from Harkin's study in that

participants will seek comfort from their cellphones to tune out their surroundings and foster their own sense of reality.

The findings presented in this chapter suggest that there is a pattern of phone use and behavior that is deeper than a social movement amongst teenagers using smartphone applications – such as the weather app or calculator app – in order to not stand out or be labeled as strange or awkward in public. Rather, these findings perhaps indicate that individuals who have higher levels of social anxiety are more susceptible to this phenomenon. According to a 2020 statistic from the Anxiety and Depression Association of America, it established that anxiety is the most common mental disorder in the U.S., affecting 40 million adults (SingleCare Team, 2020). These findings suggest that the cellphone offers aid to individuals by alleviating symptoms of anxiety in social situations, and that the prevalence of this phenomena is more potentially widespread than realized.

5.3 Does Background Factor into Phone Use?

This research project recruited participants from different backgrounds in school and gender in order to provide a multiplicity of unique perspectives. An assortment of male and female participants who majored in a field of study related to media studies and non-media studies were selected to examine and understand how college-aged teens view and feel about their relationships with their cellphones. This section presents the findings of cellphone use related to gender and field of study.

5.3.1 Cellphone Use Related to Gender

Analysis of the data revealed only a few noticeable differences between how male and female participants used their smartphones. While prior research has suggested that men primarily use their cellphone for entertainment purposes and women use their phones primarily

for communicating and building deeper relationships (Roberts et al., 2014), the findings of this study did not find evidence to support that conclusion. Both male and female participants discussed how they primarily use the phone for communication and for safety purposes, and their practical uses of the cellphone were similar. Analysis also found that regardless of gender, all participants demonstrated behaviors of excessive phone use. There was no notable difference in how much men and women used their phones for entertainment, although their approaches to entertainment uses did show some differences in this small group of teens.

Female participants discussed their need of escape and entertainment being satisfied by watching TV shows or movies on streaming services, such as Netflix, on their cellphone. However, male participants communicated their preference to watch TV shows and movies on a separate device that has a larger screen than their cellphone. Carlos described how he prefers to watch TV shows or movies on his laptop or TV in his dorm room instead of on his phone: “It is a much bigger screen to look at things and enjoy, but then, also, if you’re watching something on your phone, it can be annoying if you’re also trying to multitask and text people back, and then you have to keep switching between [media] and stuff.” This finding suggests that media consumption over the phone is not an ideal medium as it will inevitably distract an individual from their current media, for example, when a text message notification appears on the screen. While some female participants indicated feeling similarly annoyed by disruptive notifications during media consumption over their phones, they were also more welcoming of exchanging text messages during these moments than their male counterparts. Perhaps, this finding suggests that prior literature is still accurate in that men have a primary preference to use their phones for entertainment, but because the phone can serve the function of relationship building while

engaging in entertainment, the phone is more favorably viewed by women in this regard, and less so by men.

Madison also shed light onto how fulfilling needs for entertainment can look different for men and women by describing her phone use:

My main source of entertainment – I would just say more so if I'm having a conversation with someone on text, on Snapchat, or something, that's more of my entertainment. So, when that stops or somebody stops responding, it's time to get off my phone because there's nothing to keep me entertained.

Prior literature has not considered cellphone use in the context of media dependency theory and the *goal scope*, thus prior research did not consider an individual's primary uses of the phone in accordance to the goal scope. This research project offers a different perspective. Instead of finding that men's primary use of the phone is for entertainment purposes and women's primary use of the phone is for communication and relationship building, it presents primary uses of the phone amongst the different categories of needs for understanding, orientation, and play.

However, because MDT suggests that the cellphone can be used to satisfy a range of goals or needs and switch between them in rapid succession, primary use of the cellphone can fluctuate depending on an individual's current needs. Based on the findings of this research, it is recommended that scholars reconsider concluding a single view of a cellphone's "primary use" and instead contextualize use within satisfying a range of the goals and needs as suggested by MDT. For example, the statement that men's primary use of *media* is for purposes of entertainment and escape is a more appropriate description than labeling their primary use of the *cellphone* being for purposes of entertainment and escape. The cellphone should be considered as a multi-media entity, which not only allows users to move rapidly among different platforms and uses, but that it is also frequently used simultaneously for a range of purposes while people consume other media, such as texting with a friend while watching a movie.

While all participants echoed previous findings that switching off the cellphone in the presence of others symbolizes respect and presents peers with an attentive individual (Geser, 2004), male participants discussed phone use in social hangouts as a means to supplement or enhance the quality of time spent amongst their friends. Female participants did not mention the intentional use of the phone in group settings being beneficial or positively viewed. While there was some overlap between the male and female participants regarding their preference to phone calls or text messaging, the findings indicated that the majority of male participants typically prefer phone calls more than their female counterparts. Although the data cannot pinpoint exactly why that is, males cited efficiency and accuracy of communicating messages as support for taking phone calls, whereas females preferred the convenience of responding to a text message at their own leisure. Future research with broader and larger populations is needed to investigate this trend.

5.3.2 Field Of Study's Impact on Individual Phone Use

The findings indicate that while field of study in school does impact an individual's outlook on certain characteristics of the phone, there is no clear distinction between an individual who studies business versus an individual who majors in media studies and communication. All participants involved in this research project, regardless of educational background or knowledge of media and technology, demonstrated they were susceptible to the forces of the cellphone pertaining to its design, social pressures, practical uses, communication abilities, and its uses in providing entertainment and escape. Importantly, those with more academic background about media use, design, and the problems surrounding design, did not seem to have different habits in terms of excessive use, different privacy concerns, or different beliefs about the role of the phone

in their lives. The one exception to this was concerns about privacy from Dylan, whose background is in cyber security.

Despite being an outlier in the data set based on his attitudes toward privacy and security of the phone, Dylan's thoughts and answers to questions were still congruent with that of other participants, thus, contributing to certain themes throughout the data set. However, because Dylan's field of study is cyber security, he was more highly trained to look for issues around privacy and security in relation to his phone than other participants. In fact, he was the only participant that passionately took a stance against downloading applications and also advocated reading the fine print of an application's privacy and security agreement contract.

