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Perceptions of the Influence of Cell Phones and Social Media Usage On Students' Academic Performance

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PERCEPTIONS OF THE INFLUENCE OF CELL PHONES AND SOCIAL MEDIA USAGE ON STUDENTS' ACADEMIC PERFORMANCE

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ABSTRACT

PERCEPTIONS OF THE INFLUENCE OF CELL PHONES AND SOCIAL MEDIA USAGE ON STUDENTS' ACADEMIC PERFORMANCE

by Anne Tran

Cell phones, ubiquitous in many high schools, are often credited with helping students connect with people and learn new concept. However, literature indicates that problematic cell phone and social media usage are negatively associated with student academic performance and mental well-being. As cell phone technologies continue to evolve, they become an integral part of today's learning environment. Through the use of the documentary exploratory research method, this dissertation investigates stakeholders' perceptions of the influence of cell phone and social media usage on high school students' academic performance. Additionally, this study explores the current policies and practices regarding cell phone use in the classroom, the effectiveness of these policies, suggestions for future improvement of those policies, and helpful strategies students used to mitigate some of the negative impacts. Due to a limited sample size, the findings in this study provide only a snapshot of the participants' perspectives regarding the impacts of cell phones in school. Daniel Kahneman's cognitive load theory is deployed as a theoretical framework for this exploratory study. *When Cell Phones Come to School* is a supplemental documentary film used to portray findings from the study. The documentary highlights participants' perspectives regarding the benefits and drawbacks of cell phones and their impact on students' learning; additionally, participants' personal experiences with the current school cell phone policies and their recommendations are provided.

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CHAPTER I - INTRODUCTION

> *"I cannot get used to seeing myriads of people in the street peering into little boxes or holding them in front of their faces, walking blithely in the path of moving traffic, totally out of touch with their surroundings. I am most alarmed by such distraction and inattention when I see young parents staring at their cell phones and ignoring their own babies as they walk or wheel them along. Such children, unable to attract their parents' attention, must feel neglected, and they will surely show the effects of this in the years to come."* - Oliver Sacks

Unresolved Issues in Education

Cell phones are becoming indispensable tools in adolescents' communication patterns (Anderson & Jiang, 2018; Lenhart, 2015; Madden, M., Lenhart, A., Cortesi, S., Gasser, U., Duggan, M., Smith, A. & Beaton, M. 2013). Researchers (Madden et al, 2013) found 78% of teens in (2013) had a cell phone, almost half of which (47%) were smartphones. Convenience and constant accessibility of smartphone devices contributed to 92% of self-reported daily online access (Lenhart, 2015). Moreover, Madden et al (2013) also confirmed that texting was an important mode of communication for many teens; 88% of teens have access to a cell phone and 90% of those teens exchanged texts, typically sending and/or receiving 30 texts per day. Additionally, a recent study by Anderson and Jiang (2018) found that the percentage of teens with access to cell phones has increased to 95% since 2015 and a substantial number of teens (45%) said that they are online "almost constantly" (Anderson & Jiang, 2018).

The prominent use of cell phones among students led me to wonder whether excessive and problematic use of cell phones has a negative influence on students' academic performance. Over the last ten years as an educator, I have observed how the vast amount of social media feeds on my students' cell phones interrupt face-to-face

experiences. Ten years ago, as soon as students walked through the classroom door, chatter would radiate throughout the classroom. When the bell signaled the beginning of class, I could start a creative lesson plan and capture their attention within the first few minutes. As time progressed, I observed incremental changes in students' attentional and social interaction patterns. Nowadays, students usually enter the classroom with eyes fixated on their cellphones; sometimes students bump into each other, briefly look up, refocus on the screen, and stumble to their seats.

The examples above are confirmed by a report by Schaeffer (2019) that a Pew Research Center (2010) survey established: many adolescents used the cell phone to avoid interacting with other people. Students do not perceive the five-minutes transition period for having face-to-face conversations; rather, it serves as an opportunity to check text messages or the latest post on social media. As confirmed by Junco (2012), 92% of participants in this study reported spending an average of 24 minutes per Facebook check (Junco, 2012). As a result of this phenomenon, monitoring cell phone usage is deeply ingrained in my classroom rules and routine. It has become a daily ritual to remind students to put away their cell phones before class; most students cannot resist the temptation of a quick glance at their cell phone behind my back.

Subsequently, a few months ago, our school psychologist reached out to me regarding a former student who was suffering from depression and suicidal thoughts. He had been hospitalized and could use all the help available, so I agreed to be a part of his Individualized Education Program (IEP). After a long conversation, I discovered that one of the triggers of his depression was the inaccessibility of his cell phone during a

weekend church retreat. Because he used his cell phone as a coping mechanism, one could argue that his cell phone had a positive impact on his mental well-being. However, if he was not dependent on his cell phone at the outset, perhaps this separation would not have triggered depressive and suicidal episodes. While many teens have credited cell phones and the extended use of social media to helping them feel included, confident, authentic and outgoing (Anderson & Jiang, 2018), the use of social media are shown in research to be problematic when these practices are used to cope with stress, loneliness, or depression (Addictioncenter.com, 2019).

Hence, the purpose of this study is to investigate stakeholders' perceptions high school students' cell phone habits and how these cell phone habits influence students' academic performance. Furthermore, this study will explore what school policies and support programs are in place, if they are, to encourage responsible use of cell phones. Finally, I will discuss the theoretical framework that drives this investigation, which is based on Daniel Kahneman's cognitive load theory, specifically *System 1* "automatic" and *System 2* "effortful" cognitive processes.

Statement of the Problem

Despite the pervasive research (Junco, 2012; Junco & Cotton, 2011) surveying the problems of cell phone use for high schools' students today and my concern regarding the increasing distractibility resulting from cell phone usage, based on my observation, high school students do not perceive any negative impacts of cell phones and social media on their academic performance.

Significance of the Problem

High school is a critical period for many students; studies regarding technology and adolescents in high schools have tried to determine the influence of cell phones on children's academic performance (Barth, 2015; Koutamanis, Vossen & Valkenburg, 2013; Du, Van Koningsbruggen, & Kerkhof, 2018; and the Pew Research Center, 2018). Generally, researchers (Anderson and Jiang, 2018; Barth, 2015; Koutamanis et al. 2013) have presented mixed findings. For example, one study (Anderson and Jiang, 2018) suggested that cell phones and social media help students develop important friendships. They further posit that activities such as texting and online chatting improve adolescents' ability to communicate with peers in a more meaningful way (Barth, 2015; Koutamanis et al. 2013). Other researchers (Du et al., 2018) found that participation on social media conflicted with personal, educational, and professional achievement. A self-reported national survey found a total of 31% of teens said they sometimes (23%) or often (8%) lost focus in school due to cell phones (Jiang, 2018). According to Jiang (2018), roughly four in ten teens said they feel anxious without their cell phone; the study explored increasing student reliance on their cell phones and how separation from these devices caused some to suffer from anxiety.

In addition, problematic use of cell phones such as cyberbullying or sexting, might result in detrimental psychological effects, especially for women (Ringrose, Gill, Livingstone & Harvey, 2012). Even though bullying and exchanging of sexually explicit images pre-existed cell phone use, the easy accessibility of electronic devices provides fertile grounds for cyberbullying and methods for creating, sending and receiving of such

images with a simple touch of a button; thus, amplify existing problems (Ringrose et al., 2012). Oftentimes, women were coerced into sending explicit images of themselves and were adversely affected by their action (Ringrose et al., 2012). Serious psychological harm and stress have been reported with multiple incidents of suicide occurring due to sexts that were disseminated involuntarily (Dake, Price, Maziarz, & Ward, 2012; Walker & Moat, 2010; Corbett, 2009).

Purpose of the Study

This research project will focus on stakeholders' perceptions of students' cell phone habits and the influence of these habits on students' academic performance. Exploratory documentary film research methods will be utilized to capture the participant responses to interview questions. Viewers will hear narratives directly from the participants and view images of the participants' interaction with their cell phones in their natural environment. Additionally, this research project will provide a snapshot of the current perceptions of cell phones and their impacts to all stakeholders.

Theoretical Framework

This research study applies Kahneman's (2011) cognitive load theory to guide the research direction. As Kahneman (2011) suggested, human behaviors are controlled by both effortless, nonconscious, and automatic decision-making processes known as *System 1* and deliberate, rational, and effortful cognitive processes known as *System 2* (Kahneman, 2011). Answering a cell phone's notification or engaging on social media can be considered as an automatic response, while focusing on the classroom content or cultivating relationships require additional efforts. More often, students' *System 1*

cognitive process often override *System 2* – this leads to distraction from important tasks that require mental effort, such as solving a math problem or engaging in meaningful conversation. This study explores adolescents' perceptions regarding the influences of cell phones and social media and apply the cognitive processing theory of *System 1* and *2* to explain why these decisions took place. With serious potential consequences influenced by problematic uses of cell phones and social media, it is important for all stakeholders to understand possible impacts at this school site. The findings from the study will inform local stakeholders regarding these impacts with the aim to make changes to school policy and/or self-empowerment programs to support positive use of cell phones and social media in and outside the classroom.

Research Questions

This research study will focus on students' cell phone habits and their effects on participants' academic performances and explore the following questions and rationale.

1. How do stakeholders describe their perceptions of the impacts of cell phones and social media usage on students' academic performance?

   Rationale: Based on my experience, I notice that students often choose to spend time ruminating over social media on their cell phones instead of studying; this could be detrimental to their academic performance.

2. What are current school policies and practices regarding the use of cell phones within the classroom? How effective are they? And how can they be improved?

   Rationale: Each teacher implements different classroom policies regarding cell phone use. Some allow cell phones during class while others strictly forbid it. This potentially leads to different disciplinary actions when classroom rules are violated. It is important to explore the existing policies in place and eventually implement coherent and consistent policies as a whole school and district community.

Site Selection and Sample

This research study utilizes exploratory qualitative documentary research methodology. To begin, I draw upon the operationalized terms (see APPPENDIX B) to conduct one-on-one and group interviews. I solicit extensive participation from all members of the community: any high school students and staff who volunteer to be a part of the study. I interview participants to obtain various perspectives on the impact of cell phones in academic settings. The participants in this study includes a purposive sample of students, teachers, administrators, and any other stakeholders. Additionally, I seek various perspectives including those of research experts and EdTech practitioners and advocates. All interviews are recorded using a video camera and the final interview footage are selected according to their relevance to the research questions.

Scope and Limitations of the Study

This study is expected to contribute greatly to the literature on students' perceptions regarding the influence of cell phones and social media in relationship to academic performance. It provides insight on why some adolescents choose to use their cell phones in school classroom context and some do not. This is an exploratory documentary. The results should not be taken as generalizations to how students might use cell phones in other context or to establish a causal relationship between cell phone usage and academic performance. Rather, my research will hopefully lead to broad discussions regarding the appropriate use of cell phones in a classroom or school context and to the development of appropriate school policies.

