HIGH SCHOOL TEACHERS’ PERCEPTIONS OF STUDENT CELL PHONE USE IN THE CLASSROOM: A CASE STUDY

by

Summer Dawn DuPont

Liberty University

A Dissertation Presented in Partial Fulfillment Of the Requirements for the Degree Doctor of Education

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ABSTRACT

The purpose of this qualitative intrinsic case study discovered high school teachers’ perceptions of student cell phone use in the classroom at Battery Creek High School. The theory which guided this study is based on Vygotsky’s (1978) sociocultural theory and social constructivism as it pertains to the environment children grow up in affects how they think and what they think about. The case study utilized semi-structured interviews of teachers, a teacher survey, and followed by focus groups created from common themes found. The data gathered was analyzed through the method of open coding and selective coding using bold/italics and then color coding. The coding helped determine the findings were consistent or not consistent from existent research. The central research question: How do high school teachers perceive students’ cell phone use during class? The 12 research participants included the perception of high school teachers from southeastern South Carolina about how students integrated and used cell phones during classroom instruction. The student cell phone use in classroom themes developed from this study included: Frustration from parents or jobs calling students during class, cheating, not being able to separate from devices, researching faster, social media/SnapChat, playing games/listening to music.

Keywords: cell phone, teacher, student, instruction, perception
Dedication

To my God, who continuously places me on the right path, even when personally my steps and direction are unsure.

To my always faithful and gracious husband, John, with your knowing smile and trust that I Really don’t need edits, thank you for creating a space that makes me strive to be more, supporting me all the while.

To my children, John Henry IV and Claire Elisabeth, may you eternally and internally know that you are loved and appreciated. Thank you for your support and sacrifice on this journey.

And, to Papa and Momo, your gifts of quiet time during this process can never be measured or repaid, hopefully my eternal gratitude and love for you and our Fly will suffice.
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List of Abbreviations

Attention Deficit Hyperactivity Disorder (ADHD)

Fear of Missing Out (FOMO) (in some published articles, FoMo)

Generation X (GenX)

Generation Y (GenY)

Generation Z (GenZ)

Social Media Site (SMS)
CHAPTER ONE: INTRODUCTION

Overview

Cell phones can be a useful tool and a potential distraction in high school classrooms across the nation. This introduction includes the background of the intrinsic case study (Yin, 2014) to discover high school teachers’ perceptions of students’ cell phone use in the classroom and how to use cell phones as instructional tools in the classroom. This background will include the historical, social, and theoretical importance of whether teachers perceive cell phones as distractions. Following the background information, the researcher will discuss the situation to self and provide the research paradigms and assumptions. The problem and purpose statements are introduced with the theoretical framework and followed by the study’s significance. Research questions and definitions are submitted and demonstrate the importance of the literature review.

Background

A high school teacher for grades 9 through 12 typically spends 60 to 90 minutes in a class period with their students. Nearly every student in the class has a cell phone or sits near enough to a student who has a cell phone to use for a learning tool, or potentially, as a distraction (Aaron & Lipton, 2018). These potential distractions can create a deficit in the amount of student time on task. Since Want (2009) and Wong (2010) conducted research, cell phones, smart phones to be more specific, have begun to take the place of laptops, tablets, and personal computers. Smartphones are classified as computers since the processors must be powerful enough, and interfaces have been shrunk pixel by pixel to account for the much smaller screen space. ComputerHope.com (2018) explained computers take input, perform calculations on that input,
and provide output to the user. This function allows students in high school classrooms to achieve this with smartphones in the palm of their hand.

**Historical Context**

When asking a person born between the years of 1981 - 1996, also known as a Millennial, when the first time was, they had a cell phone or smartphone in class or saw a classmate with one, the answer from most will be elementary school or middle school. International Business Machines Corporation (IBM) made the first smart phone available to consumers in 1994, dubbed Simon Personal Communicator. Simon Personal Communicator had a monochrome Liquid Crystal Display (LCD) touch screen, a one-hour battery life, and a price tag of $1100 (Andrew, 2018). This price tag kept the Simon Personal Communicator from widespread sale. After 13 years, in 2007, Apple introduced the iPhone to the world. With access to the Internet, touch screen, and an eight-hour battery life the first iPhone sold for a starting price of $499 (Gilbert, 2019).

Schlosser (2018) reported 95% of students have access to cell phones, most of them smartphones. This growth of cell phones available in high school classrooms has continued to climb on this trajectory for the last 20 years (Pew Research Center, 2019). The iPhone that many students use has so many capabilities; it would be considered more of a handheld computer than a phone (Wong, 2010). Maps (2017) presented that school officials understand today’s smartphones are microcomputers whose capacity to provide many of the advantages that technology can give students to access information. Ehnle (2020) wrote there is a technology advantage in using smartphones in class gave a list of ways to engage students, in this list is exploring the app store for all the possibilities - many of which are free to the user.
The instruction given in high school classrooms needs to grow at the same pace as the smartphones’ availability. Kay, Benzimra, and Li (2017) labeled smartphones as the number one most common technology students use in classrooms followed by tablets, notebooks, laptop computers and hybrid devices. Russell (2018) explained from a recent study that even in schools where there is a ban on cell phones, almost 50% of students still use them to help with schoolwork. In those schools where students were allowed access, more than 90% of students are using them (Russell, 2018).

Students’ attention to task and time on task in classrooms currently is greatly diminished by the pull of technology and social media, interacting virtually with friends, and viewing the latest Hollywood news (Felisoni & Godoi, 2018). This decrease in the time on task and focus on classroom activities may result from the amount of time their lives spent with a technology device, or some other reason (Kay, Benzimra, & Li, 2017). Misra, Cheng, Genevie, and Yuan (2014) reported that the time students spend on their smartphones can create what they termed the iPhone effect, meaning fewer conversations with their peers and lowered empathy than when the discussions took place in years past. However, smartphones have been noted as having endless possibilities in the classroom and can serve as an educational resource when used appropriately (Maps, 2017). Ehnle (2020) continued this by sharing suggested uses for cell phones in classrooms to maintain student engagement, such as video creation or collaboration via application.

Gains from this study will determine the perceptions of the high school teachers attempting to reach students with academic content regarding their views and opinions on cell phones. Also, if students do face distractions or lowered interaction; as a result, there may be some potential ways to combat these distractions and improve student to student and student to
teacher interactions by making changes to the instructional format or presentation. This research could potentially affect any high school teacher in a classroom by broadening their instructional delivery options based on feedback and data from fellow teachers.

After reviewing the literature, this researcher is noticing the lack of in-depth information regarding student cell phone use, other than college and university level data (Beland, & Murphy, 2016; Berry, & Westfall, 2015; Cheong, Shuter, & Suwinyattichaiporn, 2016; Mendoza, Pody, Lee, Kim, & McDonough, 2018). Many of these articles are self-reports from students. Panko (2018) shared there tends to be a large discrepancy between the self-report and the actual usage. This research study will focus on the high school teachers’ perceptions of the benefits and potential distractions from using students’ cell phones during the class period.

Social Context

Information gathered from high school level teachers across multiple subject areas will be involved in sharing their perceptions of how students use cell phones in class. To focus on how teachers may maximize benefit of using cell phones during instruction, offset the distractions in their classrooms, and ensure grade 9-12 high school students are still receiving the information they need. Cumberledge (2017) illuminated the unhealthy connection most students have to their cell phone can inhibit their ability to converse with other people face to face. Of teens surveyed, 35% of them admit to having used their cell phones to cheat on a test or homework (Morin, 2019). Research studies conducted and shared, thus far, on cell phones in classrooms have not provided an in-depth understanding of the teacher’s perception in the context of cell phone usefulness and distractibility for high school students and how this affects learning and growth toward mastery of state standards for graduation.
Theoretical Context

The theories guiding this study are Vygotsky’s sociocultural theory, based on the belief that learning is influenced by peers, culture, beliefs, and attitudes (Rogoff, Dahl, & Callanan, 2018). Their interactions within the classroom setting influence Vygotsky’s social constructivism theory revolved around the growth of students. Stokes (2010) explained that Vygotsky believed that a child learns first by social exposure, which the child then internalized. Vygotsky (1978) was a proponent of children’s thinking is influenced by their environment. Like this, students are setting their norms based on what friends are doing, what they can do in each class, and what acceptable behavior would result in the lack of consequence or acknowledgement of actions as unacceptable in the student handbook (Kang, 2015). This choice of philosophical framework is pragmatism, as John Dewey described it ethical analysis of logical concepts (Cline, 2018). This ethical analysis pertains to the teachers’ rational perception of the students’ use of cell phones for instruction and what may need to change in instructional delivery to ensure students are still receiving the information that they need to achieve mastery of the topic. This research’s overarching reasoning is to allow teachers to see their own perceptions of student cell phone usage and adjust instruction for student success.

Situation to Self

As the researcher for this intrinsic case study, I have been a special education teacher and coordinator for seven years with previous military experience as an interrogator. I tend to ask many follow-up questions. All my years of teaching experience have had interactions with and worked with high school level students. I used a pragmatic approach and all attempts to remain unbiased. I chose the pragmatic approach to understand peoples’ actions in order to improve the situation. I prefer to always leave a situation better than I found it. The same is true for how
teachers’ can implement cell phones into their classrooms. This pragmatic approach included my not anticipating the answers to questions based on what is expected as an answer.

Daily, I spend time with not only special education students, but also general education students and I observe them in multiple classrooms with different general education teachers. My observations have created an interest in this topic. The teachers I interact with have an expanse of teaching and management styles. These teaching styles also bridge an expanse of generations from Baby Boomers - born between 1946 and 1964, and Generation Y (GenY) also known as Millennials - born between 1981-1996; with my birth year falling in between as Generation X (GenX). Additionally, all of us have been charged with educating Generation Z (GenZ) - those born between 1995-2015.

The epistemological assumption is based on a need for students to interact with their phones and activating the screens, even when not being used for academics, and for some students almost appears to be an addiction. A few possibilities for this appearance of addiction will be discussed further in Chapter Two, since nomophobia is the name that has been used for the discomfort of not having a digital connection to others (King, Valença, Silva, Baczynski, Carvalho, & Nardi, 2013), and Fear of Missing Out (FOMO) is the term used for a sort of social anxiety that arises from the possibility of missing a social interaction or new happening (Dossey, 2014). This epistemological assumption comes from the need to investigate student cell phone use in high school classrooms to distinguish between the researcher’s opinion and justified belief.

The axiological assumption is a study of value, and students’ habit of having technology at the fingertips can create a robust pot of the uses and potential for cell phones in the classroom with some creativity from the teacher. I observed in classrooms on many occasions some
student’s preference to use their phones over other devices to complete tasks and assignments. The curiosity and desire to conduct this study was born from the perceptions of teachers compared to my own perceptions regarding student cell phone use and how these perceptions can be used to shape instruction in current high school classrooms. Using ontological assumptions to show relation between the concept of cell phone uses in high school classrooms and the categories in which the cell phones are used will allow me to comprehend (Creswell & Poth, 2018) high school teachers’ perceptions more fully. These perceptions give them a unique insight from working in classrooms daily with students.