While it was hypothesized that individuals with some form of background in media studies would potentially have a slight advantage in navigating the forces of the phone compared to individuals of a different field of study, there was no direct linkage found to support this. Individuals who were in the journalism and media communication major experienced similar levels of average daily screen time per user (5 hours 48 minutes) to those who were in a different major (6 hours 32 minutes). As priorly discussed, screen time data only exists for five participants in the non-media major, and for six participants who are in the journalism and media communication field of study. Screen time data did not indicate a clear difference amongst different fields of study, which was also reflected in participants' comments.

Allen, who has a background in journalism and media communication, did mention his use of legacy media, which was greater than that of other participants. He said, "I'm also just trying to get more involved with reading newspapers. I'm picking up the *Collegian*, I'm picking up the *College Avenue*, I'm doing all that stuff just to try and be more engaged with journalism because that is the future I want for myself." Out of all participants in this study, Allen was the

only individual to discuss his efforts toward increasing legacy media use. This finding perhaps suggests that because of Allen's background in media, he was more highly trained in using legacy media and how to balance its use in addition to his media use on his cellphone.

These findings from Allen were also consistent with findings from Sabine's comments of her writing for a school newspaper, *College Avenue*, which was influenced by her media and communications majors. Field of study in school does seem to help students become more aware of their media use to an extent, but there is no clear disparity between an individual who studies the media and its effects, versus an individual who does not. Participants from all backgrounds said that they were susceptible to being dependent on their cellphones and falling into the traps of excessive phone use.

5.4 Paradoxical Phone Use

Many participants indicated that if presented a scenario where they *needed* to cease the use of their smartphone in their daily lives that they would be just fine in doing so, but then admitted that they cannot or do not want to do that. While some overlap exists between this theme and themes of control, this section is focused from a perspective that the cellphone is necessary for individuals to properly function in society. For these teens, relying on self-imposed measures and their own discipline to limit phone use was ineffective. Mia explained why she does not cut down her phone use: "If I really wanted to, I could throttle it back. I just don't feel like I want to." This notion of "I could if I wanted to" was common throughout the interviews. However, the major revelation lies in the fact that adult phone users are in charge of their own phone usage and feel that they do not need to reduce their phone use. These participants did not express a pressing need to reduce their use, even as they often admitted they might use their phones too much.

When asked if she ever wondered why she is able to temporarily get rid of her phone, but not for long periods of time, Emily, who is more opposed to using her cellphone compared to the other participants, said,

I'd like to think that I could exist without my phone if I just threw it in a river right now, but I can't – probably psychologically – and then also, I can't function properly in the world anymore [without the phone] just because everything is so tethered to technology and I need to be able to talk to somebody, or rather, they need to be able to communicate with me for work or school, and sometimes you need your phone in school to do an activity.

Dylan also demonstrated the paradox in thinking in relation to reducing phone use:

I feel like if I wanted to today, I could take everything off my phone and just chuck it and be fine. Most of my notifications are not through the phone or are things I need for my day-to-day life. The applications I have for entertainment, are a menial game and YouTube, which I could uninstall if I wanted to.

The key language that deserves more scrutiny in order to better understand this theme is, “if I wanted to.” The participants do not follow through on their desires to reduce their cellphone use, thus they relapse into excessive phone use because they do not take what they view as somewhat extreme measures to reduce phone use.

Allen shared his experience of actually reducing his cellphone use and how there were consequences to that decision: “There was one time where I took a month off from social media, and when I did that then went back to my phone, I saw six invites to people's grad parties, and it was very sad because I missed all of them.” Some participants have tried to reduce their phone use, but negative repercussions, such as missing out on important events that Allen experienced, deter them from trying to reduce cellphone use again.

Sabine also described how certain friends of hers fall into this paradoxical relationship with apps on their phones:

I know one friend who has over 1,000 friends on Snapchat. She's got like 900 notifications all the time. Every time I'm with her, she's always on it, with the exception

of when she's sleeping or something. She's even said multiple times, "Oh, I hate Snapchat, I'm gonna delete it, I'm not gonna do it anymore," she says that all the time, but she's never actually done it, and I'm just like, "I'll believe that when I see it."

Some individuals who communicate their dislike of certain aspects about their phone paradoxically continue to seek out those uses of the phone more.

Some participants discussed that when they go on vacation to relax and try to escape the pressures of their cellphone, they are still clinging to any method they can to communicate with their social circles over their phones. Mandy discussed how she relied on the hotel Wi-Fi to access social circles on her phone while on vacation:

I went to Canada a few summers ago and we didn't have an international data plan, so I couldn't text or call anyone for a week. I had Snapchat, but I couldn't use it during the days, I could only use it on Wi-Fi 'cause I couldn't use mobile data. I could only use it on Wi-Fi at the hotels, and sometimes, those hotels had really crappy Wi-Fi, so it was very, very hard to stay in contact with people.

Mandy further explained that her phone use in this manner was due to fears of potentially being needed by her friends:

I did feel a little out of the loop, I couldn't contact anyone. [I thought] "This is terrible, what if they need me?" They didn't need me, I was on a road trip with my family ... I think that initial deprivation from your phone is definitely a big shift going from being able to always contact people to being restricted on that contact. I think that it is also something that I could easily adapt to, is having less of my phone. I think that that's not too far out of something I could do I could say.

Mandy demonstrates this paradoxical thinking by contradicting herself. She mentioned her past behaviors of using the phone on vacation and the negative feelings and worries that the lack of connectivity through her phone use gave her. She mentioned that she could "easily" become used to reduced phone use, however, her behavior suggests that her ease in adapting to a situation such as that may be more difficult than she believes.

Pierce discussed why he prefers to stay connected while on vacation: "I'm a pretty connected person, and I like to see stuff and text. It'd be a bit of a struggle for me actually to not

be able to talk to my social circles over the phone, I'd want to talk to my friends, even if I was on vacation.” Nathan also discussed the scenario of being without his phone on vacation:

If I had my phone away for a week where I just couldn't touch it, I'd feel pretty sad, but I would still try to enjoy the moment by going out and doing stuff. If it was a ski trip and I didn't have my phone, I'd be like, “Okay, we're just gonna ski nonstop for a week straight, and then I'll get my phone eventually.”

Even though Nathan indicated that he would embrace the moment of being without his phone on vacation, he still acknowledged that it would make him sad, and in the back of his mind, he comforts himself with the promise of future phone use. This finding shows that participants satisfy their negative emotions associated with phone separation by knowing they will get back to using the phone eventually.