Significance of the Study

The results from this study will address several areas of concern. First, the findings will inform educators and other stakeholders of the general perceptions of the pervasiveness of cell phone usage and impact on students' academic performance. Next, the findings will address the effectiveness of the existing school's cell phone policies and stakeholders' opinions on how the school will address this issue and promote responsible use of cell phones. For example, currently district policy regarding cell phone usage is open to interpretation as demonstrated below:

> **High School District's Cell Phones Policy**
> Personal items of value (cell phones, iPods, cameras, electronic games, radios, CD players, and computers, etc.) should not be brought to school since loss, theft, or damage is possible. Also, such items can be distracting to the educational process and may be confiscated by school personnel. The District is not responsible for lost or stolen items (including those in lockers). (High School District Parent Handbook, 2017-2018)

The primary focus of this policy is to avoid school and district liability through the prevention of loss, theft, or damage of electronic devices on campus. Each member of the school's administrative team has the autonomy to implement this policy as they see fit. This autonomy trickles down to classroom teachers who execute cell phone usage policies in the classroom; if it does become a problem, the administrative team steps in to provide support. There is no cohesive action plan in place to address problematic use of cell phones at school. Furthermore, there is no curriculum to educate students regarding the responsible use of cell phones and social media.

Assumptions, Background, and Role of the Researcher in the Study

I was born in rural Viet Nam in the 1980s where technology was not deeply incorporated in our daily activities. Throughout my educational career in the U.S. I had minimal exposure to technology and most of the learning activities were interactive, hands-on, and face-to-face. As a science teacher, I incorporate technologies in the classroom to enhance students' engagement; however, I believe that many skills cannot be acquired through virtual learning. Nevertheless, students' cell phones continue to be a distraction from face-to-face learning experiences; when their cell phone ring, attention is diverted from the lesson plan. Oftentimes, students' emotions appear to be affected by the content on their cell phones; for instance, some students will cry or laugh after they read a tweet, post, or text messages on their cell phones and it affects their emotional status and academic performance during class.

As a researcher, I will be exploring stakeholders' perception of cell phone and social phenomena at Sherlock High School (a pseudonym), where I currently work as a teacher. My experience as a teacher is fundamental in understanding my colleagues' perceptions and struggles to minimize cell phone usage in the classroom. Moreover, I understand that many students cultivate relationships during school hours, and that communication via cell phones and social media is essential to initiating and maintaining these crucial relationships. Nevertheless, students can be taught to reduce problematic use of cell phones and social media to enhance their learning experience in and outside of class. Since I am conducting the research at a location where I work and have established collegial and/or mentoring relationships with many potential participants, during the

research process I consistently revisited my positionalities and kept detailed memos to reduce any potential biases that might affect the results.

Summary

The purpose of this exploratory documentary film is to determine the perceived impacts of cell phones and social media on students' academic performance. With cell phones becoming indispensable communication devices for many people, especially among adolescents, it is essential to bring awareness to some potential threats associated with these devices and encourage positive use of cell phones and social media.

Participants in this study consists of a purposive sample of students and staff at Sherlock High School. The data collection consists of individual and focus group interviews. Data analysis includes various coding methods of the transcription to determine emerging patterns. The findings from this study will inform all stakeholders of the perceived impacts and if it might be necessary to change the school's cell phone policies or create support programs to encourage positive use of electronic devices.

Chapter Two will review the literature on the theoretical framework of Daniel Kahneman's cognitive load theory, *System 1* "automatic" and *System 2* "effort" thinking, to understand students' decisions to engage in possible problematic use of cell phones. In addition, Chapter Two will discuss research pertaining to the prevalence and existing perceptions of cell phones and social media to explain underlying motivations behind participants' *System 1* cognitive processes. Furthermore, it will examine concerns around problematic use of cell phones and address the impacts of cell phones on students' academic performance. Chapter Three describes the methodology (presented in an

exploratory qualitative documentary film) that drives this investigation. Chapter Four is the documentary entitled *When Cell Phones Come to School.* Lastly, Chapter Five includes the conclusion, discussion and suggestion for future research.

CHAPTER II: LITERATURE REVIEW

Introduction

As discussed in Chapter One, cell phones are ubiquitous in society and adolescents are especially susceptible to stimulating materials made easily available via these devices (Lenhart, 2015). There are benefits as well as problems surrounding cell phone use, and these positive or negative experiences varies depending on user habits. For some adolescents, cell phones enhance their learning experience in the classroom; for others, cell phones serve as a distraction that potentially affect their academic performance (Junco, 2012). For the purpose of this study, cell phone habits are identified as the total time spent online including time spent e-mailing, instant messaging, gaming, shopping, searching, and downloading music (Twenge, 2019). The two research questions to be addressed in this study include the following:

1. How do stakeholders describe their perceptions of the impacts of cell phones and social media usage on students' academic performance?

2. What are current school policies and practices regarding the use of cell phones within the classroom? How effective are they? And how can they be improved?

In order to understand the cultural phenomenon surrounding cell phone usage and its effects on high school students, it is important to examine the empirical research on this topic. First, this literature reviews covers the prevalence of cell phones and social media. Second, it discusses the existing general perceptions regarding the impact of cell phones and social media, both positive and negative. Third, common and problematic cell phone habits will be included and literature on these habits (cyberbullying, sexting, high-frequency cell phone use) and their impacts on adolescents' mental health and academic

performance will be emphasized; additionally, existing local, state, and federal cell phone policies will be examined.

Worldwide Prevalence of Cell Phones

In order to understand the pervasiveness of cell phone technologies in society, this section covers studies regarding the prevalence of cell phone ownerships worldwide and in the United States (U.S.); additionally, some common habits of cell phone use are explored. A significant study was conducted internationally by the Pew Research Center (2019), using surveys conducted by telephone and face-to-face. The sample size for the international study ranged from 700 to 1,500 interviews per country; these participants were adults 18 and older with permanent residence and randomly selected by the computer. The findings suggested that cell phones and the attendant access to social media have become prevalent around the world, including developing countries; the majority of adults (89% median) in each of these eleven developing countries (Vietnam, Jordan, Tunisia, Colombia, Kenya, Lebanon, South Africa, Mexico, Philippines, India, and Venezuela) reported owning a cell phone (Silver et al., 2019). In fact, Vietnam had the highest reported ownership of cell phones (97% of adults). Of those who reported owning a cell phone, the majority were smartphones (median of 53%); smartphone ownership was especially prevalent for younger and more educated adults (Silver et al., 2019). Even though some regions still lacked basic amenities such as plumbing, running water, and/or electricity, it appeared that cell phone ownership was prevalent in eleven of these developing countries. However, the validity of the sample selection methods should be questioned: the study population was mainly in urban areas where people already have

access to basic amenities; thus, the results did not necessarily represent the cell phone ownership of people in an entire country.

Similarly, people's perceptions regarding the impact of cell phones across the 11 developing countries were mostly positive despite concerns about their impacts on children (Silver et al., 2019). In fact, the researchers (Silver et al, 2019) found that majority of participants in 9 out of 11 countries reported that cell phones have been more positive for them personally than societally. For instance, cell phones helped them stay in touch with distant friends and family (93%), get information about important issues (79%), and earn a living (63%) (Silver et al, 2019). Two exceptions were Venezuela and Jordan, where users were more skeptical regarding the role of cell phones in their lives; the percentage of user-reported positive experiences from cell phones were a lot lower compared to the other nine countries (Silver et al, 2019). In sum, many people in the U.S. as well as other countries perceive many positive impacts of cell phones on their lives as cited by the research (Anderson & Jiang, 2018; Silver et al, 2019; Smith & Omlstead, 2019).

Cell phone ownership is more prevalent in the U.S in comparison to the eleven emerging countries and the trend is rising. A Pew Research Center telephone interview of a randomized sample of 1907 adults found that 92% of participants owned a cell phone and 68% of those cell phones were smartphones (Anderson, 2015). Furthermore, a recent study (see Figure 1) showed that participants' cell phone ownership increased to 95% and 81% of those respondents owned a smartphone. According to this trend, since the prevalence of cell phones is growing, with vast amounts of information and activities

easily accessible through these devices, it is important to question some primary functions of cell phones and whether users fully understand the impact associated with their cell phone habits. The next sections will discuss literatures pertaining to the benefits of cell phone functions.

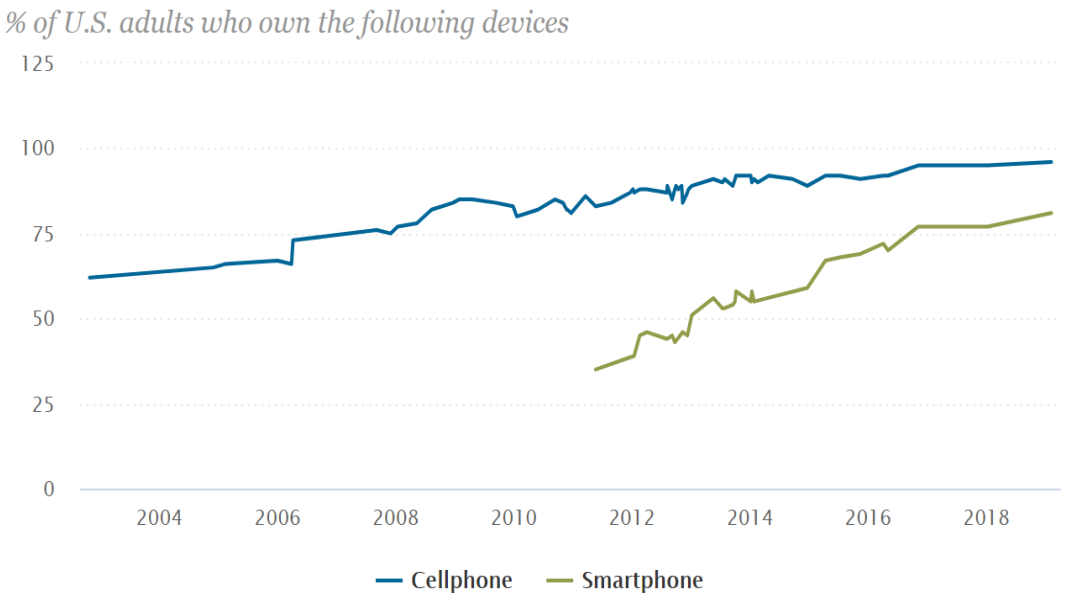

Figure 1. Percentage of U.S. adults who own cell phone and smartphones, 2002-2019. Reprinted from the Pew Research Center Mobile Fact Sheet.

Benefits of Cell Phones

A popular recent study suggested that 95% of adolescent participants have access to a smart phone, and 45% reported going online "almost constantly" (Anderson & Jiang, 2018). These researchers (Anderson & Jiang, 2018) raised significant questions regarding adolescent's online habits, experiences, and their potential impacts. Therefore, a

discussion on the literature pertaining to the integral roles cell phones played in high school students is prevalent to this research study.

According to leading researchers at the Pew Research Center (Smith & Omlstead, 2018), Americans are ambivalent regarding the impact of the internet and digital technologies on their lives. A survey of 1,066 internet users (Purcell & Rainie, 2014) showed that 87% of online adult users said the internet and cell phones have improved their ability to learn new things. Seventy-two percent said these innovations also improved their ability to share ideas, and 77% reported that the internet has made today's students better informed. According to a study by Smith & Olmstead (2018), 88% of U.S adults said that the internet was a good thing for them personally. However, only 70% thought it was good for society as a whole; this percentage has declined by 6% since 2014. Specifically, positive views of the internet were tied to easy accessibility of information and the ability to connect with other people. Moreover, American teens' perceptions regarding the impact of cell phones were somewhat positive (Anderson & Jiang, 2018). According to researchers (Anderson & Jiang, 2018), most teens credited social media with helping them build stronger friendships and exposing them to a diverse world. Eighty percent of teens reported feeling more connected to their friends, 69% thought social media helped them interact with a more diverse group of people, and 68% felt as if they had a support system to help them through tough times.