The research paradigm being used was interpretivist, with a sub-mixture of descriptive and exploratory. Since I am a teacher, the research on cell phone usage in the classroom is a concept or situation that I know something about but will rely on what is being observed in the classroom to be contained in the descriptive paradigm. However, the research paradigm will be exploratory since the perceptions of other teachers is not something I can comment on directly and will need to rely on their expertise and opinions for the perceptions of cell phone use. The descriptive and exploratory data collection together will rely on interpretivist aspect to gain information and to understand the particular viewpoint of the participants, rather than my own as the researcher (Kivunja & Kuyini, 2017). This case study will allow me to gain knowledge in multiple ways using this interpretivism and critical humanism, as I am involved with the people studied while still being connected to the perceptions of the participants (Rallis & Rossman, 2010). The themes discovered after conducting the interviews and completion of the survey will allow for the richest sharing of interpreted data on teachers’ perceptions of cell phone use for the study when it is time to report the findings.
Problem Statement

The problem is high school teachers are finding the need to change the way they present information based on students’ tendency towards distraction while using cell phones during class. High school students seem to be losing their time on task/attention to task with the increase in technology usage. In 2015, 88% of teens owned a cell phone, 78% of those being smartphones (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013; Anderson, 2015). In June 2018, Schlosser reported 95% of teens have some level of access to smartphones with about 45% of those teens with access admitting to being nearly constantly online. Approximately 76% of persons who own a cell phone rarely or never turn them off (Rainie & Zickuhr, 2015). The constant connection to technology can create a deficit for gaining instructional knowledge given in the classroom (Waite, Lindberg, Ernst, Bowman, & Levine, 2018).

Students need to gain as much information toward mastery from instruction during class, since for most, during the class period is the time they spend with the topic. Academic saturation is reached much more quickly because of distractions and time on task (Cho & Littenberg-Tobias, 2016). The current generation is less likely, in the workforce, to delineate the workspace from work to home. The current generation has a much more fluid view of what is a workspace and what constitutes a non-workspace. This may also be a factor in why students are so involved with their phones during academic instruction (Langan, Schott, Wykes, Szeto, Kolpin, Lopez & Smith, 2016). There is research that has been conducted about teachers’ perceptions of cell phone use in a K-12 focus (Bartholomew & Reeve, 2018), and most often data has been found with university or college students (Aaron & Lipton, 2018; Flanigan & Kiewra, 2018), but not specifically from the perspective of high school teachers. High school teachers have a unique
perception of students’ use of cell phones in the classroom based on the time spent with them, but there is minimal data being reported about these perceptions.

**Purpose Statement**

The purpose of this intrinsic case study is to discover the high school teachers’ perceptions of student cell phone use in the classroom at Battery Creek High School. At this stage in the research, students’ cell phone use will be generally defined as having and using a cellular device in the classroom for accessing the Internet, social media, or staying connected via voice or text (Scholastic.com, 2019). The theories guiding this study are both based on Vygotsky (1978) - his sociocultural theory as it pertains to the environment children grow up in affecting how they think and what they think about and also his social constructivism theory as it revolved around the growth of students being greatly influenced by their interactions within the classroom setting.

**Significance of the Study**

**Theoretical Significance**

The theory guiding this study is Vygotsky’s (1978) sociocultural theory which describes the belief that peers, culture, beliefs and attitudes influences all learning (Rogoff, Dahl, & Callanan, 2018). Vygotsky (1978) was a proponent of children’s thinking as influenced by their environment. Researchers (Campbell, 2007; Shelton, Elliott, Eaves, & Exner, 2009) have been conducting studies for several years to delve into the distractions that students face with specific items such as social media, their own computers, multi-tasking with a computer and a phone, and attempting to listen to a lecture. Vygotsky’s sociocultural theory was chosen for this study because of the culture created in each classroom by these peers and the affect the cell phones can
have on this culture. The teachers also take part in this culture and understanding their perceptions can benefit other teachers in implementing cell phones into their classrooms.

**Empirical Significance**

As teachers are a part of the culture in their classrooms created by the community of students there, there is a benefit of adding the perceptions of high school teachers to the existing research. There are several studies (Kay, Benzimra & Li, 2017; Flanigan & Babchuk, 2015; Lau, 2017) that asked students to determine their own distraction(s) and how these affect their academic success. Teachers, cognizant of what their students are spending time on with their cell phones, will be better able maintain balance during instruction (Cheong, Shuter, & Suwinyattichaiporn, 2016). Research seems to be lacking in the high school teachers’ perceptions of students’ cell phone use in the classroom. The previously researched distractions that may be caused have been researched at the university level. Also, the educational benefits to each student having their own device are facets of the teachers’ perceptions (Bartholomew & Reeve, 2018).

**Practical Significance**

From the learning standpoint, without regard for the pacing of curriculum in a course, some research has been done about the amount of time given to students to pick up new information and put it to memory (Leppink, 2017). The downfall to giving students too much time, relating back to the research about being distracted by their technology and social media, is when given too much time for a task; they would most likely go toward using their cell phones for off-task behavior (Aaron & Lipton, 2018). A teacher in their classroom able to balance the amount of time a student spends on their cell phone on task will potentially be able to move at a more rapid pace through their curriculum. Teachers who understand this balance between cell
phones being a learning tool and a distraction will create a better environment for standards delivery by the high school teacher and mastery by the students in their charge.

**Research Questions**

As the researcher determined gaps in the literature about high school teachers’ perceptions of students’ cell phone use in classrooms, three questions began to surface. The teachers’ answers to the questions of student cell phone use could vary depending on their perception, how integrated cell phone are and what they are used for. These determinations were selected by the researcher for the three following research questions.

*RQ1: How do high school teachers perceive students’ cell phone use during class?*

*RQ2: What did high school teachers perceive was the most frequent cell phone integration during class?*

*RQ3: How do teachers perceive potential positive uses of student cell phones during instruction?*

Research Question One (RQ1) is delving into details of the high school teachers’ perceptions of students’ cell phone use in class. This usage by college and university level professors and students has been researched and findings reported (Aaron & Lipton, 2018; Berry & Westfall, 2015; Flanigan & Babchuk, 2015, Flanigan & Kiewra, 2018; Ieda & Otávio Bocheco, 2018). Middle school research has been conducted (Bartholomew & Reeve, 2018), but there is a gap in information about the high school teachers’ perception of students’ cell phone use.

Research Question Two (RQ2) aims to address the question about how students are able to use cell phones during classroom instruction. This will gain insight into what teachers perceive is the most frequent use. Several aspects - to include middle school focus, college classrooms, media platforms and interfaces have been researched for the potential uses for cell
phones as another platform for digital connection in the classroom (Bartholomew & Reeve, 2018; Fewkes & McCabe, 2014; Ieda, Otâvio Bocheco, 2018; Kumar, & Bervell, 2019.).

Research Question Three (RQ3) seeks to discover high school teachers’ perceptions of what the optimal positive use of those cell phones would be to most benefit instruction and mastery of material. Claims have been made that teachers are ready to integrate cell phones in their classrooms (Thomas and Muñoz, 2016; Thomas, O’Bannon, & Britt, 2014), but this integration must be effective. Research has been conducted with other technology devices such as the laptop (Ravizza, Uitvlugt, & Fenn, 2016), and the tablet (Suarez-Guerrero, Lloret-Catala, & Mengual-Andres, 2016) being the research focus for effective digital integration.

**Definitions**

1. *Baby Boomers* - Term given to individuals born between the years of 1944 and 1964 (USHistory.com, 2019)
2. *Boredom Effects* - Boredom effects are defined as the result of forcing students to spend more time than is needed on a subject or topic (Leppink, 2017).
3. *Cyberbullying* - Intentional harmful behavior carried out by a group or individuals, repeated over time, using modern digital technology (Whittaker & Kowalski, 2015).
4. *Cyber Slacking* - Cyber slacking is how using technology and the Internet during scheduled class for unintended purposes is commonly known (Taneja, Fiore, & Fischer, 2014).
5. *Generation X* - Term given to individuals born between the years of 1965 and 1979 (Kasana.com, 2019).
6. *Generation Y* - Term given to individuals born between the years of 1981 and 1996, also known as Millennials (Kasana.com, 2019).
7. **High School Teacher** - For this case study, a teacher with less than 30 years of teaching in a high school classroom, across content areas (DuPont, 2018).

8. **Instrumentalism** - Instrumentalism, as credited to John Dewey, as the ethical analysis of logical concepts (Cline, 2018).

9. **Millennials** - Another term used for Generation Y (Kasana.com, 2019).

10. **Multitasking** - Multitasking is divided attention and non-sequential task switching for ill-defined tasks (Junco, 2010).

11. **Net Generation** - How scholars were referring to the current generation for their assumed/perceived technology savviness (Flanigan & Kiewra, 2018).

12. **Nomophobia** - the name given to the discomfort of not having a digital connection to others (King, Valença, Silva, Baczynski, Carvalho, & Nardi, 2013).

13. **Phubbing** - Snubbing another person(s) in a social or public setting by attending to the phone instead (Ugur & Koç, 2015).

14. **Self-regulation** - A redirection to task after a brief period of distraction (Lang, 2017).

15. **Sexting** - The transmission of sexual text and/or nude or sexually explicit photographs via smartphone (Mann, 2017).

16. **Streaming** - The live video feed of movies or shows from television networks or platforms such as Netflix, YouTube, or Amazon (Le, Keller, Seferoglu, Cici, Fragouli, & Markopoulu, 2015).

17. **Time on Task** - Time on task is an important characteristic of the solution process indicating the duration of perception and cognition (Goldhammer, Naumann, Stelter, Tóth, Rölke, & Klieme, 2014).
18. *Zoom* - Zoom is a cloud-based peer-to-peer software platform used to conduct video conferencing (*zoom.us*, 2011)

**Summary**

In chapter one, background was provided in historical, social, and theoretical context. The problem is high school teachers are finding the need to change the method they are using to present information based on how distracted students can become during instruction. High school students seem to be losing their instructional time on task/attention to task with the increase in cell phone technology distractions. The purpose of this intrinsic case study is to discover the high school teachers’ perceptions of student cell phone use in the classroom at Battery Creek High School.
CHAPTER TWO: LITERATURE REVIEW

Overview

Chapter two encompasses the literature review and the topics of discussion about high school teachers’ perceptions of students’ cell phone use in the classroom. These discussions demonstrate why research regarding students’ cell phone use in high school classrooms is needed. Also demonstrated was how teachers may change instruction delivery to maintain their classrooms’ culture best and complete the required lessons for mastery in high school classes.

The literature review contains theoretical framework and related literature. The theoretical framework supports Vygotsky’s sociocultural theory and social constructivism theory. These theories explain how students behave with their cell phones based on peers’ input, how cell phones could be useful in classroom instruction and used as distractions, and how this behavior becomes internalized after being witnessed. Vygotsky’s zone of proximal development discusses this classroom structure as completing tasks shifts from independent to needing assistance from a teacher, peer, or search engine.

Within the related literature review section, there are many facets to classroom cell phone use researched. These multiple facets include interactive coursework, nomophobia, an intervention, cell phone norms, cell phone etiquette, and policies in schools. Further components researched were phubbing, technology connectivity, cyberslacking, media competitions, gaming - downloaded and online interactive, streaming videos and television shows, mobile collisions, music - streaming and downloads, and social media. Other aspects included the Fear of Missing Out (FOMO), distractions from classwork, multitasking, time and attention to task, and self-regulation. Two other features include texting - as defined as the top of the list for the way
adolescents are communicating - and cyberbullying. Each of the qualities added value to addressing the research questions and explored in further detail in the related literature section.

**Theoretical Framework**

The theory guiding this study is Vygotsky’s (1978) sociocultural theory which describes the belief that peers, culture, beliefs and attitudes influences all learning (Rogoff, Dahl, & Callanan, 2018). Vygotsky (1978) was a proponent of children’s thinking as influenced by their environment. Vygotsky termed this environment surrounding a child as a zone of proximal development. This zone is the area of exploration and engagement in the learning the student is cognitively prepared to be in but needs to be assisted by social interaction to most fully develop, depending on the student involved (Briner, 1999). A high school classroom student is being shaped daily concerning the type, amount, and quality of social interactions.