The majority of participants mentioned that they would like to use their phone less. However, they mentioned that due to the phone's central role in their social and cultural lives, they would feel left behind. Mandy spoke to this idea best:

We live in a world where everyone around me is also very reliant on their phones and they're not going to stop being reliant on their phones, and they're not going to stop communicating over the phone. So, if only I were to drop myself out of that sphere, I would probably lose a bit of my social connection because I'm not on my phone as much, which is a bummer, and I think that it would have to be a much bigger social movement rather than just something that I wanna do.

Participants feel that they cannot reduce their cellphone use because it is perceived as an individual decision that only impacts them. The rest of society will carry on using their phones regardless if an individual chooses to or not, thus catering to the notion of there being an element of social contagion associated with cellphone use.

Grayson mentioned how even if he were to try and avoid certain information on social media, it is difficult to avoid due to its widespread influence and use:

Even if you don't directly interact with it, the people who – it's like a seven layers of separation thing where even if I don't partake in the bad stuff that happens on Twitter,

somebody that I interact with does. That experience then creates that ripple effect of everybody that they interact with and who they interact with ... Ultimately, that's highly negative.

Participants who are not directly involved with certain media on the cellphone may still be affected through others' usage. This further supports the previous finding where participants feel helpless about their individual phone use because in the bigger picture, cellphone use will continue to operate as is amongst other people while carrying a societal and cultural significance. This underscores how vital the apps and interpersonal communication available on the cellphone are to teens' social worlds.

Allen also discussed how there is a larger force at play that could explain cellphone use and dependency on it:

I do think the cellphone is essential to today's society, and I do think it was an improvement from landlines. I feel like this was a move for the better, but I definitely feel like it's being utilized in a poor way, and I've fallen into that trap. I'd definitely be an advocate for less cellphone usage, but that's not going to happen the way culture is shifting.

This finding further demonstrates how participants tie their cellphone use to culture and that culture can dictate and/or force cellphone use on an individual. Allen feels that society impacts his individual phone use, but that his individual phone use has no effect on society.

Sabine contributed her rationale for not wanting to reduce phone use in order to not be intellectually and culturally left behind in society:

I would want to know everything that's going on, especially the super big stuff that's been going on lately. I would have never known anything about Roe v. Wade being overturned if it weren't for my phone – I just saw it on Instagram this morning. With the rest of the world knowing that and then with me just being in the dark, I feel like that definitely would bother me. You wonder, "What could be happening right now that I don't know about?" That to me, is a bit of a stressful thing. I feel like I need to know what's happening just so I'm in the loop.

This finding presents another underlying force in keeping participants on their phones despite them wishing they didn't have to be; the force of knowledge and being an informed citizen.

There is a pressure to keep up with happenings in the world because individuals do not want to seem ignorant or uninformed while others are more informed. In this manner, some participants feel compelled to use their phone just so they can stay current on the news and important events.

Pierce approached this topic of paradoxical phone use as a matter of choice:

I know I could use it less, and I'm just not doing it for some reason ... I think if everyone had the choice and had their ideal life, they'd be on their phone half the time they were on it, and doing things that are much more productive ... But if I really had the choice – and I definitely tried to – I would probably use my phone an hour or two less a day, maybe more.

Here he mentions if he “really had the choice” to use his phone less, he would. When asked by the researcher to expand on his meaning of having a choice, the researcher asked: “What do you mean, ‘have the choice?’ It’s not as if someone's forcing you to text people back.” Pierce’s reply shed light onto a deeper understanding of paradoxical phone use:

It's of course a choice, you have complete control around how much you use your phone, but at the same time I almost feel like, “Well, what else am I gonna do?” There's always school, there's always other things to do, but there's times where I'm just sitting there, and I'm like, “I should just be on my phone,” but in reality, I could be doing something so much more productive. I could be studying, going to the gym, getting more work in, anything, but I just resort to my phone ‘cause it seems easy.

This finding shows that participants struggle to imagine a reality devoid of the cellphone and how they would fill the time if they could not use their phones, thus further suggesting phone use is habitual. Pierce experienced a realization about his phone use further into the interview as a result of the above discussion: “As I'm sitting here, I keep saying, ‘I'm forced to do it,’ but I'm realizing if I really wanna use my phone less, just put it away, it's not that serious.”

Participants are aware that they can take measures to reduce their phone use, but it still does not prompt them into curbing their phone use. They can't *really* turn the phone off. This

could perhaps, in part, be due to prior research findings that found teens do not view using the phone – or the information that can be collected on them by doing so – as overly significant or grave, as found by Pangrazio and Selwyn (2018). These findings provide an answer to the underlying paradox this research project sought to gain a greater understanding of; the paradox of individuals who demonstrate their desire to distance themselves from their phones or reduce its use, but are unable to do so. Not only does the phone fit needs that circumstantially and innately arise, but it is also deeply engrained into the culture of American society and day-to-day life. If individuals do not own a smartphone or regularly use one, then they get left behind socially and culturally.

5.5 Summary and Conclusions

This chapter discussed and presented findings related to the cellphone's impact on society as a whole. It discussed findings on the relationship between society and cellphones, the relationship between cellphones and its users, and the relationship between society and cellphone users. This research project found that a considerable amount of factors are responsible for causing cellphone users to excessively use their phones, including social pressures. These pressures include the perceived pressure to respond and perceived pressure to be available. Participants cited using and managing their cellphones out of concern for being perceived as rude, absentee, or inattentive, and also to avoid feelings of fear pertaining to being without the phone, such as not being reachable by individuals in their close social circles.

Participants also discussed the apparent disconnect created by the use and/or presence of the cellphone. This includes the phone causing its user to be unaware or detached from their physical environment and the people within it, the phone's impact on the relationships between individuals in social groups, as well as the phone's impact between parents and their teenagers.

Participants also discussed how communicating over the phone is perceived based on social cues, and discussed general attitudes and feelings pertaining to text messaging, talking on the phone, or stigmas of phone use. The data indicated that regardless of a participant's gender or background in school, all participants were susceptible to the forces of excessive phone use, thus creating situations where an individual's levels of control over their device arrive into question. Using the cellphone as a means to provide comfort in social settings was also discussed by participants. While some participants indicated their desires to reduce the use of their cellphone and certain media, they demonstrated a paradox between their attitudes and actual behaviors of seeking out the phone habitually.