When addressing the role cell phones play in classroom context, a small study by Tessier (2013) suggested that a majority of the 33 respondents were positively affected by cell phones. When class-related activities encouraged cell phone use, participants did

not perceive cell phone use as a distraction; furthermore, participants reported that the use of cell phones helped them enjoy the class, improved their attendance, and promoted their success in the course. Since the class activity was strongly tied to class objectives, it might explain why the increase in cell phone usage is directly related to the students' positive perception of cell phones as helping their learning process. However, this study (Tessier, 2013) did not address the problematic use of cell phones and their effects on students' learning; additionally, the sample size was too small to be generalized.

Challenges Associated with Cell Phones

Despite some benefits associated with cell phones, there are challenges as well, depending on the users' habit. In 2010, ninety-seven percent of youths in the United States were connected to the internet in some way (Tokunaga, 2010). This section will explore the literature on the two challenges associated with problematic cell phone habits such as cell phone over use, sexting, cyberbullying and impacts of cell phones on students' academic performances.

Nomophobia. According to researchers (Bragazzi & Puente, 2014; Jiang, 2018) cell phone use is strongly integrated into many people's daily routines to the point where separation potentially causes anxiety. In fact, cell phone separation anxiety was so prevalent that U.K. researchers (2008) coined the term *nomophobia* to describe this condition (SecurEnvoy, 2012). The term nomophobia is a portmanteau of *no, mobile phone, and phobia* (dictionary.com); it is considered a disorder of modern digital society and refers to the discomfort, anxiety, or anguish caused by separation from a cell phone or computer (Bragazzi & Puente, 2014). Nomophobia first appeared in the results of a

study focused on anxiety in cell phone users; this study was contracted by the U.K. Post Office to YouGov research agency in 2008. Since the term nomophobia was first created, it has gained popularity and recently became Cambridge dictionary's word of the year (Daily Times, 2019). While nomophobia is not yet officially recognized as a psychological condition, many people have experienced negative symptoms associated with cell phone separation, and a proposal was made to include nomophobia in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) (Bragazzi & Puente, 2014). Currently, it has not officially made it to the new DSM-5 catalog.

Many studies and online polls (Jiang, 2018; SecurEnvoy, 2012; YouGov, 2017; YouGov, 2019) suggest that the fear of losing or being without one's cell phone is common. According to SecurEnvoy (2012), the first study by YouGov in 2008 revealed that 53% of respondents suffered from this condition; this percentage increased to 66% in a 2012 SecurEnvoy survey of 1,000 people. Additionally, there was gender discrepancy in the result: it appeared that more women were worried about losing their phones than men (70% vs. 61% of men). Surprisingly, the survey findings indicated that men were more likely to have two phones (47% vs. 36% of women). Furthermore, more young adults reported experiencing symptoms of nomophobia (77% ages 18-24, and 68% ages 25-34). A recent poll by YouGov (2017) surveying American teens ages 13-17 regarding their tech-related habits indicated that 38% of respondents did not think they could last a day without their smartphone, and 71% felt that they would not be able to go without their smartphone for a week. A more recent YouGov (2019) survey confirmed past findings about cell phone dependency and anxiety caused by cell phone separation. This

survey showed a majority (60%) of adults ages 18-34 reported that they would feel anxious about not being able to communicate with family and friends without their cell phones; women were considerably more likely to feel anxious. Similarly, a study by Jiang (2018) found that 56% of U.S. teens associated the absence of their cell phone with at least one of these three emotions: loneliness, being upset, or feeling anxious. There was also a gender discrepancy in the survey results; women were more likely to report feeling anxious (49% to 35%), lonely (32% to 20%), or upset (28% to 20%) without their cell phones. The results of these studies suggest the prevalence of cell phone dependence; separation from these devices may potentially initiate a series of negative emotional responses associated with nomophobia.

Sexting. The use of cell phones as a new form of digital communication has made it easier to share sexually explicit images and bypass consent (Duggan, 2017). Sexting is defined as creating, sending, and receiving of sexually explicit material via electronic devices such as cell phones (Lenhart, 2009). Technological advances have expanded the availability of sexually explicit materials and weakened restrictions on access to such content (Rice et al., 2012). Children may have access to sexually explicit materials online without age verification. In addition, the researchers (Rice et al., 2012) discovered that 15% of adolescents with cell phone access reported sexting, and 54% reported knowing someone who had sent a sext. Given the widespread use of cell phones and other portable digital devices among adolescents, regulating the ability of persons under the age of consent to create and receive such materials can be challenging (Rice et al., 2012). Duggan's (2017) study found that 31% of Americans reported receiving explicit images

they did not ask for, and 7% said that someone had shared their explicit images without permission. The percentage of younger Americans ages 18-29 who reported receiving explicit images was even higher (45%). A recent study by Anderson (2018) confirmed that 25% of teens reported receiving explicit images without request. Furthermore, 7% of teens said they had explicit images of themselves shared without consent. Additionally, girls were more likely to report being the recipient of explicit images they did not ask for (28% vs. 20%). Sexting may have negative impacts on adolescents' mental health and it potentially leads to cyberbullying.

Cyberbullying. Cyberbullying is an umbrella term used to describe online bullying, electronic bullying, and online harassment (Tokunago, 2010). A meta-analysis of academic literature proposed a unifying definition of cyberbullying as "any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others" (Tokunago, 2010, p. 278). A cumulative review of literature by Betts (2016) suggested that even though the prevalence of experiencing cyberbullying ranged between 20% to 40%, statistics varied significantly depending on the various conceptualizations of cyberbullying and research methods. According to Betts (2016), the prevalence of cyberbullying ranged from 1.5% - 72%, experiencing cyberbullying as a target and engaging as perpetrator extended from 0%- 60.4%, and fulfilling the perpetrator/target role in cyberbullying ranged from 0.6% - 51.7% (Betts, 2016).

A recent study by the Pew Research Center (2018) found the majority of teens have experienced some form of cyberbullying (Anderson, 2018). Researchers (Anderson,

2018) conducted a survey with a sample size of 1,058 American parents and teens ages 13-17, as well as online and phone interviews with 743 teens. Cyberbullying was measured based on six categories including the following: 1) offensive name-calling, 2) spreading of false rumors, 3) receiving explicit images they didn't ask for, 4) constant asking of where they are, what they are doing, who they're with, by someone other than a parent, 5) physical threats, and 6) having explicit images of them shared without consent. According to the result, 59% of teens have personally experienced at least one of these six types of abusive online behaviors. Notably, 42% of teens said they had been called offensive names online or via their cell phones; 32% said someone had spread false rumors about them on the internet; and 16% were targeted online by physical threats. Gender played a role in cyberbullying, which was more prevalent among girls who were more likely to report being the victim of false rumors online (39% vs. 26% of boys) and the recipient of explicit images (28% vs. 20% of boys). This indicates that girls were more likely to be victims of cyberbullying.

In many cases, sexually explicit images acquired through sexting are potentially distributed without the sender's consent (Anderson, 2018). In fact, researchers (National Campaign to Prevent Teen and Unplanned Pregnancy, 2010) found 44% of young adult women and 50% of young adult men said it is common for sexually suggestive text messages to be shared with people other than the intended recipient. Furthermore, in some instances, sexually explicit images were used to degrade the users. These actions can result from relationships ending or animosity among peers. An AP-MTV (2009) study reported that 61% of teens who sent naked photos of themselves indicated that they

had been coerced by someone, on at least one occasion, to send such images. Serious psychological harm and stress have been reported with multiple incidents of suicide occurring due to sexts that were disseminated involuntarily (Corbett, 2009; Dake et al, 2012; Walker & Moat, 2010).

A cumulative literature review by Livingstone and Smith (2014) found that being a cyber-victim was associated with similar degrees of depressive and somatic symptoms for both victims and perpetrators; additionally, cyberbullying victimization was associated with an increased risk of mental health issues among girls (Bannink et al., 2014). A study by Hinduja and Patchin (2010) confirmed a correlation between cyberbullying and suicidal ideation. The researchers (Hinduja & Patchin, 2010) consisted of surveying a random sample size of 1,963 middle-schoolers in a large school district in the U.S. According to the results, the cyberbullying prevalence rate ranged from 9.1% to 23.1% for offending and 5.7% to 18.3% for victimization. In addition, this study (Hinduja and Patchin, 2010) showed that 20% of respondents reported seriously thinking about attempting suicide, while 19% reported actually attempting suicide. Respondents who had experienced cyberbullying either as offenders or victims were more likely to attempt suicide; moreover, victimization was more strongly correlated to suicidal thoughts and behaviors than among those committing offenses (Hinduja & Patchin, 2010). Cyberbullying poses serious health and safety concerns; it is important for schools to communicate with parents and create a support system in case cyberbullying incidents do occur.

Online harassment behaviors affect adults as well as children/adolescents as evidenced in a national survey conducted by the Pew Research Center (2017). The survey of 4,248 U.S. adults found that 41% of respondents had been personally subjected to harassing behaviors online, and 66% had witnessed these behaviors directed at others (Duggan, 2017). Furthermore, this survey (Duggan, 2017) defined online harassment based on six distinct behaviors including less severe forms such as offensive name-calling and purposeful embarrassment, or more severe forms such as stalking, physical threats, harassment over a sustained period, and sexual harassment. Many Americans experienced online harassment and young adults were most susceptible. Sixty-seven percent of young adults ages 18-29 were subjected to some form of online harassment and 41% experienced severe forms of harassment. Among young adults in this age bracket, women were twice as likely to report experiencing sexual harassment online (21% vs. 9% of men). For younger adults ages 18-24, women were more than three times as likely to report being sexually harassed online (20% vs. 6% of men). This study did not include adolescents ages 18 and younger; however, according to the trend, one can assume that the percentage of online harassment for adolescents was similar or even higher, especially for women.

Duggan (2017) explored the daily online reality of the 41% of adults who were targeted online to determine the venue where online harassment took place. When respondents were asked where their most recent experience with online harassment occurred, 58% reported that it took place on social media (Duggan, 2017). This result (Duggan, 2017) confirmed the Pew Research Center's 2014 survey on online harassment,

in which most respondents cited social media as the scene of their most recent harassment. However, from this group of 41% of respondents, 61% ignored the most recent harassment incident and 39% took some action to respond to the harassment. Strangely, regardless of what action/inaction they applied in response to online harassment, most were satisfied with the results; 74% of those who acted in response and 69% of those who ignored their most recent harassment incident said it was effective in making the situation better. Although the response to online harassment varied, 83% of women and 55% of men ages 18-29 viewed online harassment as a major problem. Additionally, the same survey (Pew Research Center, 2014) found roughly half (43%) of those who have experienced severe forms of online harassment (41%) felt that law enforcement did not take the issue seriously enough. Specifically, gender perception regarding the solution to online harassment varied: 36% of women, in comparison to 24% of men, said that stronger online harassment laws were the best way to prevent online harassment. In contrast, men were more likely to say that better policies and tools from online companies was the best solution to prevent online harassment (39% vs. 31%). Young women were more likely to report that increasing attention from law enforcement was essential to addressing online harassment (14% vs. 5% of young men). Ninety percent of teens believed that online harassment was a problem affecting people their age, and 63% said that it was a major problem. However, most teens thought that authority figures such as teachers, social media companies, and politicians failed to address this issue (Anderson, 2018). Regardless of respondents' perceptions of necessary solutions to combat online harassment, law enforcement and owners of social media platforms need

to work collaboratively to prevent and protect users, especially kids and adolescents, from potential travesties stemming from online harassment and cyberbullying.