Following Briner’s thinking with regard to Vygotsky’s sociocultural theory, Modesto and Tau (2017) concluded that a student’s cognitive development requires collaborative dialog with others who are more knowledgeable in the subject area. Students are setting their norms based on what friends are doing and what they can do in each class. Acceptable behavior for each student is based on the lack of consequence or acknowledgement of actions of other students or published as unacceptable in the student handbook (Kang, 2015). The culture and acceptable behavior with sociocultural theory will be evidenced in the research reviewed and also in the information gained in the case study research.

Kurtz-Costes (2015) further explained a shared culture, guided through participation. This guided participation is where those with the knowledge and experience of the culture model this for students who are new to it. Vygotsky’s theories support the premise that a school and each classroom has its own culture. This culture is constantly changing and evolving with the
growth of the knowledge within it. The student’s active participation in this culture is dependent on whether they can use their cell phones for either instruction or distraction.

The perceptions of students’ cell phone use in the classroom by high school teachers based on Vygotsky’s theories. Since teachers are also a part of group norms and group thinking (Mosey, 2015). The knowledge a teacher can gain from a student, or another teacher, shapes these norms and group thinking, thereby the classroom culture. This intrinsic case study included semi-structured interviews, teacher survey, and focus groups will allow the researcher to achieve an epistemological framework. An epistemological framework is defined by Creswell and Poth (2018) as allowing researchers to get as close as possible to the participants. Teachers will be the primary source of information, some of it shaped by the tools and signs used by students within the daily course of school (Marginson & Dang, 2014). The interviewer got more in-depth with perceptions of cell phone use in the classroom described by each participant in his or her interview during the follow-up focus groups.

The use of epistemological framework was to convey experience through rich description (Stake, 1995). It increased the study’s validity and reliability due to the correlation of teacher interviews and transcripts, teacher completed surveys, and focus groups. The data collected developed common themes to delve more deeply into high school teachers’ perceptions of students’ cell phone use. These rich descriptions (Stake, 1995) are to be used to convey the experience for one who may not have had the experience. At the completion of interviews and surveys, common themes found through discussion provided profound clarity to determine groups’ focus and contribute recommendations to enhance instructional practices.
Related Literature

Students in high school classes with cell phones and access to social media and other cellular or web-based outlets spend less time on tasks that are sometimes required to show mastery (Junco, 2010). Aagaard (2016) added another facet to this difficulty when he wrote about the contemporary classroom and how students are no longer constrained and isolated by their access. Spending less than an adequate amount of time can be detrimental to learning, which happens to prepare students for the next grade or subject course. Recently, the access has become even more necessary as some students moved to a hybrid model or to a completely virtual learning experience.

Teachers have a certain amount of material that must be covered to meet the state standards for the grade level, thus preparing the student for the next set of grade level standards (David, 2008). As a teacher sets or follows the existing pacing for the course, the speed at which the information is presented will either be delayed due to distractions or sped up with benefits of technology and multimedia platforms. This pacing with technology and multimedia platforms creates an increased requirement for the time students spend in front of a screen. Tandon, Zhou, Hogan, and Christakis (2020) wrote schools should support recommendations for screen time just as they do for optimal physical activity and nutrition.

Ali, Papakie, and McDevitt (2010) placed the statistics at approximately 50% of students using phones in the classroom. The statistic reported by Anderson (2015) distinguished 78% of teens own a smartphone. Anderson and Jiang (2018), along with Schlosser (2018) noted 95% of teens have access to a smartphone and 45% of teens admitted to almost constantly being online. This screen time and connection affect the user and those around them, and the teacher trying to instruct. When used correctly, cell phones can be an asset to instruction and learning, but the
increased availability of technology also increases the potential off-task behavior present (Gao, Yan, Wei, Liang, & Mo, 2017).

Mokhtari, Delello, and Reichard (2015) conveyed that technology can create deficits in the pace of content coverage or the mastery of content covered. Mendoza, Pody, Lee, Kim, and McDonough (2018) furthered the notion students’ cell phone use in class is a significant part of the time spent on technology. Some studies show when students self-report, their computer and cell phone use averages just over five hours per day (Hutcheon, Lian, Richard, 2018). This number may be on the lower side, depending on how many hours per day a student is awake.

Hutcheon, Lian, and Richard (2018) maintained that statistics might also become skewed due to the student’s self-report and what they assumed was the correct answer. Students who support cell phones in class are averaging around 70% (Thomas & Muñoz, 2016). Teachers’ perspectives of students’ cell phone use are needed but not addressed.

**Interactive Coursework**

Lin, Su, Chao, Hsieh, and Tsai (2016) asserted cell phones can be used in classrooms as a media platform of their own for teachers. Teachers have used cell phones as a buzzer of sorts for ringing in for students to answer questions in an educational game (Quizlet.com, 2019). Another option for teachers is to use their phone as a scanner for Quick Response codes (QR codes) to determine how many students have the correct answer to a question (Boschen, 2019). These cell phones add competition for students while having the cell phone activated during class. Students actively engaged with the question and the time limit to answer requires students to provide a quick response. Stock, Gohil, Huster, and Beste (2017) theorized the competition might be enough to engage the students since research is showing Millennials do not adapt to technology changes nearly as quickly as more seasoned generations assumed Millennials would.
Students of this generation want to use technology in all aspects of their lives, but only on their terms (Kumar & Bervell, 2019).

The class’s mobile, web-based classroom maintains connectivity and allows students to choose their cell phones as the medium to be associated (Ali, Papakie, & McDevitt, 2010; Lau, 2017; Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). However, Kumar and Bervell (2019) revealed there may still be low student engagement in these tools. For some, this low engagement may be due to the students’ low storage space on their phones used to download the mobile application. Students also can receive text notifications to their phones whenever their grade is changed, or assignments added to their gradebook (O’Bannon, Waters, Lubke, Cady, & Reardon, 2017; Yaron & Vered, 2019).

Allowing students to have up-to-the-minute knowledge of how they perform in class can help as a self-regulating or automated tool and detrimental taking away from the current lesson (O’Bannon, Lubke, Waters, Cady & Reardon, 2017). Student awareness of grades helps them take responsibility for the assignments (Geddes, 2009). One example is when students receive text message notifications on their phones of their graded assignment. Many students immediately access their gradebook to find out the details, regardless of their current classroom tasks (Felisoni & Godoi, 2018; Mokhtari, Delello, & Richard, 2015; Patel, 2017; Thomas, O’Bannon, & Britt, 2014).

**Nomophobia**

The term nomophobia was first coined in 2008 during a study in the United Kingdom (Yildirim & Correia, 2015). Nomophobia was used to explain the anxiety created by being separated from a mobile device. As it pertains to a relevant social phobia, nomophobia was being used in published articles in 2013 and continues to be relevant (King, Valença, Silva,

Nomophobia continues to be a significant topic on student attention in class and cell phone use (Mendoza, Pody, Lee, Kim, and McDonough, 2018). King, Valença, Silva, Baczynski, Carvalho and Nardi (2013) categorized nomophobia as a social phobia which refers to the discomfort and anxiety caused by the absence of a virtual communication device, which in some cases may be other devices than a smartphone. However, most of the time, nomophobia has been related to a personal cell phone (Nagpal & Kaur, 2016; Gentina, Li-Ping Tang, Dancoine, 2018; Tams, Legoux, & Léger, 2018).

Olivenica-Carrión, Ferri-Garcia, del Mar Rueda, Jiménez-Torres, López-Torrecillas (2018) also referred to persons suffering from nomophobia as nomophobes. This nomophobia, as with many other phobias is a true and tangible thing to the person - nomophobe - who experiences it. Teachers considered digital immigrants - those born before GenZ - will need to be aware of this phobia, albeit deemed by most academic individuals as irrational, during their instruction (Gentina, Li-Ping Tang, Dancoine, 2018; Wang, Myers, & Sundram, 2013).

This study’s relevance is that high school students suffering from nomophobia, the nomophobe, will go to great lengths to remain connected to their mobile device due to the irrational fear of being out of contact. Farooqui, Pore and Gothankar (2017) also discussed this irrational fear as a prevalent issue in the United States, since 66% of adults surveyed were classified as nomophobes. The majority of those sleeping with their phones either next to them or in bed with them. GenZ students who are most likely suffering from some level of
nomophobia will not see the rationality in simply putting their phones out of reach or connection (Tams, Legoux, & Léger, 2018).

Cell Phone Policies in Schools

Every school has student cell phone policies, and most teachers surveyed would prefer to not make their own policies. Teachers prefer to have a school-, or district-wide policy on the use of cell phones (Ieda & Otávio Bocheco, 2018). Roberts (2016) promoted the key to preventing cell phone use in class is in choosing the right penalty. Some teachers are integrating cell phones to have equal access to technology since they may be the student’s only access to the applications or websites being used for instruction (O’Bannon, Lubke, Waters, Cady & Reardon, 2017).

Gao, Yan, Wei, Liang, and Mo (2017) discussed the three crucial players in a school cell phone policy. They termed the three players: teachers as policy makers, students as policy receivers, and parents as policy mediators. All three of these are crucial to determining the level of cell phone use allowable in the classroom. Parents must be involved and working with the teachers and students for the policies to be effective.

Tandon, Zhou, Hogan, and Christakis (2020) bring another facet to cell phone policies in schools. Their article focused on the amount of students’ screen time exposure as an increasing concern. Tandon, et al (2020) touted schools as having a unique opportunity to create predictable screen-free time for students during school hours. The authors also further noted a large portion of the respondent schools are allowing students to use cell phones during lunch and recess and even with policy in place. Many schools allow use of cell phones during class time as well.
Intervention with Yondr pouches

In a flagship move by a school in San Mateo, California, the largest high school to place a whole school ban on cell phones being accessible during school hours was in the news (Medina, 2019). Yondr pouches were purchased for each student’s cell phone of the school and were issued with textbooks at the beginning of the year. The Yondr pouch is a patented pouch system with a magnetic locking mechanism (overyondr.com, 2019). The student using it is not separated from their phone physically but cannot access it to check social media or any other potentially distracting activity.

This pouch could minimize the nomophobia students face when separated from their device all together (Yildirim & Correia, 2015). San Mateo High School administration included drills after conducting a pilot program last year with 20 students to determine how quickly each pouch can be unlocked, in case of emergency. The school officials reported the entire school could unlock the pouch in minutes (Reyes, 2019). One of the many examples of interventions that are being implemented by schools across the United States.

Cell Phone Norms and Etiquette

In 2014, the United States users checked their cell phones on average 46 times per day (Eadicicco, 2015) and by 2018, the times per day averaged for checking phones was 52 (Spangler, 2018). Eadicicco (2015) shared people between the ages of 18-24, when isolated, almost double the number of times checking their phones to 74 times per day. Reason would expect students between 13 and 18, who self-report too much time spent on their phones (Jiang, 2018) to have even higher instances per day of phone checking.

Norms and Etiquette. Adolescents who share their opinion about text messages find it is sometimes a less risky way of getting to know someone than a face-to-face encounter. For this
reason, texting is the top of the list for ways teens communicate (Tulane, Vaterlaus, & Beckert, 2015). With texting being at the top of the list of ways students communicate, it also comes with its own set of rules and norms (Forgays, Hyman, & Schribner, 2014).

Parents are buying their children cell phones, in the majority - smart phones, to stay connected. Blair and Fletcher (2011) remarked in their research cell phones were not being used for meddling parents, but to increase adolescent independence while providing parental connectivity. Not having the social norms of cell phones like previous generations, students’ phone use conduct may create difficulty for the user when speaking to different individuals (Eastern, 2019; Forgays, Hyman, & Schribner, 2014). Cheng (2017) reiterated in text messages that even with emoticons or emojis, a confusing meld of feelings, purpose, and connection could occur.