CHAPTER 6. CONCLUSIONS

This project conducted twelve, in-depth interviews to learn about individuals' relationships with their cellphones in order to understand how the cellphone and its use create a strain between the user and their device, the user and society, and between society and the cellphone. The interviews explored if and why individuals may feel dependent on their cellphones, and why they may feel it is a necessary component of their day-to-day functioning. It addressed the question, How do young adults view and feel about their relationship with their cellphone, and to what extent do they believe they are in control over their cellphone use?

The goal of this thesis project was to gain a deeper understanding on the relationships between 18-19-year-old college students and their cellphones. Specifically, the goal of this study was to better understand the factors, such as cellphone design, that can cause individuals to be dependent on their cellphones, and uncover what individuals think and perceive about their levels of control that they exercise over the cellphone.

The methods this project used along with a diligent analysis of the data did provide sufficient answers to the project's research question. In regards to perceived control over the cellphone, MDT was a useful framework in gaining deeper understanding of this phenomenon. This framework also aided in gaining deeper understanding of the concept of dependency and how being dependent on the cellphone is not exclusive to problematic smartphone use. Participants discussed being dependent on their phone in a neutral sense as well. For example, participants indicated the need for their phones to facilitate in-person interaction. Mia discussed how she uses her phone to coordinate where and when to meet with individuals in her social circle. Nathan discussed using the phone to set up times to meet with his girlfriend in person.

Participants also discussed neutral dependencies of needing the phone in case of an emergency, to communicate with loved ones, taking notes, and searching for real-world locations in order to navigate their physical spaces, to name a few.

However, participants also indicated that some uses of the phone may be more problematic, such as excessive phone use in a social setting and social media scrolling with no time restrictions set in place. These instances lead to the lessened quality of face-to-face interaction and encourage social isolation. However, habitual use of the phone does not have to include involved use of the phone. For some, the act of pulling out the phone and swiping across its screen gave them the feeling of “something to do” as discussed by Jessie. This level of subconscious dependency could also cater to the idea of problematic smartphone use and provide deeper understanding of how individuals use their phones to keep themselves occupied.

Habits play an important role that MDT does not really address. MDT discussed the *goal scope* and how individuals seek out media in order to satisfy their needs of *understanding*, *orientation*, and/or *play*. But the findings of this project add another layer to media use in that some use is not as goal-driven as MDT suggests, but more habit-driven. This suggests that although goals may be important at times, the often unconscious habits people have around their phone use should be considered a vital aspect of their relationships with this technology and its various functions. The notion that people turn to their phones to fulfill a single, specific need at a specific time may not always reflect the full scope of people’s interaction with the phone. More research is needed on the distinctions between intentional, need-driven uses and habit-driven uses of the cellphone and its media.

Overall, participants presented a variety of positive, negative, or neutral viewpoints of their cellphones. Some participants discussed how the interview helped change their outlook on

their cellphones and exposed them to factors of their cellphone use they had not considered prior to the interview, such as the desire to implement self-imposed limits of cellphone use. Other participants indicated that the interview was beneficial in providing a thought-provoking discussion on their cellphone use, but did not change their views of their cellphone use, or of the cellphone in general. The findings also indicate a mixed view pertaining to young adults' control over their cellphones. Some outright admitted that they are addicted, while others tried to moderate or attribute their phone use to other factors, such as losing track of time on the phone instead of losing control. However, some participants who held a viewpoint of excessive phone use due to losing track of time, subtly admitted losing control in that their inability to control their sense of time spent on the phone was skewed.

Some participants believe that they have control over their cellphone use but contradict themselves based on how they described their behaviors of their cellphone use. Ultimately, for those who said they were "addicted" to their phone or used it excessively, they justified their phone use by comparing their use to that of their peers'. The findings also demonstrated that participants consider certain media consumption through the phone as non-problematic, while other uses, such as social media, have generally negative perceptions of its use attached to it. Mandy demonstrated this idea best when she said she didn't consider herself as addicted to social media on her phone because she is a consumer of content rather than a producer. She also mentioned that if she watched a couple movies every day, it wouldn't be considered as a "movie addiction," compared to if she was posting every day on social media, that would be considered as addiction in her view.

The findings also indicate that control over the cellphone can be dictated by external social forces, such as the perceived pressure to respond, and needing the device in order access

certain websites, accounts, and even physical locations, such as testing centers. Thus, to a certain extent, this project found that due to certain social and cultural pressures and adoptions of the cellphone, it makes its use unavoidable. This suggests that individuals may not truly be in control of when they use their phones, how they use their phone, or how long they use it during these instances. Instead, instances that are suitable in determining an individuals' levels of self-control over their cellphone use are when individual choice to use the cellphone is the sole consideration and no other factors are in play.

Some respondents expressed their lack of concern over their cellphone use, and their lack of concern when classifying themselves as “addicted” to their devices. Mia is notably quoted with saying that she is addicted to her phone, but doesn’t see it as “that big of an issue” and that she “doesn’t really care that much.” This notion further contributes to the idea of paradoxical phone use. Mia also commented on why she feels that she is addicted, which caters to paradoxical phone use:

I find it really difficult to be without it. Like I said earlier, I never leave anywhere without it, and I never have. So, I need it on me constantly. It is for people to contact me, but also, I have a hard time staying away from social media sites just because I want to keep up with the trends.

Participants’ lack of concern over use they admit may be problematic is perhaps overshadowed due to them focusing more on the role that the phone plays in their lives. All participants indicated positive uses of the cellphone and how they depend on it in neutral functions on a day-to-day basis. Without the cellphone, many of these participants would not be able to keep up with social circles, meet up with friends in the physical world, stay informed about current events, or stay on top of school and work-related responsibilities. It is for these reasons why paradoxical phone use exists; people cannot *really* get rid of the phone because they must

consider the repercussions of that decision. It would make their lives more difficult to be without the phone, so they tolerate the aspects of its use that may feel excessive or generate regrets later.

While many participants attributed their lack of control over their cellphone to the “rabbit hole” or “death scroll,” they still found themselves being drawn into excessive phone use. Having awareness of uses related to the rabbit hole or of personal data being sold for advertisement purposes was still not a dissuading factor for individuals to avoid using the phone in these manners. Dylan, in particular, discussed how he typically refrains from using social media, but how a “lazy afternoon” could turn into 4-5 hours of video watching on the phone. The design of apps such as YouTube, TikTok, and Instagram use powerful techniques to draw in even the most aware of individuals. Dylan passionately discussed his displeasure and distrust of social media, yet, he uses YouTube frequently and excessively. Grayson also discussed his awareness of social media algorithms and design tactics used to draw users into extended phone use, and discussed how he gets “frustrated” with himself for “falling for it.”