Impacts of Cell Phones Usage on Academic Performance

Problematic cell phone habits can also affect students' academic performances, especially those that have problems controlling their cell phone use (Li, Lepp, & Barkley, 2015). An interesting study of 928 undergraduate students examined the impact of cell phone use and *locus of control,* which describes an individual's belief about their ability to control the surrounding environment as well as the outcomes of their behaviors (Li, Lepp, & Barkley, 2015). The researchers of this study found individuals with greater *internal locus of control* tend to believe that control is located within themselves; in contrast, individuals with *external locus of control* tend to believe that control is located outside of themselves and are more likely to attribute behavioral outcomes to environmental influences. Furthermore, the researchers (Li, Lepp, & Barkley, 2015) found that individuals with internal locus of control can moderate some of the negative outcomes associated with high frequency of cell phone use; whereas individuals *with* external locus of control might have difficulty controlling cell phone use and therefore exacerbate the negative effects associated with high frequency cell phone use. Moreover, as locus of control became more internal, students reported improved GPA, sleep quality, life satisfaction, and more appropriate use of cell phones in academic settings (Li, Lepp, & Barkley, 2015). Although this study was conducted on college students, it would be interesting to see whether adolescents younger than 18 years old are more likely to have internal or external locus of control. It would also be intriguing to examine how locus of

control plays a role in their decision to use cell phones or mitigates some of the negative impacts of cell phone use.

According to researchers critical to the field (End, Worthman, Mathews & Wetterau, 2012; Felisoni & Godoi, 2018; Junco, 2011; Junco & Cotton, 2011; Junco, 2012; Junco & Cotten, 2012; Kates, Wu, & Coryn, 2018; Lepp, Berkley, Karpinski, 2015; Li, Lepp, & Barkley, 2015; Wood et al., 2012) cell phones and social media usage were negatively associated with academic performance. Jiang (2018) found more than half (54%) of teens reported that they spent too much time on their phone, and 36% of those teens' parents expressed concern regarding their teens' screen time. Additionally, Jiang (2018) found parents of teens also faced their own challenges related to cell phone distraction. Furthermore, a third (31%) of teens reported losing focus in class because they were checking their cell phones. This population's struggles, confirmed by research (Junco, 2011; Junco, 2012), was generally linked to time spent on social media, such as Facebook, and significantly related to grade point average (GPA); using Facebook to collect and share information, on the other hand, was positively related to GPA, while using it for socializing was negatively correlated (Junco, 2011; Junco, 2012).

Junco and Cotten (2012) examined the impact of multitasking with information technologies (such as Facebook and text messages) on college GPA. The researchers (Junco & Cotton, 2012) collected survey data from 1,839 college students from the northeastern U.S. According to their results (Junco & Cotton, 2012), students reported sending an average of 97 text messages a day. In addition, respondents reported texting (51%), using Facebook (33%), emailing (21%), and searching for non-school-related

information online while doing schoolwork in class. When working on schoolwork outside of class, respondents reported spending an average of 60 minutes on Facebook, 43 minutes on online searches, and 22 minutes on email per day. The result of this study (Junco & Cotton, 2012) suggested that the effect of multitasking on college GPA varied depending on the specific type of task. Notably, using Facebook and texting were associated with lower overall GPA, while searching and talking were not associated with GPA. This study demonstrated that attempting to pay attention to two stimuli simultaneously may reduce one's ability to pay attention and process either of those stimuli (Junco & Cotton, 2012). However, the researchers indicated that further studies need to be done to analyze the effects of the use of social media on overall GPA (Junco & Cotton, 2012).

Lepp, Barkley, and Karpinski (2015) conducted a study correlating cell phone use and academic performance which consisted of 536 male and 370 female students, all participants were undergraduate students from a large public university located in the Midwest United States of America. These participants reported spending an average of 278.67 minutes using their cell phones and sending 76.68 text messages per day. In addition, high-frequency cell phone users tended to have lower GPA, high anxiety, and lower satisfaction with life in comparison to their peers who used cell phones less often (Li, Lepp, & Barkley, 2015).

A meta-analysis of 39 studies conducted over a period of 10 years (2008-2017) by Kate, Wu, and Coryn (2018) confirmed the effects of cell phone use on academic performance. Their findings correlate the results of other studies: cell phone use has a

negative association to educational outcomes (Lepp, Berkley, Karpinski, 2015; Li, Lepp, & Barkley, 2015). Nevertheless, these researchers inferred that the negative correlation between cell phone use and educational outcomes might be explained by the fact that students who were predisposed to cell phone overuse might already be less likely to achieve academically. These studies support the assumption that some of the low academic performers might lack internal locus of control and thus are more likely to use their cell phones for nonacademic purposes during class and potentially suffer negative consequences correlating to high-frequency cell phone use.

Schools' Cell Phone Policies

Currently, there are no standardized school cell phone policies being enforced at the state or federal level. School policies and the consequences of problematic cell phone use varies according to each classroom, school, and/or district. A collection of middle schools' cell phone policies collected across the U.S. (Awayfortheday.org, 2018) showed that some schools banned cell phones on campus entirely (Glenridge, Grace Christian, and Burgess Hill Middle School, 2018); while others permitted cell phone use while class is not in session (Murphysboro, White Hill, and Twelve Corners, Middle School, 2018). The consequences for school cell phone policy violations were different for each campus. For instance, Twelve Corners Middle School (2018) issued a warning for the first offence, temporary confiscation on the second, and a cell phone ban on the third offense. International schools, such as K. International School in Tokyo, Japan (2018), were tougher; the first offense was confiscation for 30 days and second offense was confiscation for the rest of the school year (Awayfortheday.org, 2018). These examples

demonstrate that school policy enforcement is diverse and the punishment for cell phone policy violations might be different across schools and districts.

In contrast, on August 3, 2018, the French National Assembly and Senate adopted a new law banning cell phone use on all school campuses nationwide. The English Google translated (2019) version of the French Education Code read as follows:

> **Art. L. 511-5.**
>
> The use of a mobile phone or other terminal electronic communications equipment by a student is prohibited in kindergartens, elementary schools and colleges and during any teaching-related activity that takes place outside their enclosure, except in the circumstances, in particular, educational uses, and places in which the by-laws expressly authorize it.
>
> In high schools, the rules of procedure may prohibit the use by a student of the devices mentioned in the first paragraph in all or part of the institution's enclosure and during activities taking place outside of it.
>
> This section does not apply to equipment that students with disabilities or disabling health conditions are authorized to use under the conditions set out in Chapter I of Title V of Book III of this Part.
>
> Failure to comply with the rules laid down pursuant to this Article may result in the confiscation of the apparatus by management, teaching, educational or supervisory personnel. The rules of procedure fix the terms of its confiscation and restitution.

This new law allows schools in France to enforce strong school cell phone policies. Following France, California's assembly member Muratsuchi proposed a new state bill AB272; it was successfully approved to be implemented starting January 2020. The following California Educational Code will add:

> Section 48901.7. is added to the Education Code, to read:
>
> (a) The governing body of a school district, a county office of education, or a charter school shall adopt a policy to limit or prohibit the use by its pupils of

smartphones while the pupils are at a school site or while the pupils are under the supervision and control of an employee or employees of that school district, county office of education, or charter school.

(b) Notwithstanding subdivision (a), a pupil shall not be prohibited from possessing or using a smartphone under any of the following circumstances:

(1) In the case of an emergency, or in response to a perceived threat of danger.

(2) When a teacher or administrator of the school district, county office of education, or charter school grants permission to a pupil to possess or use a smartphone, subject to any reasonable limitation imposed by that teacher or administrator.

(3) When a licensed physician or surgeon determines that the possession or use of a smartphone is necessary for the health or well-being of the pupil.

The implementation of this new bill (AB272) would change the current school model on cell phone policy. This policy has been addressed and highlighted in a 2019 report on cell phone privacy from the American Civil Liberty Union (ACLU) of California which demonstrated that most school districts in California failed to provide clear policies that balance both maintaining students' constitutional rights to privacy and outlining the necessary actions to be taken in order to maintain school safety. As a result of this legislation, current school models on cell phone policy are summarized as follows: students are responsible for electronic devices brought on campus and schools are not responsible for the theft or loss of these items. Electronic devices need to be turned off or silenced during class time and/or they may use electronic devices long as these devices do not disrupt the learning process or infringe on another student's privacy. Furthermore, these policies must be communicated with students and parents at the beginning of the school year and violation of school policy shall be subject to disciplinary action, which might include but is not limited to the confiscation of the device (American Civil Liberty

Union of Southern California, 2019). Yet, despite these policies, as noted earlier, AB 272 are unevenly applied both within schools and between school districts in the state of California.

Based on this report, the current school models on cell phone policy limit the school disciplinary action to what is considered lawful and not in violation of students' constitutional rights. Teachers/staff/administrators may confiscate students' cell phones if they violate school policies but the data on those cell phones are inaccessible without probable cause and/or a search warrant. For instance, in the case of *G.C. v. Owensboro Public School*, a student was expelled due to the content found on his cell phone during an unwarranted search; however, the Sixth Circuit Appellate Court reversed the decision due to the school's violation of the student's Fourth Amendment rights. This student had a history of mental illness, suicidal tendency, and drug use; when he was caught texting in class, his teacher allegedly confiscated the cell phone and read four text messages, which resulted in additional search of data from his cell phone and led to evidence of drugs. Nevertheless, according to the court's summary conclusion, at the time of the phone seizure, there was no evidence indicating that the phone search would result in any evidence of criminal activity, potential self-harm, or school safety concern; thus, the teacher had no probable cause to search his phone. This violation of his Fourth Amendment rights, coupled with the lack of due process, required that the school reverse its decision to expel him. This case is an example that students' constitutional rights need to be honored, despite violation of school cell phone policies. If there were clearer

guidelines and laws at the state and federal level regarding cell phone use in school, the variation of school disciplinary action in response to policy violation would decrease.

Summary of Findings and Gap in Literature

The following findings were discovered in the literature. First, cell phone ownership is prevalent (Anderson, 2015). Next, there are many benefits associated with cell phones (Purcell & Rainie, 2014). Third, problematic cell phone habits such as sexting and cyberbullying exist (Anderson, 2018; Duggan, 2017). Finally, cell phones and social media over-use correlate with lower GPA (End et al., 2010; Felisoni & Godoi, 2018; Junco, 2011; Junco & Cotton, 2011; Junco, 2012; Junco & Cotten, 2012; Kates, Wu, & Coryn, 2018; Lepp, Berkley, Karpinski, 2015; Li, Lepp, & Barkley, 2015; Wood et al., 2012). Nevertheless, there are gaps in the literature. These studies were conducted mostly with college student populations utilizing self-reported surveys, which are often associated with low reliability. Furthermore, there are a lack of longitudinal studies that can strongly correlate problematic cell phone habits with mental health and academic performance. Moreover, there were very few and mostly small sample size studies associating cell phone usage with positive academic engagement. Hence, this research study will attempt to fill in the gap and examine adolescents and other stakeholders who will have the opportunity to share the impacts of cell phone habits and offer solutions to support positive cell phone use.