Today, students have more ways to connect without truly connecting. Similarly, previous generations were able to have a party at someone’s house, now they are able to connect in the application named House Party. Netsanity.net (2019) referred to this application as Facebook on steroids. The interface allows up to eight friends to be in a video chat at one time, in real-time. There is a need for etiquette and norms. Netsanity (2019) explains there is potential to have strangers creeping into the chat and the possibility for this mode to be used as a portal for risky behavior.

**Phubbing**

The phenomenon of phubbing, the snubbing of others in a social setting in favor of the smartphone (Ugur & Koç, 2015), is a growing concern for adults. Ugur and Koç (2015) described how using a mobile device to snub someone in a public or social setting has also occurred during coursework and classroom time for students. Missing instruction or directives
from the teacher due to being busy with technology would also fall into this category of problematic smartphone use (Chotpitayasunondh & Douglas, 2016). Cell phones and smartphones have decreased face-to-face interaction and even empathetic concern for others (Misra, Cheng, Genevie, & Yuan, 2014). One of the potential problems with the increase in phubbing is those who have been consistently phubbed to then engage in phubbing others (Chotpitayasunondh & Douglas, 2016). Phubbing can create isolation for each student within the classroom since phubbing can occur when individuals are nearby, such as side-by-side in desks or tables but are engaged with their phones instead (Roberts & David, 2016).

**Technology Connectivity**

With the Internet’s availability at students’ fingertips, literally with touch screen technology on their smart phones, there is more of a possibility the students will be on their phones and less engaged in the classroom. Many faculties claimed technology and their students’ devices to access the Internet are intrusions and have become central to the off-task activities within their classrooms (Lanagan, Schott, Wykes, Szeto, Kolpin, Lopez, & Smith, 2015). Storch and Ortiz Juarez-Paz (2019) shared the accessibility of purposefully implemented technology in today’s classrooms is a very viable option.

**Access to devices.** Bartholomew and Reeve (2018) reported that students today carry more technology and connectivity on an hourly basis than other generations before them interacted with in a lifetime. Students are on their phones in classes, some under the guise of looking at their digital textbooks. However, most are sending messages, checking statuses, or updating their social media status (Lang, 2017). Scholars had referred to these students as the Net Generation - and deemed them the ones who would be the technology-savvy individuals who would lead the way for the generations to come with their technological efficiency. This has not
been the case though, and the Net Generation spends a large amount of their time with technology using it for off task behaviors and interactions (Flanigan & Kiewra, 2018).

There has been litigation with parents against a school district when taking a student’s cell phone, they claimed it was a violation of the student’s personal property and rights (Vijayan, 2017). Logan and Kamenetz (2018) for National Public Radio (NPR) alluded to cell phones being a significant contributor to accountability, safety checks, and collaboration during the Parkland High School shooting. Students and their cell phones more often are becoming the reason parents are aware of a situation at school before administration can provide notice (Goodrum, Woodward, & Thompson, 2017).

Many high school students have a cell phone of their own or access to a cell phone from someone else throughout the day. To detail the prevalence of cell phones in classrooms, in their study of technology distraction, Beland and Murphy (2016) did not even choose to specify a group since they estimated at least 90% of the students would have a cell phone present. As noted earlier, access to devices does not seem to be on the decline. Eadicicco (2015) relayed in 2014, people polled by Deloitte reported checking their phones 33 times per day. Spangler (2018) shared the number had risen in 2018 to 52 times per day.

Eadicicco (2015) added further statistics with young adults between 18 and 24 years old checking their phones 74 times per day. Currently, 20% of millennials open an app on their phone more than 50 times per day (Panko, 2018). Today’s high school students are most likely checking their phones multiple times an hour, if not several times per minute, greatly increasing this statistic if on par with the national average’s increases. Jiang (2018) explained parents are concerned about the amount of time their children spend in front of screens, and more than half of the parents surveyed try to set limits of time on their phones.
**Cyber-slacking.** Taneja, Fiore, and Fischer (2014) described off-task behaviors and interactions with the term “Cyber-slacking” how “using the Internet and technology during scheduled class time for non-class related purposes is commonly known” (p.141). Flanigan and Kiewra (2018) pointed less to why cyberslacking is happening and toward how to combat this as an instructor. Cyber-slacking is much more prevalent when the environment is strategic for it to be. Students have used their cell phones to order pizza they hope to have delivered at the end of class, only to have the delivery man show up early during the lecture portion of class (Beland & Murphy, 2016).

Cell phones take over many different aspects of instruction and curriculum (Eliasson Cerrato Pargman, Nouri, Spikol, & Ramberg, 2011). The media even seems to be scrambling to keep up with the prevalence of cell phones and social media reporting how teens are spending time (Twenge, 2017). Television (TV) programs, in the past, were used in classrooms for educational purposes. However, now there are many ways students can access this information without having to watch an actual news or educational program on TV (Ravizza, Uitvlugt, & Fenn, 2016).

**Media and Instruction competition.** Stauff (2016) wrote television had become one of many layers of distraction, with cell phones as another, for already distracted students. Distractions can be even further compounded by students watching television on apps on their cell phones (Mendoza, Pody, Lee, Kim, & McDonough, 2018). Researchers who studied the negative aspects of cell phone use in class support the opinion: cell phones cause a multi-faceted detriment to student performance (Yaron & Vered, 2019).

A typical instructional setting for a teacher may be using a method of instruction known as I do, We do, You do (Weebly.com, 2019). In this modeling method of instruction, the teacher
first gives instruction and examples while the students listen and take notes for the I do portion. The We do part of the lesson is a gradual release to work with students to complete problems and examples. For the You do completion time of a lesson, the students work independently toward mastery while the teacher becomes more of a facilitator in the classroom environment. Student distraction can more than double the time it would take to get to the independent practice portion of a lesson (Kay, Benzimra, & Li, 2017; Skenderi & Skenderi, 2018).

From the explanations of Kay, Benzimra, & Li (2017), for it to be independent and practice, the teacher must take extra time to instruct rather than only helping to catch up on the missed instruction from being distracted. When the school server does not block social media platforms, time for instruction and distractibility could increase dramatically (Aaron & Lipton, 2018). This blocking is only possible for the cell phones on the school wi-fi, not for those cell phones using the student’s data plan. Berry & Westfall (2015), Tulane, Vaterlaus, & Beckert (2018), along with Zebroff (2019), cited when a student is using their cell phone in class for reasons other than instruction, the student is texting and or sending messages on social media the majority of this time.

**Gaming**

Students use their cell phones for many different things during the day (Yaron & Vered, 2019). Hunter, Leatherdale, and Carson (2018) described gaming as one of the students’ sedentary behaviors in the longitudinal study for its impact on academic achievement. Some students enjoy playing mobile versions of their favorite video games. Low engagement in their coursework potentially is the result of these mobile games taking up most of the storage space on their phones, which may otherwise be available to download the mobile application for their class (Felisoni & Godoi, 2018; O’Bannon, Waters, Lubke, Cady, & Reardon, 2017).
**Downloaded games.** Some students, more often male (Telephi, 2006), may be playing versions of games that have been downloaded to their device and do not require Wi-Fi connection to continue playing. These subscriber’s games downloaded made up 53 percent of games played in 2006 (Telephi, 2006). Statista.com (2019) reported the percentage of downloaded games at 63.1 percent. The downloaded game is available so the player can play it at any time, including class time. The only portion of the downloaded game which may hinder a student from playing during class is the “on-portal” game purchases some games require - and approximately 71% of the game’s revenue comes from these purchases (Choi, 2015).

**Online interactive versions.** Nonetheless, students are involved in the gaming world they are playing (Erturkoglu, Zhang, & Mao, 2015). This involvement is due this version being interactive and in real time. This version of the game could coincide with other students either in the same room, or in another class at the same school. The benefit of these interactive games would be using the online interactive versions to help teach difficult content in areas, such as science, with tools such as digital game-based learning (DGBL), a method of modifying current trending games to the subject matter (Brown, Comunale, Wigdahl, Urdaneta-Hartmann, 2018).

As an example of this, Gizmos (explorelearning.com, 2021) are interactive math and science simulations for grades 3-12. Students conduct science experiments when there is a dog to be weighed or water displacement to be done without using actual water or animals. In one elementary-level scientific Gizmo interaction, students can use a scale to measure the weight of the planets one by one while rebalancing the weights used for the previous planet (explorelearning.com, 2021).
Streaming

Videos can also access on one-to-one device with students in classes and on their cell phones with an online streaming video platform. It is considered a streaming platform if websites and mobile apps showing video content or allow video content to be displayed (Tichem & Tuinstra, 2018). This content can, and is most often, displayed in seemingly real time.

Streaming Videos. Gong, Pourbakhsh, Chen, Wang, Chen, and Wang (2017) explained the amount of memory needed for streaming of videos on mobile devices. In 2013, two-thirds of mobile data traffic was created from video streaming. Several years later, ideas shared about multiple people being able to share the download data, rather than independently downloading the video needed would save bandwidth (Le, Keller, Seferoglu, Cici, Fragouli, Markopulu, 2015). More than 70% of teens watch more than three hours of video per day on their mobile devices (ThinkwithGoogle.com, 2019) and could be convertible since many students watch television shows on their cell phones (Mendoza, Pody, Lee, Kim, & McDonough, 2018). Along the similar line of saving bandwidth, Zhang, Liang, and Zhang (2018) identified the mobile streaming of videos to smartphones is predicted to be as high as 75% by the end of 2020.

Streaming Television Shows. When a student can discuss the show they just watched because of being able to stream the video at any time of day, this can create off-task behavior. However, Le, Keller, Seferoglu, Cici, Fragouli, and Markopulu (2015) discussed the benefits of a shared interest and cooperating to download a class-related video, sharing the bandwidth needed to ensure the most benefit from this streaming. Gen Z students - born 1995 to 2015, who are known to be very tech savvy digital natives (SilverDoor.co.uk, 2019), instructional designers often recommended audio and visual presentations or video with captioning - to enhance
learning (Ozdemir, Ismirli, & Sahin-Ismirli, 2016). Horbal (2018) added videos being used in literature classes, for example, could be considered transformative.

**Mobile traffic collisions.** Another aspect of students streaming videos during class time was referred to by Kwon, Huigwang, Kim, Ju, and An (2016) as collisions of mobile traffic. With the increased demands for bandwidth and video streaming among smartphone users, this causes a degradation of video streaming’s scalability, creating the need to separate networks. This competition, collisions and mobile streaming degradation is created when multiple users attempt to connect to the same content (Kwon, Huigwang, Kim, Ju, & An, 2016; VanUllen, Mock, Rogers, 2018; Zhang, Liang, & Zhang, 2018). These collisions can hinder a teacher’s ability to use bandwidth during the lesson for things such as digital game-based learning (Brown, Comunale, Wigdahl, Urdaneta-Hartmann, 2018) or quick response surveys (Boschen, 2019) mentioned in previous sections.

**Music**

Some students would listen to music all day long if they were allowed. Additionally, some students find comfort in the isolation and therapeutic effects of having music playing into headphones while they work (Zanders, 2018). This comfort can override the classroom teacher’s rules and sometimes inhibit relationships that could be formed in the learning community (Tucker, 2015).

**Live streaming.** Every day in America’s classrooms, there are students with earphones in their ears listening to their latest favorite song. If they have the benefit of live streaming, the easier it is to connect to their music. According to Baur, Seiffert, Sedlmair, and Boring (2010), companies such as Last.fm were the pilots to helping people understand their music history to play similar genres and the newest tracks. Now with platforms such as iTunes (apple.com, 2019)
and Google Play (play.google.com, 2019), students worldwide can have a personal music concierge to show them the best music tracks for their taste.

This instant, constant access can benefit students during independent work time to keep them on track to completing tasks. Teachers may choose to use this streaming option to play classical or free opera music platform (gramophone.co.uk, 2019) to create a relaxing environment for working. For those students who do not have access to a live stream account from Apple or Google, YouTube even has tracks of study music streamed live (YouTube.com, 2019).