The findings of this thesis project provide deeper understanding of the social contexts that play a role in phone use, dependency, and habitual use. In other words, the social tensions of the perceived pressure to respond, the perceived pressure to be available, and the widespread prevalence of the cellphone in society are their own forms of control imposed on cellphone users, and suggests that exercising control over the cellphone is not entirely contingent on an individual’s own efforts. Mandy notably shed light onto this notion when she discussed wanting to reduce her phone use, but that it would not make a difference: “it would have to be a much bigger social movement rather than just something that I wanna do.” The widespread adoption of the cellphone and normalized use of it in day-to-day functioning also gives credence to Pierce’s comments about having a “choice” over cellphone use. Pierces words suggest that perhaps the

onus does not entirely rest upon the shoulders of phone users, and that social contexts play a larger role in the discussion:

“I think if everyone had the choice and had their ideal life, they'd be on their phone half the time they were on it, and doing things that are much more productive ... But if I really had the choice – and I definitely tried to – I would probably use my phone an hour or two less a day, maybe more.”

Taken together, these findings indicate that phone use and its implementation in day-to-day life is widespread and may transcend individual preferences at times. Although exercising individual control over the cellphone and social pressures influencing cellphone use are powerful forces that contribute to phone use, they both possess relatively equal influence over whether an individual is drawn into excessive use of the phone. They are both situational, and therefore should be considered equals in terms of their effects on individual media use.

These social forces also may play a role in problematic smartphone use. For example, some participants indicated that they compulsively check their phone for new messages from others so that they can respond quickly, while others cited feelings of pressure dictating their phone use. However, prior literature on MDT argues that when society is experiencing greater instability and social change, the media have stronger effects, including cognitive, affective, and behavioral ones (DeFleur & Ball-Rokeach, 1989). With COVID lockdowns being recently lifted at the time of these interviews, this prior research finding perhaps suggests why these participants are so dependent on their cellphones. The smartphone is able to fulfill a variety of levels of needs and functions. Throughout the COVID pandemic, people were able to tightly attach themselves to their phones in order to interact with friends and loved ones, find information about the status of the world, and be offered an escape from the dire situation through the various entertainment options of the phone. Perhaps as normal life – as it was once

known – returns, people will carry this altered relationship and dependency formed during the pandemic into the future.

This study revealed the ways in which cellphones are a driving force for social interaction and conducting basic tasks in today's society. People depend on their cellphones daily and make great efforts to keep it on their person, especially when leaving their homes. Research suggests that while individuals are highly dependent on the cellphone to fulfill certain needs such as understanding the world, information seeking, social connection and awareness, and entertainment and escape, this dependency in turn, creates a strain on the relationship between people and their phones. Media dependency theory is a useful framework for examining this paradoxical relationship between individuals and their cellphones. Importantly, this framework emphasizes the role of the larger social system in understanding the impact of media use and content.

Because of the multi-functional roles of cellphones for communication, social connection, work-related tasks, and entertainment, the lines between work and play have become blurred. A person can be reached from anytime and anywhere by a work colleague on the same device they use for play. Whether it be in the comfort of their own home, in their place of work, or at the dinner table in a restaurant, the phone can be invasive and can make people feel that they are never truly alone or free from responsibility. Cellphone design has perpetuated this strain as applications and phone's themselves, are carefully crafted to ensure that users are spending as much time as possible on them. Design features such as knowing when another person is typing a text message can pressure an individual into responding quickly. Other design features such as read receipts, can cause individuals to check if their message has been seen by the recipient more frequently, thus producing instances of compulsively checking the phone.

External social pressures and individually-felt social pressures can also dictate feelings of responding to others and being attentive to the phone. This project shows that while some participants believe they do not have control over their cellphone use, other participants believe they lose track of time when on their phone, or that external forces dictate their phone use.

The conclusions drawn and presented by this project can contribute to filling some gaps in current research. In specific, little research on college students – specifically teenage-aged college students and their relationship with their cellphones – has been conducted from a qualitative perspective. Most such research is statistical and focused on cellphone use type and frequency rather than examining complex perceptions and feelings about cellphones and their place in teens' lives. Much of the existing scholarship is formulated as addiction studies, or problematic smartphone use, and focuses on the addictive properties of cellphones, but not on the ways that technological design contributes to habits and outcomes. This study examined implications of design as well as use and perceptions of the cellphone more generally, which provided greater understanding about how individuals are dependent on their device, as well as their perceptions of their control over the cellphone.

This project aimed to demonstrate how using media dependency theory as a framework could be helpful for exploring these topics. The findings of this project can also be of interest to society more generally. Because of the cellphone's widespread prevalence and significance in society, this topic is relevant to many people of all backgrounds and demographics, and for the ordinary person, this study provides an opportunity to reflect on their personal relationship with their technology, including potentially negative repercussions of technology use. This project contributes to a deeper understanding on the uses of the still relatively new technology of

smartphones and provides a deeper understanding on why individuals feel dependent on their technology, as well as the cellphone's effect on society and culture.

6.1 Critical Analysis of Project

6.1.1 Limitations

Like all studies, the current project had some key limitations. The success of the interviews were contingent on proper questions being asked and open-ended conversation taking place, as well as participants who were willing to speak at length about the topics raised in the interview guide. Because of the certain criteria participants needed to meet to be eligible for the study and the manner of recruitment needing to remain consistent, the time interviews took place were inconsistent and spaced out. Some interviews took place days apart, or even months apart. The time of year interviews took place also ranged from the end of the spring semester to over the summer when students are not typically in classes, and at the beginning of the following fall semester. While participants did indicate that their phone use is dictated by their commitments and levels of how busy they are, the data did not appear to be affected by when the interviews took place. For example, interviewees who were on summer break were able to recall their phone use during the school semester, and those that were in classes were able to recall their phone use during school breaks. However, it is entirely possible that the timing of the interviews could have had an effect on how a participant responded to a question during their interview.