Theoretical Framework

Grounded in cognitive load theory, this study analyzes how high school students and staff perceive the impact of cell phone related habits on academic performance.

According to Kahneman (2011), there is limited amount of attention allocated to tasks by the central processor (the brain); it must make decisions and allocate effort to complete required tasks via two theoretical cognitive processes popularly known as System 1 "automatic" and System 2 "effortful". Both cognitive processing systems operate simultaneously; however, the majority of our daily decisions and actions are made by System 1. System 1 is automatic and very efficient at its job by processing a large number of stimuli in a short amount of time using heuristics or mental shortcuts to prevent cognitive overload. System 2 can override the decisions made by System 1, but it requires effort and acts of self-control, and reserves attention to the most important activities. These two systems can be utilized to explain why certain decisions, actions, and perceptions are conceived.

Kahneman's (2011) cognitive processes include: *System 1,* operating automatically and quickly, with little or no effort and no sense of voluntary control; and, *System 2,* allocating attention to the effortful mental activities that demand it, including complex computations. The operations of System 2 are often associated with the subjective experience of agency, choice, and concentration.

Kahneman's (2011) cognitive load theory is applicable in this study due to the following: first, it addresses participants' cognitive processes in cell phone participation and perceptions of the impacts of cell phone related habits; second, it explains how academic performance might be impacted due to the allocation of attentions to complete cell phone related tasks, thus diverting the effort necessary to complete complex cognitive task such as solving a math problems or cultivating relationship with peers.

There are many factors that influence adolescents' academic performance; nevertheless, the pervasiveness of electronic devices such as cell phones and problematic habits related to cell phone use contribute to existing problems that impact adolescents' lives thus warranting additional study. It is important to analyze the decision-making process behind cell phone use. The application of Kahneman's (2011) cognitive processing models offers some understanding on why some adolescents choose to engage in problematic cell phone habits despite the potential negative consequences.

System 1. During System 1 cognitive processing, participants may merely observe another person using a cell phone, hear a cell phone notification, or have a cell phone within sight, which can trigger an automatic response to reach for their own cell phone and activate a series of cell phone related habits. Once these series of cell phone related habits begin, attention is allocated to fulfilling these tasks and the central processor is cognitively loaded with cell phone feeds and activities, all easily available with a push of a button. Research Question 1 (RQ1) will apply System 1 cognitive process to analyze trends in adolescents' frequency of cell phone use and whether participants perceive any impact of cell phone related habits on adolescents' academic performance. Nevertheless, System 1 makes decisions based on mental short cuts and/or previous experiences, and as a result is prone to errors and biases. Hence, perceptions elicited from participants in this study will be largely determined by their previous experience with the cell phones.

System 2. During System 2 cognitive processing, participants need to exert mental effort and self-control to resist the temptation to use their cell phone, especially during class time. Since cell phone usage is deeply incorporated in many people's daily routine,

any reminder of the cell phone could trigger a System 1 automatic response and distract participants from whatever tasks they might be working on. High cognitive tasks such as solving a math problem require additional effort and self-control –System 2 response. When there is a cell phone notification, one needs to make a decision to answer their cell phone or withstand the impulse; this decision process is a distraction from learning, especially from academic tasks that require concentration and effort.

During the day students constantly need to balance between using the cell phones for academic and/or entertainment purposes. Their decisions to concentrate on learning or scrolling through social media could make profound impacts in their academic performance. Grounded in cognitive load theory, this study applies exploratory documentary research methodology to address the impacts of cell phones and social media usage on students' academic performances. Furthermore, it explores current polices and practices regarding the use of cell phones within the classroom, their effectiveness and improvements.

Chapter III: Methodology

Introduction

This dissertation involves the creation of an exploratory qualitative documentary film. The purpose of this exploratory qualitative documentary film is to examine the current perception of the impact of cell phones and social media on students' academic performance. Moreover, it explores stakeholders' perceptions of deeply ingrained social practices, such as cell phone behaviors, and informs the audience of current schools' cell phone policies. Additionally, the documentary film was created with the aim to motivate policy decision makers to create school programs that support appropriate use of cell phones in and outside of class.

I will begin by sharing the research questions that drive the investigation. Then, I will discuss the research methodology, sampling plan, data analysis, data collection, documentary production process, researcher's positionality, ethical concerns, and data triangulation of the study.

This study's research methodology will include interview questions that target participants' System 1- "automatic" and System 2- "effortful" reactions. Furthermore, interview protocols for the focus group and individual interviews offer the opportunity to clarify and confirm the phenomena being studied. Data collected from surveys and interviews will be analyzed according to emerging themes, trends, and patterns using Kahneman's (2011) cognitive load theory; specifically, System 1 and 2 will be applied to understand stakeholders' perception and comprehend the underlying cognitive process involved when participating in cell phone use.

Engaging with the cell phone is a relatively common phenomenon, nevertheless, problematic cell phone behaviors are amplified when users spend excessive amounts of time online that potentially affect their mental wellbeing and/or using the device to inflict harm to others. One must question the factors contributing to users' problematic behaviors and whether they recognize that these habits have potential influences on their lives. Furthermore, if users understand the negative impacts of problematic cell phone behaviors, will they continue to participate regardless of the consequences? Grounded in cognitive load theory, this study will analyze participants' perception of cell phone habits that exist at the school site, whether participants perceive these habits as problematic, and what support system should be offered to adolescents who might lack the necessary self-control to refrain from engaging in problematic cell phone habits. This chapter will discuss the research methodology for this study.

Research Questions

The following research questions guide this investigation:

RQ 1: How do stakeholders describe their perceptions of the impacts of cell phones and social media usage on students' academic performance?

RQ 2: What are current policies and practices regarding the use of cell phones within the classroom? How effective are they? How can they be improved?

Exploratory Qualitative Method

The current study applies the exploratory qualitative research methodology to understand stakeholders' perceptions regarding the impacts of cell phone and social media. Qualitative research is appropriate for exploring and understanding the meaning

behind a social phenomenon (Creswell, 2014); in this case, the phenomenon is the perceived impact of cell phones and social media usage. The current study is a qualitative research because the process involves multiple tools of data gathering such as individual and focus group interviews, all taking place in the participants' setting; the data analysis is built according to an emerging theme, the researcher interprets the meaning of the data, and the final report has a flexible structure (Creswell, 2014).

Video Documentary Methodology

A documentary film is selected as a research methodology for this exploratory study. The documentary film method was selected due to four main reasons. First, the use of narrative inquiry in combination with documentary film provides rich descriptive data that are essential to portray a snapshot of the current perceptions of the impact of cell phones on academic performance (Merriam & Tisdell, 2016). Second, the documentary film helps the audience visualize some cell phone activities students participate in and the instructional strategies teachers need to incorporate into the curriculum to adapt with the omnipresence of cell phones at school. Third, documentary film serves as a medium to inform and advocate for change using visual video (which are easily accessible through the cell phones) and various media platforms such as YouTube, Vimeo, and the internet (Gubrium & Harper, 2013). Fourth, the documentary format has the potential to reach a wide range of audiences including academic researchers, policy decision makers, schools and stakeholders (Gubrium & Harper, 2013).

Sample Selection

Purposive sampling was applied for the current study; in other words, the participants were selected because they were more likely to generate useful data and insights to help understand the phenomenon being studied (Creswell, 2012). This study aims to explore stakeholder's perspectives regarding the impact of cell phones and social media on students' academic performance. The relevant participants consist of a mixture of 10^{th} – 12^{th} grade students, and staff at Sherlock High School (a pseudonym) who own a cell phone and volunteer to be a part of the study. Sherlock High School is one of many high schools in the Union High District with an estimated student population of 2,500. According to Ed-data, during the academic year of 2017-2018, the school's demographic consisted of 49.3% Asian, 32.6% Hispanic, 9.9% Filipino, 4.1% Caucasian, 2.5% African American, and 0.7% Native Hawaiian or Pacific Islander. A diverse number of participants were recruited to have a good representation of the school site. The participants were recruited via email, personal invitation, school websites, and announcements. I am currently a teacher at the high school with access to a school email address and can reach staff participants as well as students and parents. All participants under the age of 18 were required to complete an informed consent form prior to taking part in the filming.

The *maximum variation sample* strategy was used to choose participants; it is a sampling method that selects a range of participants in various demographics who represent a variety of perspectives regarding the key variables being studied (Merriam & Tisdell, 2016). The objective was to obtain a range of perspectives on the phenomenon

being studied (Creswell, 2013). The sampling recruitment and data collection continued until the data reach a point of *saturation*, when no additional useful information is needed (Merriam & Tisdell, 2016).

A total of 46 participants were interviewed in this exploratory documentary research (please refer to Appendix C). All of the student participants were my current or former students and many of the adult participants were people that I know through my professional and educational experiences. Adult participants consisted of teachers, administrators, two researchers and an EdTech expert who were comfortable with being recorded on camera. Footage of twenty-one participants were used in the final documentary film and the others were excluded due to poor quality audio and video; nevertheless, all participants' interviews were incorporated into Chapter Five's findings.

Sample Selection During COVID-19

Filming started in November 2019; one month into data collection, COVID-19 drastically impacted the entire world. Every school in the entire district shifted to distance learning in March 2020, and convenience sampling was applied to select participants. Furthermore, participants were recruited through emails and from personal and professional connections.

Data Collection

This section describes the data collection method. There are four categories of participants: students, teachers, administrators and research experts and EdTech advocates. Participants were recruited through physical and electronic means. All interviews were conducted outside of instructional hours and visual (b-roll) footage

recorded during instructional hours with consent from participants. Participants' interviews were recorded with a high definition (HD) video camera.

Additionally, memo writing took place after each interview as a method of record keeping; memos are a specialized written record of the analysis (Corbin & Strauss, 2008). Furthermore, memos store ideas that can be organized and retrieved according to the study's evolving analytical scheme; it is especially useful during the data write-up process to reflect, cross-reference, or evaluate the study's progress (Corbin & Strauss, 2008). Moreover, memos were used during the research process to capture my thoughts, possibly including personal biases and assumptions that could potentially shape the outcome of the research (Corbin, 2004), thus aiding objectivity in the research process.

One-on-one Interviews

This study used one-on-one interviews for students, teachers, administrators, research experts, and EdTech advocates. The interviewing method is an important source of evidence as it can offer explanations of the phenomenon and insights reflecting participants' perspectives (Yin, 2018). Furthermore, interviews lead to a high response rate because they are previously scheduled, and participants typically feel inclined to complete the interview (Creswell, 2012). The interview started with general open-ended questions on participants' perception regarding the prevalence of students' cell phone and social media participation; it was followed by probing and intensive open-ended questions to elicit participants' perceptions of the impacts of cell phones and social media on students' academic performances. Generally, open-ended questions are important because they allow the participants to openly share their experiences unconstrained by

my perspective and previous research findings (Creswell, 2012). The duration of each interview was from 30 – 60 minutes.