**Downloaded music with music video accompaniment.** These live stream options from YouTube.com also may come with another level of potential distraction (YouTube.com, 2019). Some students can download music, but most students listen via recent music videos as their way of listening to music in class. The popularity of this is increasing so much ProQuest, a giant in the academic information realm, has even acquired a company which streams live music videos (Enis, 2016). Auditory and visual stimuli from these music videos provide another level of distraction to students’ work. Watching cars and people in action with the newest dance steps on their device as music plays can take precedence over the parallel work (Moon & Lee, 2017).

**Social Media**

In a perfect scenario, students would use social media at their disposal to participate in groups, research assignments, collaborate with other students, and be a part of the learning community (Fewkes & McCabe, 2014; Kumar & Bervell, 2019). However, most research shows that even students with the best of intentions can be led away from where they originally intended to go once started (Lau, 2017; Leppink, 2017). These distractions can happen with every notification enabled on their smartphone.
Tucker (2015) referred to students as much quicker to join a social media group than to give out an email address or phone number. Social media groups provide students a false sense of safety or being removed from the personal interaction when on social media. The student gets the feeling of being connected without really having to connect. Beyens, Felison, and Eggermont (2016) relayed adolescents seek to gratify their need to feel socially connected with others and social media or social networking sites (SNS) may be excellent tool to use. Social media use to create students’ groups is a new way of facilitating student collaboration (Tulane, Vaterlaus, & Beckert, 2017, Zebroff, 2019).

Platforms and applications. A school board in Canada approved the use of Facebook in an Ontario district by students and teachers to assist in learning. Fewkes and McCabe (2014) took a poll on Facebook of a random selection of students in this district to see where academics fell in the time users spent on the social media platform. These researchers found using Facebook for academic purposes fell at the bottom of the list of the tasks performed. Teachers are trying to use social media to their advantage to best deliver curriculum. Beyens, Frison, and Eggermont (2016) give credence to the idea of teachers using social media to delivery curriculum when they wrote media connects students and contributes to their socialization with peers.

Students are already using social media, most of them during class time when according to established procedures, they should not be. Teachers are attempting to combat this by making it a part of class. Sylvia IV (2014) wrote an article about using Bloom’s taxonomy to balance how the grading of social media assignments create a normed rubric of sorts. This type of rubric being pre-created, normed, and readily available may incentivize technology for a reticent teacher.
Teachers adaptation and norming. Teachers with the propensity to think well and adapt in a crisis, continue working to use the digital tools to do what needs to be done in a particular situation. Flanigan & Babchuk, 2015; Lau, 2017, Sylvia IV, 2014 specifically refer to the use of social media to stay current and relevant in today’s students’ academic lives. Teachers using the platforms they understand and are current can be a very effective way to engage students in their learning. Teachers create a learning environment conducive to keeping pace with the world around them, closer with every technology upgrade (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013; Rogoff, Dahl, Callanan, 2018).

In line with this thinking of engaging students, Suarez-Guerrero, Lloret-Catala, and Mengual-Andres (2016) concurred teachers and curriculum need to move at the stride and pace at which students’ lives do and to be as engaging as possible to be remembered and remain relevant. As a teacher is determined to remain relevant, several barriers create the ever-growing divide between what is available to students daily and what is being offered and presented to them during classroom hours. In years past, the technology divide was between those who had access to technology and those who did not.

The fear of students continuing to use their technology for other than its intended instructional use causes some schools and their stakeholders to put bans in place for cell phones (Thomas, O’Bannon, Blanche & Britt, 2014). Unfortunately, these bans are also limiting the amount of training and professional development for some school district teachers and college or university level professors (Yaron & Vered, 2019). Limits to the amount of training has become more of a focus in the current academic situation most teachers and students find themselves in using online learning more and more. The two approaches to online learning are asynchronous and synchronous approaches. According to Ohanu and Chukwuone (2018) asynchronous
learning takes place at different times, using posts, questions, and comments online, interactions more like texts or social media. Ohanu and Chukwuone (2018) also explained synchronous learning takes place in real time, at the same time, likened to a video chat.

**Fear of Missing Out**

Fear of Missing Out (FOMO) is a fairly new, but widespread phenomenon that seems cyclical. Student use increases in social media and smartphone usage due to FOMO, but their FOMO increases as a result (Gezgin, Hamutoglu, Sezen-Gültekin, & Yildirim, 2019). Wegmann, Oberst, Stodt, and Brand (2017) also alluded to this same perception about accessing of online applications and social networking sites (SNS) like Facebook and Twitter. The study conducted determined the more often the applications were accessed, the more the need to access them presented itself to deter FOMO. The FOMO has also been linked to feelings of self and the need to belong, when one increased, the other also was affected, most often in negative ways - such as depression and a decrease in self-esteem (Beyens, Frison, & Eggermont, 2016; Dogan, 2019; Milyavskaya, Saffran, Hope, & Koester, 2018; Wegmann, Oberst, Stodt, & Brand, 2017).

Wang, Wang, Nie, Zeng, Liu, Wang, Guo, and Lei (2019) have also related problematic smartphone use to envy, with the FOMO being the mediating link between the two. Other researchers have taken the inverse approach to correlations. Blackwell, Leaman, Tramposch, Osborne, and Liss (2017) reported a person suffering from FOMO as the main predictor of frequent social media use, social media addiction, overtaking anxiety, extraversion, and neuroticism as factors to social media addiction. The addiction created by the notion and findings that people, especially adolescents, seek to gratify their social needs via social media (Beyens, Frison, & Eggermont, 2016). Wang, et al (2019) deduced to decrease the problematic smartphone use because of FOMO is to have consistent direct student to student interactions.
Rozgonjuk, Sindermann, Elhai, and Montag (2020) wrote FOMO has consistently been a predictor of Internet, smartphone, and social networks use disorders. Researchers currently seek to find if specific apps such as WhatsApp, SnapChat, and Instagram mediate the relationship to these use disorders (Rozgonjuk, Sindermann, Elhai, & Montag, 2020), while gratifying teens need to belong (Beyens, Frison, & Eggermont, 2016).

**Distractions**

The research shows that today’s students are more distracted than any generation before them (Aaron & Lipton, 2018; Cheong, Shuter, & Suwinyattichaiporn, 2016; Kay, Benzmira, & Li, 2017). The amount of technology at student fingertips is more than ever before and in addition to this is the still present distraction of television and platforms such as YouTube (Stauff, 2016). The typical dilemma instructors face with cell phones is the battle between the appropriate use and young adult’s culture and habits (Bjornsen & Archer, 2015). On each of their devices, students can access their social media accounts. Students have the false sense of reality that the Snapchat just viewed or sent disappears after a certain time but checks again to make sure (Comment: Snap!Chat!, 2016).

As if the scenario was perfect, students would use the social media to research assignments, collaborate with other students, and be an integral part of the learning community (Tulane, Vaterlaus, & Beckert, 2017; Zebroff, 2019). Students can connect through these methods of being on a shared social site, without truly connecting. The students in classes say things about friend requests and being blocked on social media sites such as Snapchat (Comment: Snap! Chat!, 2016) more often than discussing whom they talked with at the gas station or grocery store.
This focus on being snubbed creates distraction from lessons, and how a teacher perceives this can assist them in keeping the classroom making progress (Lau, 2017; Sylvia IV, 2014). To make progress, selected teachers will give students designated phone breaks - where students have a prescribed time to use their phones. It does not always curb the continued use (Thomas & Muñoz, 2016). Jiang (2018) related nine out of ten teenagers reported spending too much time online is a problem facing their age group at the time, while 60% of those polled stated too much time online is a major problem.

Schools have attempted to implement the potential decrease in distraction by issuing the students devices to use in classrooms. Kay, Benzimra, and Li (2017) attempted to determine if the classrooms where students brought their own devices were more distracting than issued student devices. Their research focused more on the familiarity of the device to the student. Teachers’ classroom perceptions of the familiarity - when a student is using their own technology varies. The amount of time off task increases compared to when the device they are using to complete school tasks (Eliasson, Cerrato Pargman, Nouri, Spikol, & Ramburg, 2011).

This knowledge is important as evidenced by the popularity of 1:1 initiative across the United States (Cho & Littenberg-Tobias, 2016). Research has shown although having the technology in the classroom does enhance the learning, it does not necessarily lead to improved student performance (Suarez-Guerrero, Lloret-Catala & Mengual-Andres, 2016). Bolkan and Griffin (2017) noted if a student becomes bored in the classroom, centering around teacher behaviors and style of presenting instruction, cell phones used for off-task behaviors were to be expected. Students found boredom created off-task behaviors acceptable by this attitude.

Eliasson, Cerratto, Pargman, Nouri, Spikol, and Ramberg (2011) recognized the benefits of having technology in the classroom, even at the expense of potential distraction. The goal of
their research to determine a way to redesign the technology. The researchers are attempting to debunk the myth that a technology device will tend to be a distraction, rather than a support.

Some students require a technology device to allow them to do their best learning. Which would mean, for most, re-considering the design of such devices so they are the least distracting.

Ravizza, Uitvlugt, and Fenn (2016) claimed the reason for a need to decrease distraction is students who are distracted by technology are diverting cognitive resources away from the task of processing information.

Flanigan and Babchuk (2015) explored these cell phone distractions further when they conducted a study of college students and their record of their perceptions of what distracts them. The students in the study could discuss the distractions they combat both within the classroom and outside the classroom, such as attempting to finish projects or assignments for class in other environments (Flanigan & Babchuk, 2015). Apple attempts to bring awareness to the distractions cell phones applications bring to daily lives with the new update and the report of not only how much screen time there was for the day and for the week, but what activity or application on the phone, such as emails, or social media (Apple.com, 2018).

**Multitasking**

From research conducted from the neurological standpoint, multitasking needs certain senses in certain situations. Stock, Gohil, Huster, and Beste (2017) explained the response selection problems in multitasking situations may partly reflect processes related to attentional shifts between sensory modalities - light, sound, taste, temperature, pressure, and smell (Boundless.com, 2019) and the cognitive effort to integrate this input from the different modalities. Adding to this neurological information, it would be important to note and remember that high school classroom students are not at full brain maturity and cognitively are still
growing and creating connections and developing (Lang, 2017; Lawrence, Estrada, & McCormick, 2017). Stock, Gohil, Huster, and Beste (2017) surmised this would create an even larger deficit in the ability to shift between sensory modalities with any sort of fluency and effectiveness.

Junco (2010), researched multitasking in academic environments. Multitasking is the performance of “divided attention and non-sequential task switching for ill-defined tasks as they are performed in learning situations” (Junco, 2010, p. 2237). An anonymous quote (WiseOldSayings.com, 2019) about multitasking reads something to the effect no one can truly multitask; they just do many things poorly. Students are known to try to do many things simultaneously, but perhaps do not do any well (Lau, 2017). There is a lack of specifics found in the research for students’ percentage of the lesson they are engaged in actively and purposefully.

Lau’s (2017) research has determined multitasking with social or interactive media is negatively related to cognitive control in adolescents. Students’ attention in schools should focused on mastery of content. The more focus students have, the less they gain from the specific content. Lang (2017) articulated this can be from outside stimuli, or from the processing of events which may have taken place previously.