A further limitation pertaining to the timeliness of this study are the specific days of the week interviews took place. In particular, this affected screen time data. Since the screen time feature on an iPhone refreshes beginning every Sunday, the data from an interview with only a few days' worth of data was not consistent to be compared with the up-to-date data of another interview. For example, an interview that took place on Tuesday would only have screen time

data that consisted of Sunday and Monday of that week, and the data until the time the interview took place. The screen report automatically generates an average of the daily phone use and other categories based on the amount of days present from the refreshed rate of tracking. However, the screen time feature does allow for the previous week's screen time to be viewed in its entirety, which is where the majority of the data for this project's screen reports were generated from. While offering an incomplete comparison, it was still beneficial to see a partially completed week of data compared to its previous week. It is entirely possible that this inconsistency pertaining to the screen report could have influenced participants to recall their phone use in a certain manner. However, the findings indicated no significant differences on a daily or weekly basis for participants' phone use, suggesting that their phone use is habitual.

The manner in which interviews were conducted remotely was also a limitation of the current study. While in-person communication provides for a clearer understanding and natural flow of conversation to take place, the use of Microsoft Teams was effective for the current study. However, certain technological limitations arose such as the Microsoft Teams program freezing up mid-interview which caused either the researcher and/or interviewee to restart their devices. This caused some interviews to be pushed back past their intended time frame. Recruitment emails stated that an interview would last between 30-60 minutes. However, a small amount of interviews ended up surpassing the one-hour mark by no more than 20 minutes. This additional time added in these instances could have affected the moods of these particular participants, thus affecting how they responded to questions. While participants were compensated for their time after an interview and did not appear to be negatively impacted by interviews lasting slightly longer than intended, they could have felt annoyed or frustrated because of this.

Furthermore, a small study like this one also had the limitation of only including one age group from this one university among a very small group of people. As a result, patterns and themes that emerged may be highly specific to that context and cannot be generalized, although the interviews did demonstrate reaching saturation. Without conducting additional studies in other regions with other populations, such issues cannot be known. For example, urban students may have very different relationships with their phones than this study's suburban population; Black, Latinx, or Asian students may have different issues that arise than the largely white population of the university where the current study's participants were recruited. Additional research with other populations are needed to confirm or counter the themes this study identified. However, some participants were out-of-state students, and while the majority of them were predominantly white, a few participants were a part of the Black and Latinx demographic.

Lastly, it is known that participants may not perfectly recall information, and the pressure to speak to a researcher may have led some participants to make claims or explain ideas they would not otherwise have thought about, or would not have claimed in other contexts. Few participants did make comments relating to their predictions of what the study was about, or what they thought researcher wanted to hear. However, to negate this, as the researcher, I reminded them that I was not looking for any answer in particular and that all answers were acceptable and encouraged. While this re-assured participants to speak of their experiences in an un-influenced manner, some may have disregarded this messaging and chose to answer based on what they thought the researcher wanted to hear. However, the open-ended nature of the question guide gave way to open-ended responses, and participants making claims for the benefit of the research project did not appear amongst the data set.

6.1.2 Data Sampling and Analysis Limitations

In regards to sampling, I chose a specific group of students at Colorado State University based on age, if they owned a smartphone, and their backgrounds in school in order to provide a diverse range of ideas across the data set. Because of this, I was not able to offer extra credit to a participant to be used for one of their classes as that would have been academically unfair to those who were not able to participate in the research study. Instead, I paid them with \$10 Amazon gift cards as compensation. However, as finding participants to agree to be interviewed became increasingly difficult, I increased the amount of the gift card to \$20 to make the study more appealing to potential participants. While the original batch of interviewees were only paid \$10, they were not compensated with \$20 like those who were interviewed after them. To the extent of my knowledge, the original participants who were paid under the \$10 amount were not, and still are not aware of the change in compensation amount.

Snowball sampling was the chosen method of sampling to counteract the idea that some individuals were singled out to provide them with compensation over others. I do not think my biases toward the subject matter affected the data analysis. While different people have different ways of communicating the same message, being consistent during analysis was one of my biggest obstacles. Attributing certain language to a certain theme and determining what criteria qualified for a certain theme was time-consuming. Despite extensive efforts to carefully and intentionally go through the data from each interview multiple times, undiscovered themes may still be present in the data. However, by having my analytical approach peer-reviewed, it helps ensure that this project was executed to its fullest potential and that the data analysis was conducted carefully.

6.1.3 Inferences Limitations

My assumptions that were potentially not satisfied through this research are still beneficial to scholarship. My assumptions were based on trends in the research, and any results that contradicted my assumptions would show that prior research is also being contradicted, thus confirming the presence of new phenomena that warrant further examination. If participants reported a positive and non-strenuous relationship with their cellphone, it indicates that users have adapted to their cellphones and adopted techniques to combat the invasive and demanding nature of cellphones and feelings of anxiety, burnout, and overwhelm. Regardless of the actual results and themes the researcher discovered, there are still interesting and intriguing phenomena present in the data. Whether the results are in-tune with my assumptions and preconceptions or not, this project can also contribute to future research and be relevant in comparing itself with the results of prior research.

6.2 Recommendations

This section includes recommendations for smartphone users and for future research based on the findings and on the limitations of this project. Some smartphone users are susceptible to excessive phone use and engaging with the media on their phone for extended periods of time. This excessive phone use can lead to feelings of regret, and breaking attention away from the phone or calling upon measures to limit phone use can be challenging when caught in death scroll situations.

These findings are beneficial in providing recommendations to other smartphone users who are currently, or have shared similar experiences to these participants. While these findings only demonstrate certain approaches to self-imposed limits, they also show the difficulty in generating effective ideas for self-regulation of cellphone use. Therefore, this project

recommends that for users who struggle to hold themselves accountable with their phone use, they should take a more active approach in reducing their cellphone use. This includes entrusting others to help hold them accountable, physically distancing themselves from their phone, and finding productive, yet appealing ways to spend their time apart from their phones. The phone's media can be highly addictive, and addiction is not simple to break free from by means of one's own efforts. Prior research found that habit-driven use of the cellphone made participants feel a loss of autonomy over their own behavior (Lukoff et al., 2018). As the forces of the phone are proving to be too powerful for some individuals to combat, habitual use of the phone has caused some phone users to feel that they are not in control of their devices. Thus, more intentional use of the phone that is not habit-driven could aid in giving phone users more autonomous feelings over their devices.