Focus Group Interviews

Small focus group interviews consisting of 2-3 students and/or teachers were conducted to address the Cognitive Load Theoretical Framework that drives this study. A focus group is an interview with a group of people who share similar knowledge about a particular topic (Merriam & Tisdell, 2016); it is an explicit use of group interaction to produce data that would otherwise be inaccessible without the group interaction (Flick, 2009). Each interview was around 1-2 hours long. The interviews usually began with general open-ended questions about participant experiences with cell phones and social media to engage participants in a group discussion. Once I had successfully established a good rapport, more intensive open-ended questions (as shown in Appendix A) were presented to discover data and insights that might be specific to their previous experiences. Similar, to the one-on-one interviews, memos were used to capture my thoughts throughout the interview; the interviews were recorded with an HD video camera or Zoom's recording feature.

Interviews During COVID-19 Quarantine

All schools in the district shifted to distance learning in March 2020. There was limited face-to-face interaction with students or staff. Additionally, Santa Clara County's safety guidelines changed sporadically, thus the data collection method had to be constantly modified to comply with school and county recommendations.

Zoom. At the beginning of the quarantine, all interviews were recorded via Zoom, a popular online communication platform. Each interview lasted around 30-60 minutes. While Zoom is a convenient tool to communicate with participants, the quality of the video and audio footage were inferior. Due to the poor-quality film footage, the majority of interviews conducted via Zoom were not used in the final documentary film. Nevertheless, the information from these interviews were incorporated into the final findings in Chapter Five.

Face-to-face. Some of the participants interviewed via Zoom were invited to a follow-up face-to-face interview. These interviews were recorded with the Canon 5D Mark 4 camera. Per local safety guidelines, all face-to-face interviews took place outdoors or in areas with proper ventilation; furthermore, we were positioned at least 6 ft apart and wore masks. These participants were adults; they understood the potential risks associated with face-to-face interaction and voluntarily agreed to be interviewed. I deliberately did not interview any students face-to-face during COVID-19 quarantine to avoid any potential liability.

Data Analysis

Thematic analysis was used to analyze the participants' responses from the video interviews. The documentary film sought to gain perspectives from a wide sample of stakeholders (students, teachers, administrators, research experts, EdTech advocates). Film footage was analyzed according to emerging themes and the findings of the exploratory study were organized to answer the research questions.

Prior to editing, I re-watched the recordings of the interviews in order to get a better sense of the data which would aid in the final editing process (Rapley, 2004). As described by Saldana (2011), reading and re-reading of the data is a way to develop *data intimacy* or cognitive ownership of the data. Re-watching footage allowed me to gain intimate familiarity with the content, discover new findings, and add new insights that were not caught during the original interviews. Additionally, "patterns, categories, and their interrelationship become more evident the more [one] know[s] the subtleties of the database" (Saldana, 2011, p. 95). As a result, in analyzing the perceptions of students and staff if the data appear in similar patterns, the results can help increase the *internal validity* of the study (Yin, 2018).

Documentary Production Process

The exploratory documentary film production consisted of three phases: (a) preproduction, (b) production, and (c) postproduction.

Preproduction. The preproduction stage included drafting Chapters 1, 2, and 3 of the dissertation. This included a literature review, research questions, filming locations, potential interviewees, and interview protocols. In addition, an important part of the documentary filming process was to capture cell phone use in action and potential consequences. This is called b-roll. While I was able to get some action footage, COVID-19 limited my ability to film at the school sites. The majority of the action footage was filmed prior to the quarantine.

As a novice documentary filmmaker, I met regularly with my dissertation chair to learn about the filming process. This included framing of the scene, positioning of the

interviewees, using the microphone and lights to get high quality footage. Furthermore, I sought assistance in the film editing processing with Adobe Premier Pro. All footage in the final documentary film was captured on my personal DSLR camera (Canon 5D Mark IV with a 24-70mm F2.8 vii lens) and an iPhone XR coupled with Sennheiser shotgun microphones.

Production. The production phase included setting up the camera to film the documentary and arranging the sound and lighting equipment.

Set-up. The filming location and equipment set up took into consideration two things; first, it needed to be convenient, comfortable, and safe for the interviewees; second, the background needed to have proper lighting, be aesthetically pleasing, and visually interesting. The main DSLR camera was positioned on a video tripod connecting to a wireless microphone to capture sounds. The back-up iPhone XR camera with a Sennheiser shotgun microphone (also on a tripod) was adjacent to the main camera.

Interviewing participants in their environments. Interviewees and participants under the age of 18 needed to have parental consent to take part in the documentary filming. Various filming angles of the classroom were determined to best convey the story and avoid capturing participants who did not have the parental consent. Additionally, some of these participants' faces were blurred out if they were accidentally captured on film.

Postproduction. The postproduction phase included coding the interviews and organizing and editing of the film footage. Additionally, visual (b-roll), narration and subtitles were added.

Analyzing and logging interview responses. Video footage of each interview was organized and edited according to each emerging theme. After each interview, I reflected on which scenes stood out during each interview and selected a series of useable 30-60 second clips. These clips were organized in bins according to each interview category. The final raw footage was imported into Adobe Premier Pro software for editing. The final film footage was reviewed and edited to answer the research questions.

To aid in this process, interview footage was also transcribed and coded. *Content analysis* was applied to these preliminary codes. *Content analysis* refers to a method of qualitative data reduction and sense-making effort to reduce codes into meaningful categories, themes, or patterns (Patton, 2002). Additionally, *inductive analysis* was applied to form patterns, themes, and categories based on my interaction with the data; creating categories is a method for clustering a huge amount of data or codes into meaningful units and to understand their interrelationship with one another (Saldana, 2011). In the analysis process, preliminary codes with similar meanings were reduced and/or merged and systematically categorized into separate files according to the theme. The criteria for categories, themes, and findings construction were guided by Merriam and Tisdell (2016, p. 213).

Editing the footage. The storyline and narration were generated based on the emerging themes from the interviews. Four categories emerged from the interview footage: positive impacts, negative impacts, cell phone policies, and solutions. First, in Adobe Premier Pro, a bin (grouping or footage) was generated for each interviewee, then the corresponding raw footage was uploaded. After this process, a sequence was

generated to extract useful 1–2 minute clips that would potentially be used in the final film. These clips were organized according to the four categories; within these categories, interview clips continued to be organized into meaningful subthemes.

The documentary script was written to include background information/narration regarding the prevalence among students of cell phones and social media, benefits and challenges associated with their use, and support systems that encourage positive usage of cell phones. The interview footage provided a snapshot of diverse perspectives of cell phone use in academic settings. Furthermore, it informed the audience of the current state of cell phone policies in schools and suggested possible changes to engage learners. The final film product was designed to answer the research questions.

Data Triangulation

To increase the credibility of this study, I applied the method of data *triangulation*, or multiple sources of data and data collection methods to confirm emerging findings (Merriam & Tisdell, 2016). The multiple sources of data include participants (students, teachers, administrators, research experts, and EdTech advocates) who are actively engaged in the study context and have direct experience using cell phones and social media. Furthermore, data was collected through multiple methods such as individual and focus group interviews; the data collection process continued until the results reached a point of data saturation. At that point, the emerging findings were analyzed, confirmed and triangulated through multiple sources prior to the final documentary product.

Limitations

The study was limited to exploring the experiences and perception of students, teachers, administrators, and researchers in one high school and the surrounding area. In addition, distance learning as a result of COVID-19 limited my ability to recruit and interview participants. Participants' perceptions offered a snapshot of the impact of cell phones, policies, and practices at a typical high school. The findings from the exploratory documentary study depended largely on participants' positionalities: administrators, teachers, and students took different positions on the effectiveness of the current cell phone policies. Furthermore, students and teachers who had experienced negative impacts of cell phones were more supportive of restrictive cell phone policies. The findings in this exploratory documentary were limited to the perspective of participants in this study and could not be generalized.

Positionality and Ethics. I am a science teacher with 14 years of experience, and a graduate of and current employee at the high school in this study. This section will describe each of my positions and the potential influences and biases associated with them.

***Ethnicity*.** I was born in rural Viet Nam and emigrated to the U.S. when I was 11 years old. During my formative years, electronic technology was not as well developed as today: there were no cell phones or computers, and my schooling experience was almost entirely face-to-face, hands-on, and interactive. Furthermore, while in the U.S from 5th through 12th grade, all of the schools I attended were Title One schools. Even with the emergence of computers in the 90s, there was a lack of computers and high-tech devices

at these Title One schools. I was not fully exposed to the benefits of technology until college, where I obtained my first laptop and cell phone at the age of 20 years old. Through my experiences, it has become a deeply ingrained belief that face-to-face experience can never be replaced by the rapid growth and availability of cell phone communication. Nevertheless, I do recognize the overall value of cell phones, social media, and communication via electronic devices. In addition to incorporating technology in my classroom, I am Google Certified Educator and served as a member of the professional development committee at Sherlock High School. During my term of service, I worked collaboratively with the Santa Clara County Technologies Specialists team to lead workshops on various educational technologies available to increase students' engagement. I strongly believe that students can be taught to use cell phones and social media to enhance their learning experiences.

Teacher. I am a science teacher with 14 years of experience who also graduated from the same high school that the present research was conducted at. Many of the participants were my colleagues as well as former teachers with whom I have close working relationships and years of established trust. As a teacher, I do not have the authority to evaluate, give input in the teachers' hiring or firing process, or influence a teacher's employment status in any possible way. Participation in the study was based on their genuine interest, not stemming from fear of an authoritative figure. Nevertheless, it was possible that during one-on-one interviews with teachers, I might have taken the position of a teacher and acknowledged the negative impacts of cell phones in the classroom. Because I might have empathized with some of the teacher participants' experiences, the

answers might be honest but potentially biased, which could have skewed the data toward favoring stricter school cell phone policies.

As a teacher, I am in a position of authority and have influence over students, and many of the participants were my current or former students. During the recruitment process, I clearly explained to my student participants that their participation in the study would have no impact on their grades. In addition, they needed to have parents' permission to be a part of the documentary exploratory study. If they decided not to participate, it would not jeopardize any educational opportunity or service they received from the school. Prior to each interview, I clearly communicated to student participants that they could request to stop the filming or skip any uncomfortable interview questions.

Employee. As a current employee of Sherlock High School, my superiors include one principal, two associate principals, and a superintendent. While my administrators did not participate in the study, they supported me by giving me the time and resources to conduct my research. I did have the opportunity to interview our school superintendent. During the interview, I did expect our superintendent to use the interview as an opportunity to explain the current school policies and strategies that schools use to address problematic usage of cell phones and the potential impacts on students' academic performance. When I heard responses that contradicted the perspectives of many teachers, I asked additional probing questions that led the participant to defend the current school policies and practices. To reduce biases, I adhered to the interview protocols and kept detailed memos of my thought processes and reflection after each interview to address any potential biases in the data.

Ethical Considerations

All participants were made aware that participating in this filming was voluntary and they could choose to withdraw at any time. In addition, participants could refuse to answer any questions that made them feel uncomfortable and the filming could stop at any point of their choosing. No participants withdrew from the study, and no participants refused to answer any questions or asked to stop filming.