Mokhtari, Delello, and Reichard (2015) conducted a self-reporting study with university students on their multi-tasking habits and how it affected their coursework. Nearly one thousand students took part in an online survey format about their multitasking habits and how this multitasking affects their core content focus and abilities. The researchers’ findings indicated whether time spent on one activity displaces time spent on other activities (Mokhtari, Delello, & Reichard, 2015). These students who multitask during class typically do less well on exams than their focused peers.
Waite, Lindberg, Ernst, Bowman, and Levine (2018) added the explanation of providing opportunities for on-task collaboration using media with the ability to add information nearly simultaneously and off-task multitasking since messaging can quickly become disruptive and off track. Students who determine they will attempt to multi-task or are multi-tasking absentmindedly can suffer academically as a result (Felisoni & Godoi, 2018; Hunter, Leatherdale, & Carson, 2018; Ieda & Otâvio Bocheco, 2018). Time students are spending doing multiple things at once embodies teachers’ perception of attention and time on task when cell phones are in use in the classroom (Goldhammer, Naumann, Stelter, Tóth, Rölke, Kleime, 2014).

**Time and Attention to Task**

The time on task in the classroom, as perceived by the teacher is the amount of time a student spends on one task or assignment before moving on to something else (Leppink, 2017). Students in classrooms are not necessarily switching topics to be disrespectful or dismissive. However, they cannot attend to one thing when overloaded with information and multiple stimuli. Patel (2017), a writer for Forbes, reported young people in 2017 have always lived in a technology connected world, and they’re used to constant updates from dozens of apps.

**Attention Deficits.** Lawrence, Estrada, and McCormick (2017) focused on teachers’ experiences and perceptions of students with Attention Deficit/ Hyperactivity Disorder (ADHD). The authors made points about students with ADHD being a distraction to others. They also noted students with ADHD being an object of distractions created by those who do not have diagnosed ADHD (Lawrence, Estrada, & McCormick, 2017).

Dekkers et al. (2017) maintained time on task for students, both those with ADHD and those without ADHD, should be translated as a depletion of the executive resources needed to perform certain tasks. Benwell, London, Tagliabue, Veniero, Gross, Keitel, and Thut (2019)
elaborated the time on task as it creates changes to the running of a pattern through the alpha waves of brain frequencies. The patterns were deemed by the authors as oscillations - or moving back and forth at a regular interval.

**Time allotted deficits.** These quantifiers and descriptions of having a depletion of executive resources needed could potentially describe an entire classroom full of Generation Z (GenZ) - students born between the years 1995 and 2015. Students are spending seconds on one site, gathering what they need to know before moving on to something else, or back to something previous. The time spent on a task could be spread over hours and in multiple locations due to the many devices each student may use for the same task (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). Research conducted at Pew Research Center (2019) reported in 2017, median American households contain a minimum of five mobile devices - at least one of which is a smartphone.

**Self-regulating time and attention.** Lang’s (2017) research included observations in classrooms of his peers. Lang (2017) noted that although students were distracted in some of the settings he observed; the distraction was not longer than a brief period before the student was back to the task of the assignment. The students seemed to be self-regulating, or as noted earlier, oscillating (Benwell, et al., 2019) and this was due to the structure of the class being on a timeline. It is a possibility for a generation which has never been without digital distraction, there also comes with it a self-regulation skill to time on task. DiBenedetto (2011) presented Zimmerman’s self-regulation theory as the student’s belief about their capability to engage appropriately to pursue academic goals and self-monitoring their progress toward these goals. Jiang (2018) mentioned this self-regulation even with teens and their screen time and distractions with cell phones. Teachers’ perceptions of this self-regulation will shift as the teachers of
previous generations make way for the teachers born within GenZ (Aaron & Lipton, 2018; Anderson, 2015; Blair & Fletcher, 2011). This could potentially be an area for follow-up research as the perceptions of teachers will change based on their generational bias and input.

**Texting**

Texting in some research is at the top of the list for ways adolescents communicate (Tulane, Vaterlaus, & Beckert, 2015). This may be replaced in the near future by other platforms such as, instant messages or private messages on Snapchat (Comment: Snap!Chat!, 2016). For now, texting is at the top of the list for communication amongst teens. Other sources asserted texting is the most prevalent way, with some teens sending and receiving thousands of text messages per month (Zebroff, 2019).

**Who’s messaging whom?** Researchers have reported keeping student focus within the classroom while they are connected outside via text is one of the biggest struggles (Kuznekoff, Munz, & Titsworth, 2015). This communication is with friends and family and can happen at any time, sometimes having multiple conversations with multiple people at a time. Gender studies reveal there is a difference in the way girls and boys send texts regarding social niceties, such as greeting and salutations. Zebroff (2019) postulated these niceties may eventually show a deeper connection to literacy in the classroom.

Some adolescents may have days’ worth of conversations with a peer without ever speaking actual words to them (Yaron & Vered, 2019). Entire group projects can be completed by messaging for school assignments. Phone calls are becoming a specialty - to speak to someone verbally in conversation, is not the norm (Thomas & Muñoz, 2016). Students from the current generation have shown difficulty with using a phone, which is not cellular, since the concept is foreign.
Noted earlier in other sections of the chapter was the reference to students being more likely to join a group on social media than they are to give out their phone number (Tucker, 2015). The implication is there are levels to personal messages. A student is added to social media, friend requested on, or in other ways is shown group acceptance via a social media platform. It may be another amount of time before the same student shares the phone number, allowing those same two people to send actual text messages (Anderson, 2015; Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). Fifty-three percent of teens value social media followers equally to social currency (Butt, 2019).

**Sexting.** Within texting, there is a darker side of messaging known as sexting. Sexting is defined by the *Journal of the American Academy of Child & Adolescent Psychiatry* as the transmission of sexual text and/or nude or sexually explicit photographs via smartphone (Mann, 2017). Engaging in this behavior is becoming more prevalent as individuals become more immune to the ramifications. For the Institute of Family Studies, Elhage (2019) reported 15% of teens have sent a “sext” and 27% have received one. Most of the female teens surveyed have claimed they felt coerced to send photos by the recipient (Elhage, 2019). Sexting, along with other technology-based interactions, can be classified as cyberbullying.

**Cyberbullying**

A further aspect to the social media and texting, which is much too prevalent today and warrants inclusion into the research of cell phone use in the classroom, is cyberbullying. Cyberbullying is defined in the *Journal of the American Academy of Child & Adolescent Psychiatry* as intentional harmful behavior carried out by a group or individuals. The harmful behavior is repeated over time, using modern digital technology, against a victim who is unable to defend him/herself (Whittaker & Kowalski, 2015).
Statistics. Kshetri and Voas (2019) detailed 59% of surveyed children admit they have been a victim of cyberbullying. Data reported by Brewer and Kerslake (2015) found a classmate cyberbullied 31.8% of students surveyed and 40.9% of those students did not know the perpetrator of the cyberbullying. While research has begun to develop, the correlation between traditional bullying and cyberbullying, appears to be closely related (Mitchell & Jones, 2015; Waasdorp & Bradshaw, 2015).

Of the nearly 60% of students who admitted to having been a victim of cyberbullying (Kshetri & Voas, 2019); a similar vein appeared in the study by Waasdorp and Bradshaw (2015). With just less than five percent of students divulged to be victims of cyberbullying as the only type of bullying. If creating an overlap of data, these studies would tie bullying in the traditional sense and cyberbullying to approximately half of all cases (Kshetri & Voas, 2019; Mitchell & Jones, 2015; Waasdorp & Bradshaw, 2015).

Impacts of Cyberbullying. The impacts of cyberbullying have been reported and will continue to be a focus of attention. Kshetri and Voas (2019) acknowledged girls are more likely to be victims of cyberbullying than boys, and poorer children are more likely to become victims than children from wealthy families. The United States has begun to hold cyberbullies accountable by law (Kshetri & Voas, 2019). Some credit safety to these measures, as most other developing countries, and some of the superpower countries - such as China and Russia - do not have similar, if any, measures in place (Mitchell & Jones, 2015).

Students who have been victims of cyberbullying are at risk of harm to themselves (Kowalski, Limber, & McCord, 2019). One of the largest factors in cyberbullying is the access to others around the clock. A student can become a victim at any time of day and a perpetrator can perpetrate at all hours of the day (Kowalski, Giumetti, Schroeder, & Lattanner, 2014). This
factors in student cell phone use in class and causes distraction from the effects of cyberbullying. Kowalski, Giumetti, Schroder, and Lattanner (2014) also made teachers aware of the need to be sensitive to the presence of cyberbullying and the potential need to combat this, both actively occurring during class and the after-effects of it happening outside of class.

Interventions for Cyberbullying. Schools around the nation, recognizing the impact of cyberbullying, have begun to implement interventions for these attacks. The most recent intervention the district the author works in is a system called See something, Say something. This is included as an app on each device for a student to be able to, at any time, report cyberbullying (launchpad.classlink.com, 2019). This same district is also using a webpage (commonsensemedia.org, 2019) containing a cyberbullying tool kit to enable teachers to be best prepared to assist a student who is being cyberbullied, or to intervene and report cyberbullying to administration.

Summary

Vygotsky’s sociocultural theory and social constructivism provides the theoretical framework for this study. The theoretical framework contained Vygotsky’s sociocultural theory concerning how students behave in these classrooms based on the input from other peers, instruction, and distractions. Vygotsky’s social constructivism theory describes the students learning becoming internalized after it was witnessed or taken part in. A discussion provided Vygotsky’s zone of proximal development within this theory with this classroom structure.

Related literature to students’ cell phone use in high school classrooms has been addressed and many facets to classroom cell phone use researched. These multiple facets include interactive coursework, nomophobia, an intervention, cell phone norms, cell phone etiquette, and policies in schools. Further components researched were phubbing, technology
connectivity, cyberslacking, media competitions, gaming - downloaded and online interactive, streaming videos and television shows, mobile collisions, music - streaming and downloads, and social media. Other aspects included the Fear of Missing Out (FOMO), distractions from classwork, multitasking, time and attention to task, and self-regulation. Two other features include texting - as defined as the top of the list for the way adolescents are communicating - and cyberbullying. Each of these components lends insight into how students use their cell phones in daily high school classrooms.

Each of these facets were considered in the development of the research questions. There is a lack of information about high school teachers’ perspectives as to whether cell phones are an asset or a detriment. Research exists about teachers’ views on technology in classrooms and university level input on cell phone use by students. Smartphones can be used in instructional settings, both as an asset to enhance content mastery or a detriment to the instruction. The perceptions of each high school teacher recorded can lend guidance for instructional practices.
CHAPTER THREE: METHODS

Overview

This dissertation's methods chapter includes the purpose of this intrinsic case study to discover high school teachers' perceptions of students' cell phone use in the classroom. Following the discussion of the qualitative design is a restatement of the research questions from Chapter One. The research questions precede the setting, participants, procedures, and researcher's role in conducting the qualitative case study. The data collection methods, to include interviews, teacher surveys, and focus groups, are detailed in this chapter. Data analysis aspects are next in the chapter. Chapter Three finishes with trustworthiness and ethical considerations for conducting this research.

Design

This research is qualitative, as defined by Creswell (2014) as an "approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem" (p.4). Qualitative was the most appropriate type of study for this research as it delved into a group of people (high school teachers) and their interaction with a social problem (student cell phone use in class). This qualitative research study is an intrinsic case study. Merriam (2009) defined the case study as an "in-depth description and analysis of a bounded system" (p.40). Yin (2014) described the case study as an "empirical inquiry that investigates a contemporary phenomenon within its real-life context" (p.18).

Hancock and Algozzine (2017) shared that topics of case studies can vary much coming from individuals, programs, events, situations, or activity but they should have "particular relevance for a researcher" (p16). Creswell (2014) further explained case study cases are "bounded by time and activity, and researcher collects detailed information…over a sustained
period.” (p.14). Case studies, according to Punch (2014), have a holistic focus and with this, wants to keep the unity of the case. This research has been relevant to the researcher as a current high school teacher and the phenomenon of witnessing student cell phone use in high school classrooms.