Future research is needed in order to contribute to this project. This project examined 18- to 19-year-olds who are in college. While this demographic was chosen in order to best represent the teenage population and adult population, research without these constraints should be conducted. The results of this project should be compared with a project that similarly interviews adults of all age groups, primarily over the age of 20. This would allow researchers to compare and contrast the differences and similarities that people of all age groups have in their relationships with their cellphones. This would ultimately cater to the knowledge of discovering if certain relationships and experiences with the cellphone are a generational phenomenon, exclusive to the members of a given generation, or if they are universally shared by some or even all walks of life. Understanding if a variety of generations experienced similar phenomena surrounding their cellphone use and if the same pressures, benefits, and strains from cellphone use affected them, would be of significance.

Other research opportunities are present for the sociological and psychological implications of the cellphone. Further research on teens' estimations of their cellphone use relative to their actual usage data would also be beneficial to understanding their perceptions of control over their cellphones, and their awareness levels of the phone and its forces. This could come in the form of monitoring notification intake to determine if teens have become so accustomed to the patterns of their phone that they may not even realize how often they engage with their device. Research has shown that phones are used commonly in day-to-day society and can hinder or bolster social experiences, and that increased cellphone use is linked with higher levels of anxiety, depression, and poor sleep (Chen et al., 2017). Being able to specifically examine how specific media use over the cellphone impacts an individual's brain and how it might alter their behavior would be of scholarly interest.

Further research on notifications is needed, specifically, examining the use of focus modes on the iPhone and how and why individuals may or may not choose to personalize their notification intake. Discovering how individuals in today's modern society navigate their notification intake, especially with features such as "do not disturb" to limit or gain awareness of the world around them while filtering what they deem as unnecessary information in order to stay up-to-date on social circles, would be crucial in understanding why certain types of notifications are more welcomed than others. This could also steer further design research and implementation by software designers. Cellphone and application software designers may benefit in knowing that cellphone users are becoming more aware of the subtle tactics they employ to retain a user's attention. This extended knowledge for designers, however, could potentially not bode well for smartphone users as they may discover new ways in which the phone is keeping them engaged.

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APPENDICES

Appendix A: Interview Question Guide

The questions were based on themes as identified by media dependency theory, especially use of the cellphone for information, social surveillance, and entertainment, as well as on notions of addiction or dependency, ways that the phone fits into social and cultural expectations, and perceptions of distraction and need. If responses to questions were not thorough or were vague, the researcher employed the use of probing questions. Probes cannot be planned in advance, but using phrases such as “could you please tell me more about,” or “can you give me an example of” aided in creating deeper conversations during interviews.

Interview Guide

Thank you for meeting with me today to talk about your cellphone. This will take about an hour, and I’ll be recording our conversation so that I do not miss anything. First, I just have a few quick questions to get us started:

Checklist Questions:

1. Can you tell me how old you are?
2. What is your major/minor in school. If you do not have a major, what are you thinking of majoring in?
3. What kind of smartphone do you have?
4. What are the apps that you use the most on your phone?
5. How many notifications would you say you receive on your phone per day?
6. Do you ever look at your phone’s use-tracking app? Can we look at that together? Can you take a screenshot of it and send it to me, and if not, can I take a picture of it for my records?

Orientation (Utility and Social Interaction)

1. What are your most common practical uses of your cellphone?
2. Would you ever leave your house without your phone? Why or why not?
3. Do you travel room-to-room with your phone? Why or why not?

- a. How do you feel if you forget your phone? What kind of things do you worry about if you forget your phone?
- 4. Do you ever turn your phone off? Why or why not?
- 5. How do you feel about group chats?
 - a. Does who is a part of a group chat affect your outlook on group chats? Time of day messages are sent? How frequent messages are being sent, etc.?
- 6. Do you think that your cellphone makes you feel more connected or less connected to others? Why or why not?
 - a. Do you use social media?
 - b. Do you believe that your cellphone is beneficial for providing social interaction? Why or why not?
- 7. Are there circumstances where you might feel annoyed or frustrated about being contacted?
 - a. If so, what are those circumstances?
 - b. What about non-work related communications? Do you feel annoyed or frustrated about being contacted during your downtime?
 - c. If not, what are the emotions you feel instead?
- 8. Do you have your read receipts turned on? Why or why not?

Understanding (Information and Social Surveillance)

- 9. Which app sends you the most notifications? What other apps send a lot of notifications?
 - a. What are your overall thoughts/feelings on cellphone notifications?
 - b. Why do you keep your notifications turned on?
 - c. If you keep them off, what are your motivations for keeping them turned off?
- 10. What kind of notifications make you check your phone right away, if any?
 - a. What makes you feel like those need to be checked right away?
 - b. What kind of notifications do you put off for later?
 - c. How long does it typically take for you to respond to a text or email after seeing it?
- 11. Do you keep your phone on silent? Why or why not?
- 12. How does it make you feel if you could not access your social circles for a week over your phone? How about a month?
 - a. What happens to you when you do not get to use your phone to keep up with your social circles? This is strictly for people you do not get to see in person on a daily basis.
- 13. Is it important for you to have a sense of what is going on with people around the globe? Why or why not?
 - a. Where do you get your news?
 - b. How would you feel if information about the world over your phone was restricted to you for a week? A month? How about Google searches? Where would you turn to?

Play (Entertainment and Escape)

14. If any, what apps and content do you use to provide you with entertainment and escape? Why do you use these apps and content for entertainment and escape?
- If you do not use your phone for entertainment, why do you feel there are better options to turn to for providing entertainment and escape? Why does the phone not provide that for you?
15. Do you feel that your phone is disruptive? Why or why not?
- How does it make you feel when your current work-related task is replaced by pulling out your phone?
 - How about during times when you are consuming entertainment on your phone (when your phone pulls you away from your phone)?
16. Do you feel that you have control over your cellphone use? Why or why not?
- If so, what uses of the phone make you feel like you lose control?
 - If not a loss of control, do you feel like you lose track of time when using your cellphone?
 - What measures, if any, do you have in place to make sure you do not spend too much time on your phone?
17. What do you feel like when you spend longer amounts of time on your phone in one sitting?