I am a teacher and do not hold a position of authority that influences the hiring and firing process at school; hence, staff participants did not feel coerced to participate in this study. However, I am in a position of authority over students and all of the student participants in the study were my current or former students. During the sample selection process, precautionary measures were taken to ensure that all students participants understood that their decision to participate in this study was voluntary; it had no effect on their grade and they could stop participating at any point. I did this by sending a permission form with detailed information about the study and I explained the process prior to each interview.

Summary

The objective of this chapter was to outline the research methodology that was used to answer the research questions. Additionally, positionalities, ethical concerns, data collection, procedures, and data analysis were discussed. The exploratory qualitative documentary film was used to determine the participants' perceptions of the impact of cell phones and social media on students' academic performances.

Chapter V: Summary, Recommendation, Reflection

Introduction

This exploratory documentary research reports the perceived impact of cell phones and access to social media on students' academic performance. Moreover, it captures the role of cell phones and technology during distance learning and explores some policies and practices used to manage the negative impacts of cell phones in school. This chapter presents answers to the proposed research questions, conclusions from the research in the literature review, and implications for future studies.

This study uses the documentary film methodology to explore stakeholders' perceptions of the impact of cell phones in school. The documentary film highlights participants' perspectives regarding the benefits and drawbacks of cell phones and their impact on students' learning; additionally, participants' personal experiences with the current school cell phone policies and their recommendations are provided.

Summary of Findings

The findings from the exploratory study are demonstrated in the documentary film entitled *When Cell Phones Come to School*. Film footage of participant interviews, b-roll, and narration address the research questions.

Research question 1. How do stakeholders describe their perceptions of the impacts of cell phones and social media usage on students' academic performance?

Benefits. In this category, three main themes emerged from the interviews: connectivity, accessibility, and creativity. All participants agreed that cell phones are powerful tools to connect to others. Students used cell phones to connect with their

family, friends, and online communities. The role of cell phones was especially important during distance learning; many students and teachers used a variety of apps to deliver course content, learn new things, and stay connected. Additionally, texting platforms such as Remind are important tools for teachers to send messages and reminders to students without sharing their personal cell phone numbers. The Remind app also saves all conversations for future reference.

According to multiple participants, cell phones allow students and teachers to access a vast amount of information with a touch of a button. Access to the internet is crucial to students' learning, especially with distance learning. Sometimes when a wireless network was not available, students used the internet on their cell phones to connect to online classes. Moreover, online learning sometimes required a second monitor. Many students who could not purchase another monitor used their cell phone as a second screen; they accessed Zoom via their cell phone and did their classwork on the school-provided Chromebook.

Many participants agreed that there are a variety of creative uses of cell phones in the classroom. For instance, teachers used online quizzes such as Quizlet Live to engage students during instructional hours. Additionally, students could access Quizlet at their convenience to review certain concepts and memorize vocabulary through the Quizlet online flashcard platform. Many students reported finding these types of online applications helpful for their learning.

Drawbacks. The strongest theme that emerged from the interviews is that students reported being distracted by cell phones in the classroom. Teachers often have to compete

with cell phones for students' attention, and cell phone notifications sometimes distract the whole class from the lecture. Many teachers tried to incorporate the use of cell phones in their classroom, but sometimes it ended up being a detriment rather than an educational experience. A few students reported that they ended up being distracted by all the entertainment on their cell phones the moment they took them out for classroom use. Moreover, many students agreed that self-discipline is a strong deciding factor in their tendency to use their cell phone for educational versus entertainment purposes.

Another emerging theme is cell phone addiction. Participants who also identified as researchers in adolescents and child development described the high susceptibility to many types of addiction during adolescence, including cell phone addiction. Many student participants shared that they often felt lost without access to their cell phones; furthermore, they observed many classmates spending excessive amounts of time on their cell phone instead of focusing on the class lectures. One student admitted to failing his entire freshman year because he spent too much time on the cell phone during class. Luckily, he recognized the issue, managed to change his cell phone habits, and passed all his classes starting in his sophomore year. Moreover, one teacher reported personally observing many students "panic" and being "in tears" when they thought they had lost their cell phones. This observation confirms that many students rely heavily on their cell phone.

Many stakeholders also reported some problematic uses of cell phones that impacted students' mental well-being. The two predominant themes affecting students were the sharing of explicit images and cyberbullying. School social workers said that half of the

students seeking support from the school's support center were triggered by an event that occurred online and accessed through their cell phone. Furthermore, the constant connection and online anonymity makes it easier for people to be cruel to one other. From the social workers' observation, students are negatively impacted by cyberbullying, and it often leads to anxiety and depression. Moreover, students who suffer from anxiety and depression tend to perform poorly in school. One student who was impacted by cyberbullying mentioned that the cell phone made it easier for people to cyberbully each other, and the experience had lowered her self-esteem.

These exploratory findings are consistent with the literature review. As pointed out in the literature, there are many benefits and challenges associated with cell phones and social media usage. Cell phones and access to the internet are credited with improving participants' ability to learn new things (Purcell & Rainie, 2014) and to stay better informed (Smith & Olmstead, 2019). Additionally, most teens believe that cell phones and access to social media helps them connect with people and cope with challenges via the support of online communities (Anderson & Jiang, 2018). The benefits of cell phones are clearly demonstrated during distance learning, highlighted by the integral role it has in current educational settings.

While the literature points out that cell phones and social media are negatively associated with academic performance (End, Worthman, Mathews & Wetterau, 2012; Felisoni & Godoi, 2018; Junco, 2011; Junco & Cotton, 2011; Junco, 2012; Junco & Cotten, 2012; Kates, Wu, & Coryn, 2018; Lepp, Berkley, Karpinski, 2015; Li, Lepp, & Barkley, 2015; Wood et al., 2012), the findings in this study could not confirm this result.

One student admitted to being negatively impacted by excessive cell phone use during class, but the sample size was too small to make any correlation.

In addition, the findings regarding the negative impacts of cell phone usage, such as cyberbullying, are confirmed with the literature; many participants discussed personal experiences with cyberbullying. According to a study, 59% of teens reported experiencing some form of cyberbullying (Anderson, 2018) and cyberbullying was associated with an increased risk of mental health issues (Bannink et al., 2014) and suicidal ideation (Hinduja & Patchin, 2010). The findings demonstrate that half of the students who received mental health support at the local school site experienced some form of negative online experiences through their cell phones.

Research question 2. What are the current policies and practices regarding the use of cell phones within the classroom? How effective are they? How can they be improved?

The data found that school cell phone policies are very different at the district, school, and classroom level.

District. According to the school superintendent, the district's cell phone policy is very consistent: "students are able to have a cell phone and can check their cell phone before or after class, but the moment they step into the classroom, cell phones need to be put away, unless otherwise instructed by the teachers. Similar to the art of teaching, each teacher has the autonomy to manage cell phone use in their classroom as they see fit."

School. School administrators confirm the superintendent's school cell phone policies. Teachers at each school site determine cell phone policies best suited for their classroom. Many school administrators do not endorse restrictive classroom cell phone

policies. They have observed many teachers successfully incorporating cell phones in classroom instruction; restrictive classroom cell phone policies would undermine some teachers' creativity. Additionally, if the school banned cell phones, there would be significant push back from parents, and implementing restrictive cell phone policies would be quite challenging. As described by one administrator, as long as the cell phone policies are clearly stated in the syllabus and communicated to students, then teachers would be supported in implementing their policies.

Classroom. While the district and school give teachers the autonomy to write their classroom cell phone policies, many teachers and students expressed concern over the inconsistency of cell phone policy implementation between classes. Many teachers are unaware of the school's cell phone policies; according to their reports in interviews, there are no school cell phone policies, and they are "left to fend for themselves".

Students also confirm the inconsistency in school cell phone policies. In some classes, the classroom cell phone policies are clearly outlined in the course syllabus. Nevertheless, as students are more reliant on their cell phones to look up information, or to complete online quizzes, teachers reportedly become more lenient on their cell phone policies. Many students take advantage of the opportunity to use their cell phones for non-academic activities.

As portrayed by some students, the successful implementation of the classroom's cell phone policies heavily depends on the relationship between teacher and student. If the teachers are "nice" and students "respect" the teachers, they follow the policies. If teachers are "mean", students reported finding ways to use their cell phones regardless of

the classroom policies. One student mentioned that each of her teachers have a different set of cell phone policies; some of her classes allowed cell phone use, while others banned cell phones entirely. As a result, she reported feeling very confused and ends up using her cell phone in all classes.

In one extreme case, a student revealed that his teacher collected students' cell phones at the beginning of the period and counted the cell phone as attendance. If the student's cell phone was not in the basket that student was marked absent, regardless of being physically present in class. In contrast, some teachers reportedly gave up on managing students' cell phone use altogether. One student observed that many of his classmates are distracted by their cell phone regardless of the teacher's effort to execute a creative lesson plan. According to him, "many teachers are giving up" because the students of this generation "do not care".

While one teacher struggled with students' cell phones during class, another successfully incorporated it into his classroom curriculum. One teacher, who has a M.A in Instructional Technology, often integrates the use of cell phones into his lesson plan and successfully managed cell phone distraction in the classroom. He expressed appreciation of the fact that his school offers teachers the autonomy to determine classroom cell phone policies best suited for his class.

Participants' recommendations. Participants' recommendations on school cell phone policies and practices depended significantly on their position and previous experience with cell phones. Generally speaking, administrators do not want restrictive cell phone policies; they recommend that teachers have clear and consistent classroom cell phone

policies. On the other hand, many teachers and social workers would like to see more restrictive cell phone policies from administration. Furthermore, these cell phone policies should be clearly communicated with students to ensure teachers are relieved of the burden of inconsistency surrounding the implementation of cell phone policies between different classes. Many students also advocated for cell phones to be banned during instructional hours. According to many participants, cell phones are a distraction, and if this distraction is removed, students would be forced to do schoolwork.

The findings from the study are consistent with the literature. While cell phones are credited for helping adolescents connect with others and learn new things (Purcell & Rainie, 2014), they can also lead to distraction and impact students' academic performances (End, Worthman, Mathews & Wetterau, 2012; Felisoni & Godoi, 2018; Junco, 2011; Junco & Cotton, 2011; Junco, 2012; Junco & Cotten, 2012; Kates, Wu, & Coryn, 2018; Lepp, Berkley, Karpinski, 2015; Li, Lepp, & Barkley, 2015; Wood et al., 2012).

Similar to the findings in the literature, school cell phone policies are different at each school site and classroom (Awayfortheday.org, 2018). Moreover, one topic that never came up during interviews is the implementation of California Assembly Bill 272 (AB 272), which allows school districts to create restrictive cell phone policies. The study's exploratory findings demonstrate that many school leaders have no plans to implement AB 272 at the district or school level.

Implications for Practice

Participants in this documentary exploratory study identified school cell phone policies, teacher-student relationships, teachers' classroom management, and technology skills as crucial in managing the negative impacts of cell phones and social media access in school. Even though the findings are limited to the participants in the documentary research, school leaders and stakeholders should consider researching ways to support students by providing media literacy and support programs. Additionally, to help students, schools should provide professional development opportunities for teachers and workshops for parents, as well as implement policies to mitigate some of the negative impacts of cell phones in the classroom.