To best execute the qualitative case study, the researcher focused on the intrinsic case study. Since one goal in selecting the case study was to understand better the phenomenon of student cell phone use in high school classrooms from the teachers' perspective, in this case (Punch, 2014 & Stake, 1995). Semi-structured interviews (Briggs, 1986), surveys (Punch, 2014), and focus groups (Kitzinger, 1995) provided data collected to conduct this qualitative, intrinsic case study research.

Research Questions

Intending to determine through the research questions high school teachers' perceptions of student cell phone use in classrooms can add value to instruction delivery. The questions addressed high school teachers' perceptions of cell phone use and identified the potential instructional changes to reach students in high school classrooms. By understanding teachers' perceptions of cell phone use in their classrooms, the instruction can adapt to allow for the best delivery of information toward mastery - the research questions' analysis from teacher research participants' perception.

RQ1: How do high school teachers perceive students’ cell phone use during class?

RQ2: What did high school teachers perceive was the most frequent cell phone integration during class?

RQ3: How do teachers perceive potential positive uses of student cell phones during instruction?
Site

Battery Creek High School is the site for the participant selection to gain access to the best participants for the case study. Nespor (2000) wrote routine practice of trying to make the places represented in qualitative accounts anonymous. Within this high school, the student to teacher ratio is 14:1 across grades 9-12 and comparable to other high schools in the area. The 800-student population demographic breakdown is 47.2% African American, 31.5% White, and 16.5% Hispanic. The student graduation rate is 83.9% at Battery Creek, compared to the state average in 2019 of 81.1% (ed.sc.gov, 2021). This public school is a medium-sized high school in southeastern South Carolina. The rationale for selecting this school is that this school’s enrollment is an accurate depiction and representation of the surrounding high schools. Battery Creek High School has a minority enrollment of 64%, and 60% of the students enrolled qualified for free or reduced lunch. It was opened to allowing visitors and researchers to conduct studies. The participant pool was filled from this high school, with other high schools having been prepared in the same district if necessary.

Participants

A purposeful criterion sampling method (Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood, 2015) was used to select 12 to 15 participants in this case study research. A voluntary Invitation to Participate, created by SurveyMonkey (surveymonk ey.com, 2019), located in Appendix D, was sent via email to a minimum of 60 high school level teachers asking if they were willing to participate in the case study. The survey ensured they fell into the criteria: the participants were to be high school level educators, working with freshmen through seniors, across content areas, with no more than 30 years in education. Participants signed the
This study used a purposeful sampling criterion. Twelve participants were selected. Every other name selected came from the date and time compiled list. The first person to respond to the inquiry was the first person on the list until the desired number of participants had been achieved. If all surveys presented only produced 10 to 15 participants willing to continue, all participants became part of the study. Regarding the research's timeliness, the equal numbers of males to females did not occur.

Bias was minimized by excluding teachers of 30 years or more classroom experience. Wang, Myers, & Sundrahim (2013) thought bias from veteran teachers towards student cell phone use in the classroom was based on years of teaching experience. According to Skenderi and Skenderi (2018), "more experienced teachers find technology less helpful and they are not eager to use it in their classroom" (p.43). The 12 to 15 participants purposefully selected to participate from the original criterion sampling method list completed an information sheet, Linked Information Sheet (located in Appendix E), and emailed these back to the researcher. The information sheets provided contact information - phone number, the school they currently work in, email address, and any other contact information they wish to share for ease of communication - via email to the researcher. This secondary information sheet also collected information pertinent to the data such as birth year, the number of years teaching, and whether teaching is their first career.

This contact information will remain confidential, and all participants will have a naming convention which used their designated pseudonym from the point of selection forward. The consideration of mechanisms to protect the identity of research respondents have become central
to the design and practice of ethical research (Grinyer, 2002). Rogers (2006) further expounded on the use of pseudonyms in qualitative research when she wrote, maintaining confidentiality is important - in terms of demonstrating trustworthiness and maintaining integrity in the researcher-participant relationship.

The researcher generated pseudonyms from a random selection of 15 most common North American Bird names from the Audubon Society website (Del-Colle, 2018). The names of participants matched to a bird name and designated pseudonym. After this was deemed not the most professional naming convention for human subjects, the bird name was then linked to a name beginning with the same letter from the top 100 list of most popular baby names in 1976 (babycenter.com, 2021). To explain through an example: the original participant name Robert Edward became designated for other notation as Cardinal. Cardinal, in this case study then became Carrie.

**Procedures**

The research proposal was defended and approved. This study's site approvals from the school district, district Internal Review Board, and Battery Creek High School for research participants are in Appendixes. Internal Review Board (IRB) from Liberty University approval was given (Appendix A). Upon approval from Liberty University's Internal Review Board, this researcher began the purposeful criterion sampling method beginning with Battery Creek High School's site for choosing 12 to 15 participants (Appendix D: Invitation to Participate Survey) and Appendix E: Linked Information Sheet). The information forms completed were recorded in a single confidential Word document. This document became a working document used to ensure all contact information was used to move forward with their intent to participate.
The contact information remains confidential. All participants have the naming convention for research, transcripts, and audio recordings using their bird pseudonym from the point of selection forward. Once pseudonyms were assigned and the intent to participate documented, the 12 to 15 selected participants completed consent forms, located in Appendix F. After all consent forms were collected, the researcher scheduled and conducted a single semi-structured interview individually with each participant via zoom (Appendix G: Interview Questions). The interviews lasted no less than one hour, but no more than 90 minutes for each interview.

Each interview was audio-recorded with a transcribed copy using NVivo 12 software and a secondary transcription and Zoom video recording (Appendix H: Interview Transcripts). After completion, these recordings were reviewed to ensure completeness of the transcript. Then the transcripts were transferred into the working Word documents and analyzed for themes alongside the interviewer's notes, which is a preferred method by Stake (1995).

After completing the interview with each of the participants, the researcher emailed a copy of the Teaching, Learning, & Computer (1998) survey modified to include cell phones and permissions was provided Permission was granted to use and modify TLC (1998) survey provided in Appendix I. Participants completed the surveys (Punch, 2014), located in Appendix J, and adapted by this researcher with permission for this research from the Teaching Learning and Computing:1998. All data was analyzed to determine common themes. These themes developed were used in the focus groups to ask clarifying questions located in Appendix K. Focus group responses were recorded and located in Appendix L: Focus Group Transcriptions and analyzed with the interview and survey data.
The Researcher’s Role

As the researcher for this qualitative intrinsic case study, I have been a special education teacher and coordinator for seven years with previous military experience as an interrogator. I tend to ask many follow-on questions and to be observant of details. All my years of teaching experience have had interactions with high school level students. I spent my first three years back in a solely high school setting after many years in a K-12 environment. I spend time with special education students and general education students. Observing these students in multiple classrooms with different general education teachers created interest in this topic of study. The teachers I work and interact with daily at the starting site - Battery Creek High School - have an expanse of teaching and management styles. These styles also bridge an expanse of generations from Baby Boomers (people born between 1944 and 1964) and Generation Z (born between 1996-2010), with my birth year falling in between, as a GenX. The criteria set for the sampling also bridged this gap of generations.

I use a pragmatic approach with the philosophical assumption of empiricism to draw more fully on experience and observation. I have made every attempt to remain unbiased. The research paradigm has been an interpretive view with a mixture of descriptive and exploratory. Since I am a teacher, the research is a concept or situation that I know something about but will rely on observations in the descriptive paradigm. However, the paradigm will be exploratory since other teachers’ perceptions are not something I can comment on directly and needed to rely on their expertise and opinions for the perceptions of cell phone use. I must interpret the perceptions of high school teachers who participated in the study, determined their needs and ideas to move forward with instruction. I do not have any role of authority over the research participants. This qualitative intrinsic case study allowed this researcher to gain knowledge in
multiple ways using critical humanism as I am involved with the people studied while connected to the participants' perceptions (Rallis & Rossman, 2010).

**Data Collection**

To have best answered the research questions for this intrinsic, qualitative case study, the information was gathered using semi-structured interviews (Briggs, 1986; Yin, 2014), a survey (Punch, 2014), and focus groups (Basch, 1987; Kitzinger, 1995). This sequence of data gathering was used for each participant. These methods were conducted to gather data and information from high school teachers about the perceptions of students' cell phone use during class. The varied selection of data collection methods, according to Yin (2014), increases the reliability of the case study but may not follow the same timeline for all participants based on the teacher's availability to meet with the researcher. For example, one participant may complete the interview and survey before another participant can schedule the interview. This sequence of interviews, surveys, and focus groups were followed and provided evidence from more than one source (Merriam, 2009) to answer the research questions most fully. The interview and survey answers will be used as a base for the focus groups' themes to gather more data (Hancock & Algozzine, 2017). Preliminary data analysis from the interviews and survey transcription allowed for more structured focus groups (Stake, 1995).

**Interview**

After consent forms were received, individual interviews were scheduled, and audio recorded via Zoom conference. Zoom is an online video chat software that allows visual and audio meetings - to conduct the interview (Briggs, 1986). Each participant was interviewed for 60-90 minutes and provided their perceptions of students' cell phone use in the classroom. The researcher asked a series of pre-written questions to follow, also located in Appendix G. This
Semi-structured, open-ended interview questions/guide.

1. How do you use technology as a part of your class? Provide examples.
2. How would you elaborate on the student input and output technology creates in a lesson?
3. What are cell phones being used for in your classroom?
4. When cell phones are used in your classroom, what are they being used most frequently to do?
5. In your opinion, how often in a class period do students use their cell phones for academic purposes?
6. What do you believe are the added benefits cell phones can bring students during the lesson?
7. What do you believe are the diversions cell phones can bring students during the lesson?
8. In what specific ways do you integrate students' cell phones for instruction? Provide examples.
9. How does the delivery of instruction using cell phones affect the engagement of high school students?
10. In your perception, how does the use of cell phones during a specific portion of the lesson - beginning, middle, or end - affect the length of engaged time for high school students? Provide specific examples for each.

Questions one and two ask questions about the teacher's use of technology in the classroom (Skenderi & Skenderi, 2018). Questions three and four ask how cell phones have been used in
the classroom (Rogoff, Dahl, & Callanan, 2018). Question five asks for teacher perception of how often students use cell phones for academics in the classroom (Berry & Westfall, 2015). Questions six, seven, and eight seek to determine the perception of benefits and diversions that cell phones can bring while engaging students in the classroom with specific examples (Lin, Su, Chao, Hsieh, & Tsai, 2016). Questions nine and ten sought to discover cell phones' value as they pertained to the student engagement with content (Aaron & Lipton, 2018). These questions could have sparked follow-on questions and created a need to add questions to the appendix before final edits but did not.

Survey

Used with permission, the adapted 1998 Teaching, Learning, and Computing National Survey of Schools and Teachers, located in Appendix J, gathered data for the teachers who complete this survey to share their perceptions and pedagogy (Becker & Anderson, 1998). The researcher had adapted, with permission, the 1998 National Survey of Schools and Teachers (see Appendix I). This researcher emailed the survey to teachers after the Zoom interview. Each participant completed, scanned, and emailed the survey back to the researcher within five days of the interview. This survey gleaned participants' understanding of attitudes, values, opinions, and beliefs about their teaching and cell phone use in the classroom (Punch, 2014).

Adapted teacher survey.

PART K: YOUR TEACHING PRACTICE IN ONE CLASS

K1. Circle the grades that you teach.

9 10 11 12

K2. How many different children or adolescents do you teach during a week in all of your classes combined? ____________________
K3. Complete the following table about the classes you are teaching now. List each class period you teach on a separate line, even if the classes are in the same subject. If you teach a single, self-contained class all day, write “self-contained.” If your teaching assignment changes frequently, use your current responsibilities.