Social/Cultural Implications

18. What is your perception of people who use their cellphones in social settings? What thoughts come to mind?
- Are there any specific social settings that determine your perception of cellphone use? (Phone use at the dinner table example).
 - How might you describe your phone use in social settings?
 - How do you feel when you use your phone in social settings?
19. Are you concerned about the potential impact your phone use has on others in public spaces? Why or why not?
- Are you mindful of others when using your phone in public? Why or why not?
20. Does your phone provide you comfort when you are out in public or does being on your phone in public make you feel uncomfortable? Why or why not?
- If you were to receive a phone call in a grocery store with one person on the aisle vs. a crowded bus, would you answer the phone in either scenario?

General/Closing Questions

21. Do you feel like you are addicted to your phone or that your phone use is normal or abnormal?
- (Problematic smartphone use is proposed by some researchers to be a form of psychological or behavioral dependence on cellphones, closely related to other forms of digital media overuse such as social media addiction or internet addiction disorder).*
- If you are addicted, why do you feel that you are addicted?
 - If you think your phone use is normal, why do you feel that it is normal?

22. After this discussion, what is your perception of your smartphone? Positive, negative, or unchanged?
23. Are there any uses or habits with your phone that you will change?
24. Was there anything that surprised you about your cellphone use?
25. Is there anything else that you would like to add or share that we may not have covered today regarding your cellphone use and/or the cellphone in general?

Appendix B: Email Recruitment Template

To: CSU Undergraduates

Subject: Want to make \$20 talking to a CSU researcher about your smartphone?

Hello!

Researchers at Colorado State University are looking for undergraduates willing to talk to an interviewer about their smartphones and how they use them. You'll get a \$20 Amazon gift card as a thank you for participating.

Just reply to this email to let us know you're interested!

To be included in the study, you must be a current college student at CSU between 18 and 20 years old who owns and regularly uses a smartphone.

Interviews will take place virtually via Microsoft Teams at a time that is convenient to you and will last between 30 and 60 minutes. They will be audio recorded for analysis and are completely confidential. Your name will never be shared with others or in publications associated with this research.

While your name will be known to the researcher, it will not be included in the data set and will never be released to anyone other than the researcher. When we report and share the data with others, we will combine the data from all participants. While there are no direct benefits to you, we hope to gain more knowledge about how students use their smartphones. You will receive a \$20 Amazon gift card for your participation.

There are no known risks to participating in this research.

If you have any questions about the research, please contact Carson Cooper at carcoop@rams.colostate.edu, or email Dr. Rosa Martey at rosa.martey@colostate.edu. If you have any questions about your rights as a volunteer in this research, contact the CSU IRB at: RICRO_IRB@mail.colostate.edu; 970-491-1553.

To see if you qualify for an interview or for more information, reply to this email. Due to the limited size of the study, not all people interested may be selected for participation.

Sincerely,
Carson Cooper
M.S. Journalism & Media Communication

Appendix C: Participant Consent Form

Colorado State University Consent to Participate in Research

Smartphone Study (CSU undergraduate students)

Introduction and Purpose

My name is Carson Cooper. I am a graduate student in the Journalism and Media Communication department at Colorado State University. Working with my CSU faculty advisor, Dr. Rosa Martey, I would like to invite you to take part in my research study, which looks at how college students use their smartphones.

Procedures

If you agree to participate in my research, I will conduct an interview with you at a time we agree upon virtually via Microsoft Teams. The interview will involve questions about your cellphone use and your perceptions of its role in your life. It will last about 30-60 minutes. With your permission, I will tape the interview and take notes on our discussion during the interview. The recording is to accurately record the information you provide, and will be used for transcription purposes only. If you choose not to be audiotaped, you may opt out of being a research participant at any time. If you agree to being taped but feel uncomfortable or change your mind for any reason during the interview, I can turn off the recording at your request, and we can stop the interview.

Also, with your permission, I will ask you to show me a screenshot of your smartphone's built-in log of your use for the week. If you do not consent to showing me your phone's usage data, or do not have access to this capability, then I will ask questions about your perceived use.

I expect to conduct only one interview per participant; however, follow-ups may be needed for added clarification. If so, I will contact you by email/phone to request this. These follow-ups will ask you to briefly review my summary of the interview to confirm it is accurate and should last no more than 5-10 minutes.

Benefits

There is no direct benefit to you from taking part in this study. However, it is hoped that the research will allow you to reflect on your smartphone/media usage and on its potential repercussions. It is hoped that the research will provide further understanding on the cellphone's impact on society for researchers.

Risks/Discomforts

There are no known risks associated with this study. However, if you become uncomfortable or upset, you are free to decline to answer or stop the interview at any time.

Confidentiality

Your study will be handled as confidentially as possible. If results of this study are published or presented, individual names and other personally identifiable information will not be used. To

minimize the risks to confidentiality, we will not release personally identifiable information or names of any participant. A linked list will be included in the raw data set where the real names of participants will be replaced with pseudonyms.

We will transcribe the audio recordings as soon as possible after the interview, and then keep the audio in a private and secure place that will not be accessed by anyone other than the researchers. When the research is completed, I will save the transcriptions and other study data for possible use in future research done by myself or others. We may be asked to share the research files with the sponsor or the CSU Institutional Review Board ethics committee for auditing purposes.

The data and information gathered during your interview may be used for future research studies without your informed additional consent. Personable identifiers may be distributed to another researcher. However, the same measures to uphold your confidentiality will be upheld if this future research does take place.

Compensation

To thank you for your time in participating in this study, we will compensate you with a \$20 Amazon gift card sent to you via email upon completion of this study.

Rights

Participation in research is completely voluntary. You are free to decline to take part in the project. You can decline to answer any questions and are free to stop taking part in the project at any time. Whether or not you choose to participate in the research and whether or not you choose to answer any questions or continue participating in the project, there will be no penalty to you.

Questions

If you have any questions about this research, please feel free to contact me at carcoop@rams.colostate.edu. You may also contact Dr. Rosa Mikeal Martey on her email at rosa.martey@colostate.edu.

If you have any questions about your rights or treatment as a research participant in this study, please contact the Colorado State University Institutional Review Board (IRB) at: 970-491-1381, or e-mail RICRO_IRB@mail.colostate.edu.

CONSENT

Do you consent for your interview to be video and audiotaped?

☐ Yes

☐ No

If applicable, do you consent to allowing the researcher to view your phone's built-in analytics of your phone usage?

☐ Yes

___ No

If you wish to participate in this study, please sign and date below. You will be given a copy of this consent form to keep for your own records.

Participant's Name (*please print*): _____

Participant's Signature

Date