First, schools should consider incorporating media literacy programs into the curriculum. These educational programs should be designed to inform students about the harmful effects of cell phones and social media. Media literacy interventions have been shown to have positive effects on media knowledge and behaviors (Jeong, Cho, & Wang, 2012). While informing the students of potential issues, media literacy programs can positively influence their attitudes and beliefs about cell phone related activities and prevent risky behaviors. Concurrently, schools should provide support programs for students to learn how to process their emotions and navigate some potential negative cell phone experience.

Additionally, teachers should be provided with professional development to strengthen their pedagogical knowledge, classroom management strategies, and technology skills. There are many beneficial cell phone applications available to engage

students in the classroom. These professional development opportunities would be helpful for teachers to promote awareness and support 21st century learners.

Furthermore, schools might consider providing workshops for parents to inform them of the potential risk of cell phones and social media access. These workshops are important because they help raise awareness of the latest trends, popular apps, and risky behaviors that students might be participating in which might negatively impact their academic performance and mental wellbeing. Some of these harmful habits occur outside of the classroom; hence, parents' participation can be necessary. Parents need to know this information to help students avoid the potential risks associated with social media and apps usage. They should be encouraged to take an active role in managing their child's screen time, modeling positive cell phone behaviors, and engaging in conversations about their child's cell phone behaviors in the classroom.

Finally, schools should research effective school cell phone policies and adopt them at the school site. Furthermore, these three items should be considered: first, policies must be clearly communicated; second, all stakeholders should be involved in the decision-making process; lastly, teachers need to be supported with the resources necessary to implement the policies.

Recommendations for Future Research

While this exploratory documentary research provides insights into participants' perceptions of the impacts of cell phones and the policies and practices used to manage cell phone use in school, there are several limitations to this study. First, the documentary research is limited to the students and staff at one high school district. A larger sample

size that represents students and staff from the county and the state of California is recommended to understand the impacts of cell phones in school. Second, students participating in this documentary research are mostly sophomores at one school site; their experiences with the impacts of cell phones in school might not be representative of all adolescent perspectives. Finally, COVID-19 impacted the sample selection process and adult participants' perspectives on the issue. Perceptions of the effectiveness of school cell phone policy implementation is limited to those who volunteered to be a part of the study. Further research is needed to determine the actual impact of cell phones in school. A systematic research study is recommended to understand various school cell phone policies in a larger geographical region and to evaluate the impact of policies and practices on students' cell phone usage in the classroom.

Reflection and Conclusion

My position on the impact of cell phones and schools' cell phone policies has shifted tremendously as I completed the study. I started this journey strongly believing that cell phones are a huge distraction to students' learning and restrictive school cell phone policies must be enforced to help students minimize the negative impacts of problematic cell phone usage.

Reflecting on my cell phone usage during the past few years, I realized that it played an important role in my learning journey. For instance, I purchased my first DSLR camera in October 2018 and had no clue how to use the device. My cell phone allowed me to quickly access tutorial videos on YouTube and information on the internet. Through cell phone use I learned to take pictures with various light conditions, edit

photos with Adobe Creative Apps, and photograph with off camera flash. Furthermore, once the documentary filming began, I relied on my cell phone to quickly learn videography, lighting, and audio. In addition, I captured important b-roll via my cell phone—it was quick and easy to use. I would have missed filming many critical scenes if I relied only on my DSLR camera.

Similar to many people, my cell phone plays a critical role during COVID-19 quarantine. I depend heavily on my cell phone to stay connected with family, friends, and students. Additionally, there are times when I have to use the Wi-Fi hot spot from my phone to access Zoom; without my cell phone, I would not be able to teach students when my home wireless network is unavailable, which had happened quite often during the California wildfires and rolling blackouts.

From interviews and personal observation, I had the opportunity to see the value of cell phones through my participants' perspectives. If used correctly, cell phones allow students to learn many wonderful things and connect with anyone in the world. Furthermore, many applications on cell phones allow teachers to be creative and take students on amazing learning journeys, such as displaying a life-sized tiger in the classroom with a virtual reality application.

While many teachers and students struggle with the distractions caused by cell phones in the classroom, there is no one-size-fits-all policy that will eliminate problematic cell phone use during class. We should engage all stakeholders in the conversation to come up with solutions that best support students at local school sites.

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Appendix A: Interview Protocol

Interview #
Date:
Location:

Script for Interviewing Participants

Thank you for agreeing to be a part of the documentary research. Your participation contributes to the understanding of the impact of cell phones on adolescents' academic performance. My name is Anne Tran, I am a science teacher and doctoral student at SJSU. This interview lasts around 30-60 minutes and is based on the topics discussed. Your honest responses are greatly appreciated. I will be using a camera to record the interview. If you feel uncomfortable about any interview topics, we can skip or stop at any point. Once again, thank you for your participation.

Interview Guide

Students

1. Tell me a story about how you first got your cell phone.
2. If you must use three words to describe your phone, what would they be?
3. On average, how much time would say you typically spend on your cell phone each day?
4. On average, how many hours do you spend on social media, per day?
5. What do you see as benefits of access to phones? Please share an example.
6. Describe a time when you did not have your cell phone with you; What was it like? How did you feel?
7. Describe a time when you experienced discomfort as a result of social media, if you have.
8. Describe a time when you experienced positive aspects of social media.
9. If you reduced the time you spend on your cell phone and using social media, how would it, if it would, impact your experience of schooling? Your engagement? Your academic performance?
10. Describe a time when you avoided schoolwork to be on social media. What engaged you enough to avoid your work? Describe what happened.

11. Describe a time when social media helped you with your experience in school. Your schoolwork? Your friendships?
12. Describe one of the toughest classroom policies on cell phone policy you had encountered. How do you think this policy had influenced your educational experience in that class?
13. To the best of your knowledge, what do you think is the current school policy on cell phone?
14. In your opinion, do schools need cell phone policies? From a student perspective? Faculty? Why or why not? What should such a policy involve?

Teachers

1. What has been your experience with students' cell phone use in the classroom? Outside the classroom?
2. What changes in students' cell phone behavior have you observed over the course of your career?
3. Describe your classroom policy on cell phone use.
4. Describe a situation when you had to confiscate a student's cell phone.
5. Describe a situation when you had to request support from administration for a cell phone related incident.
6. In your experience, what do students use cell phone in the classroom to do?
7. What do you see as benefits and drawbacks to students' cell phone access? Please share a specific example of each.
8. Describe any benefits and/or problems you experienced, if you have, with students' social media participation.
9. How does students' cell phone use, including social media participation, impact students' academic performance, if it does?
10. If students reduced the time spend on their cell phone and using social media, how would it, if it would, impact their experience of schooling? Their engagement? And their academic performance?
11. To the best of your knowledge, what do you think is the current school policy on cell phone?
12. In your opinion, do schools need cell phone policies? Why or why not? What should such a policy involve?
13. What support systems do you feel the school/district may provide to support appropriate use of cell phone in and outside classroom?

Administrators

1. Tell me about your experience regarding students' cell phone use on this campus.
2. What do you see as benefits and drawbacks to students' cell phone access? Please share a specific example of each.
3. Describe any benefits and/or problems you experienced, if you have, with students' social media participation.

4. How does students' cell phone use, including social media participation, impact students' academic performance, if it does?
5. If students reduced the time spend on their cell phone and using social media, how would it, if it would, impact their experience of schooling? Their engagement? And their academic performance?
6. In your opinion, do schools need cell phone policies? Why or why not? What should such a policy involve?
7. What support systems do you feel the school/district may provide to support appropriate use of cell phone in and outside classroom?

The interview is now concluded, thank you so much for your time. Please let me know if you would like to see your recordings.

Appendix B: Operationalized Definitions

Terms	Definitions
Social media	Social media sites such as Facebook, Instagram, Twitter, etc.
IM	Instant messaging platforms such as text messages, Snapchat, WhatsApp, GroupMe, etc.
Sexting	Sharing of sexually explicit materials via text messages.
Cyberbullying	online bullying, electronic bullying, and online harassment (Tokunago, 2010).
Nomophobia	Discomfort or anxiety cause by fear of being without access to cell phone.
Academic performance	Students' key performance in school. This might include GPA (grade point average), test scores and extracurricular achievements.
Mental health	Emotional, psychological, and social well-being.
Problematic cell phone habits	Cell phone activities that potentially cause harm to oneself or others. This includes but not limited to high frequency of cell phone use and/or exposure to cyberbullying, sexting, etc.

Appendix C: Documentary Participants

Name	Grade Level	Position	Location	Filming Method
Kristine	12th	Student	SCHS	Face-to-face
Abigail	10th	Student	SC	Face-to-face
Andrew	10th	Student	SC	Face-to-face
Joseph	10th	Student	SC	Face-to-face
Sap	12th	Student	SC	Face-to-face
Manfred	12th	Student		
Jacob	12th	Student	SC	Face-to-face
George	12th	Student	SC	Face-to-face
Jaime		Teacher	SC	Face-to-face
Nick		Teacher	SC	Face-to-face
Greg		Teacher	SC	Face-to-face
Marisa		School Board of Trustee	SC	Face-to-face
Taunya		Teacher	SJUSD	Face-to-face
Katie		Teacher	SC	Face-to-face
Emily		School Social Worker,	SC	Face-to-face
Chris		School Superintendent	ESUHSD	Face-to-face
Michael		School Vice Principal,	WVH	Face-to-face
Jason		Summer School Principal	PH	Face-to-face

Ellen		Researcher	SJSU	Face-to-face
Kim		Researcher	SJSU	Zoom
Martin		Director of Technology	BUSD	Face-to-face

n=21

Other Participants

Name	**Grade Level**	**Position**	**Location**	**Filming Method**
April	12th	Student	SC	Face-to-face
Ryan	11th	Student	SC	Face-to-face
Rachel	10th	Student	SC	Zoom
Apaar, Samantha, Talia	10th	Students	SC	Zoom
Rogelie	10th	Student	SC	Zoom
Telly	10th	Student	SC	Zoom
Ryan & Addison	10th	Student	SC	Zoom
David		Teacher	SC	Zoom
Rene		Teacher	SC	Zoom
Mary-Kathryn		Teacher	SC	Zoom
Imani		Teacher	SC	Zoom

Allan		School Counselor	SC	Zoom
Katie, Christina, Richard		Teachers	SC, C, D	Zoom
Yannelly		Teacher	OHS	Zoom
Leah & Emily		Social Workers	IH, SC	Zoom
Mara		Educator	SJSU	Zoom
Raphael		Administrator	S	Zoom
Nick & Bich		Teacher	SC	Zoom

n=25

Appendix D: Inform Consent

RELEASE FOR PARTICIPATION IN DOCUMENTARY FILM: CELL PHONES AND SOCIAL MEDIA IN SCHOOL (A working title)

I, the undersigned, hereby consent to the use of my name, physical image, and voice in the educational documentary, CELL PHONES AND SOCIAL MEDIA IN SCHOOL (a working title) produced and directed by Anne Tran. This documentary is intended for use in the classrooms, by educational agencies and organizations and educational and PBS (Public Broadcast System) television stations. In giving this consent I hereby release Anne Tran of any proprietary rights that I may have in regard to this production. I do not expect to be paid for my participation.

NAME:_____DATE:_____
SIGNATURE:_____
CONTACT INFORMATION: _____

If under the age of 18, have parent or guardian complete the following:
NAME OF
PARENT/GUARDIAN:_____
SIGNATURE:_____
CONTACT INFORMATION: _____