For each class you teach, write the specific title or subject of the class (e.g., Algebra II; Reading-Lang. Arts) and circle the achievement or ability levels of the students in the class relative to all children or adolescents of that age. Circle ALL achievement levels that apply to at least 5 students. By “very low” or “very high”, we mean more than a year below or above-average students in that grade.

1. ________________________________ Very low  Below Average  Average  Above Average  Very High
2. ________________________________ Very low  Below Average  Average  Above Average  Very High
3. ________________________________ Very low  Below Average  Average  Above Average  Very High
4. ________________________________ Very low  Below Average  Average  Above Average  Very High
5. ________________________________ Very low  Below Average  Average  Above Average  Very High

K7. Over the last 5 hours that you taught this class, roughly how many minutes did students spend in each of the following activities? (Circle most appropriate)

a. Teacher-led a whole-class discussion (students listened and answered questions)
   Under 30 minutes  30-60 minutes  1-1/4 hours to 2 hours  Over 2 hours
b. Student-led a discussion or gave a presentation
   Under 30 minutes  30-60 minutes  1-1/4 hours to 2 hours  Over 2 hours
c. Students worked on their own assignments at their desks
   Under 30 minutes  30-60 minutes  1-1/4 hours to 2 hours  Over 2 hours
d. Students worked together in small groups to complete an assignment as a team
   Under 30 minutes  30-60 minutes  1-1/4 hours to 2 hours  Over 2 hours

K8. About how often do students in this class take part in the following types of activities?
a. Work individually answers questions in the textbook or worksheets….

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Almost Everyday</th>
<th>1-3 times per week</th>
<th>1-3 times per month</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
</table>

b. Do hands-on/laboratory activities……

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Almost Everyday</th>
<th>1-3 times per week</th>
<th>1-3 times per month</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
</table>

c. Work on projects that take a week or more…..

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Almost Everyday</th>
<th>1-3 times per week</th>
<th>1-3 times per month</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
</table>

d. Write in a journal…..

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Almost Everyday</th>
<th>1-3 times per week</th>
<th>1-3 times per month</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
</table>

e. Suggest or help plan classroom activities or projects…..

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Almost Everyday</th>
<th>1-3 times per week</th>
<th>1-3 times per month</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
</table>

f. Work in small groups to come up with a joint solution or approach to a problem or task…..

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Almost Everyday</th>
<th>1-3 times per week</th>
<th>1-3 times per month</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
</table>

g. Work on a problem for which there is no obvious method or solution…..

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Almost Everyday</th>
<th>1-3 times per week</th>
<th>1-3 times per month</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
</table>

h. Write an essay in which they are expected to explain their thinking or reasoning at some length…..

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Almost Everyday</th>
<th>1-3 times per week</th>
<th>1-3 times per month</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
</table>

**PART L: YOUR USE OF CELL PHONES**

**L20. Which of these are advantages of using cell phones in teaching?**

a. Students create better looking products…

<table>
<thead>
<tr>
<th>Advantage Level</th>
<th>Not true</th>
<th>Somewhat true</th>
<th>True</th>
<th>True</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marker</td>
<td>Not an advantage</td>
<td>Mild advantage</td>
<td>Modest Advantage</td>
<td>Strong Advantage</td>
<td></td>
</tr>
</tbody>
</table>

b. Cell phones provide a welcome break for students from more routine learning…. 

<table>
<thead>
<tr>
<th>Advantage Level</th>
<th>Not true</th>
<th>Somewhat true</th>
<th>True</th>
<th>True</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marker</td>
<td>Not an advantage</td>
<td>Mild advantage</td>
<td>Modest Advantage</td>
<td>Strong Advantage</td>
<td></td>
</tr>
</tbody>
</table>
c. Students help one another more while using cell phones….

<table>
<thead>
<tr>
<th>Not true</th>
<th>Somewhat true</th>
<th>True</th>
<th>True</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not an advantage</td>
<td>Mild advantage</td>
<td>Modest Advantage</td>
<td>Strong Advantage</td>
<td></td>
</tr>
</tbody>
</table>

d. Students take more initiative outside of class….

<table>
<thead>
<tr>
<th>Not true</th>
<th>Somewhat true</th>
<th>True</th>
<th>True</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not an advantage</td>
<td>Mild advantage</td>
<td>Modest Advantage</td>
<td>Strong Advantage</td>
<td></td>
</tr>
</tbody>
</table>

e. Students work harder at their assignments when they use cell phones….

<table>
<thead>
<tr>
<th>Not true</th>
<th>Somewhat true</th>
<th>True</th>
<th>True</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not an advantage</td>
<td>Mild advantage</td>
<td>Modest Advantage</td>
<td>Strong Advantage</td>
<td></td>
</tr>
</tbody>
</table>

L21. Which of these are disadvantages of using cell phones in teaching?

a. Cell phones are hard to figure out how to use…

<table>
<thead>
<tr>
<th>Not true</th>
<th>Somewhat true</th>
<th>True</th>
<th>True</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a disadvantage</td>
<td>Mild disadvantage</td>
<td>Modest disadvantage</td>
<td>Strong disadvantage</td>
<td></td>
</tr>
</tbody>
</table>

b. May students use cell phones in order to avoid doing more important school work…

<table>
<thead>
<tr>
<th>Not true</th>
<th>Somewhat true</th>
<th>True</th>
<th>True</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a disadvantage</td>
<td>Mild disadvantage</td>
<td>Modest disadvantage</td>
<td>Strong disadvantage</td>
<td></td>
</tr>
</tbody>
</table>

c. Often too many students need my help at the same time….

<table>
<thead>
<tr>
<th>Not true</th>
<th>Somewhat true</th>
<th>True</th>
<th>True</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a disadvantage</td>
<td>Mild disadvantage</td>
<td>Modest disadvantage</td>
<td>Strong disadvantage</td>
<td></td>
</tr>
</tbody>
</table>

d. Students can cheat easier - copying work and turning it in as their own….

<table>
<thead>
<tr>
<th>Not true</th>
<th>Somewhat true</th>
<th>True</th>
<th>True</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a disadvantage</td>
<td>Mild disadvantage</td>
<td>Modest disadvantage</td>
<td>Strong disadvantage</td>
<td></td>
</tr>
</tbody>
</table>

**PART M: GENERAL TEACHING EXPERIENCES**

M4. Compared to three years ago, how much do you employ the following practices?

a. Plan a lesson using principles of direct instruction (review, teach, guided practice, individual practice)…

<table>
<thead>
<tr>
<th>Less now than 3 years ago</th>
<th>Same as before</th>
<th>More now</th>
<th>MUCH more now</th>
<th>Never did</th>
</tr>
</thead>
</table>
b. Have many activities going on in the room at the same time….
   - Less now than 3 years ago  
   - Same as before  
   - More now  
   - MUCH more now  
   - Never did

c. Closely monitor and supervise students while they work….
   - Less now than 3 years ago  
   - Same as before  
   - More now  
   - MUCH more now  
   - Never did

d. Evaluate students through their products instead of tests….
   - Less now than 3 years ago  
   - Same as before  
   - More now  
   - MUCH more now  
   - Never did

e. Allow myself to be taught by students….
   - Less now than 3 years ago  
   - Same as before  
   - More now  
   - MUCH more now  
   - Never did

M4B. How much of a role have cell phones played in the changes to the practices you reported above? Circle only one.

1. No role at all (cell phones were not related to those practices)
2. A minor role (in most cases)
3. A substantial role in many cases
4. A major role in most of those cases
5. Not application/No changes

M7. How have cell phones in your classroom affected the way you do or think about the following?

a. The way you organize space/seating in your classroom….
   - Not affected  
   - Small change  
   - Moderate change  
   - Big Change

b. The way you break up your class period into activities….
   - Not affected  
   - Small change  
   - Moderate change  
   - Big Change

c. Your beliefs about curriculum priorities….
   - Not affected  
   - Small change  
   - Moderate change  
   - Big Change

d. Your goals in teaching….
   - Not affected  
   - Small change  
   - Moderate change  
   - Big Change
Question K1-K3 asked for background knowledge of the teacher’s current classroom as it pertains to grade level, subject, and student achievement within that class (Becker & Anderson, 1998). Questions K7 and K8 sought to understand the amount of time students spend engaged in different activities within the classroom (Becker & Anderson, 1998). The following questions were modified to cell phone use in class. Questions L20 and L21 asked about the teacher’s perception of the advantages and disadvantages of using cell phones in their teaching. Question M4 asked the teacher to determine their practices compared to their teaching three years ago. Question M4B then asked how much cell phone use in the classroom has influenced those changes. Question M7 requested information about how cell phones in the classroom change the teacher’s thinking or action about specific parts of their daily classroom.

**Focus Groups**

After interviews and surveys were completed and returned, the data analysis allowed for common themes to be recognized, and focus groups formed from these common themes (Basch, 1987). These groups, found to be necessary, were requested to meet via Zoom to provide an opportunity for the researcher to interact with multiple participants at the same time (Kitzinger, 1995). Data gathered from the focus groups about the common themes was added. Questions for the focus groups are in Appendix K. These conversations with focus groups were also audio-recorded and transcribed afterward into a working Word document then attached to each participant's file.

There was a slight possibility that within 12-15 participants, there would be no common themes. If this slim chance did occur, the data gathered to that point would be analyzed and presented in discussion form. The possibility that some participants would not be a part of any focus group also existed, and some participants could have been part of more than one group.
Neither of the occurrence of no common themes nor participants being part of no focus groups came to fruition. Follow on questions may have needed to be added based upon answers given. The focus group would have been allowed to elaborate as much as necessary to detail the data for the information being discussed at the time, not to have exceeded a 90-minute session.

**Focus Group Semi-Structured Questions/Guide**

1. What are your thoughts/stance on (common theme)?
2. How do you perceive the (common theme)?
3. Based on (common theme), how does this play out in your daily class?
4. How does (common theme) most often present itself?
5. What would your biggest impact to academics be based on (common theme)?
6. How does (common theme) influence academics?

**Data Analysis**

About timeliness, transcription is considered time consuming when weighed against the benefits the data brings (Stake, 1995). Considering this, all interviews were audio-recorded with a transcript being generated in real-time using NVivo 12 software and Zoom, with a new electronic document created for each participant (Burnard, 1991). Comparing the interviews and surveys to determine patterns or common themes was done for categorical aggregation (Stake, 1995). This categorical aggregation created three potential spaces for information gathered to answer each of the three research questions written for this research. As each interview and survey was completed with the interview transcribed, the transcripts and surveys produced categories that addressed the three research questions. The researcher began to analyze the interviews and surveys for recurring themes using the initial method of bracketing.
Tufford and Newman (2010) explained bracketing as sorting out the qualities of the phenomenon. As the files were read through, brackets were placed around information and responses that answered one of the three initial research questions. The researcher then used the data analysis method of memos to the sides of the brackets. Birks, Chapman, and Francis (2008) explained memos can be effectively employed by both the novice and experienced researcher as a procedural and analytical strategy throughout the research process. Initial bracketing and memos were means of open coding based on initial information that might be useful in answering the research questions. Mills, Durepos and Wiebe (2010) defined open coding as the process where raw data is first systematically processed. As the open coding began to transform the raw data to processed data, the researcher then used selective - also referred to as analytical coding (Richards, 2005) - to interpret and reflect on the meaning found in the data through open coding. The analytical coding used the method of bolding or italicizing relevant data was used to further search for common themes. This process of comparison and coding recurring regularities and schemes began to inductively emerge (Merriam, 2009).

Relevant information that addressed the research questions was separated with analytical coding or discarded. Bold/italic distinction through selective coding of the transcript questions - emboldened for relevant and italicized for irrelevant. This initial inductive coding with bold or italics became the first part of category construction to analyze themes within the research using selective coding (Merriam, 2009). Each participant has an electronic file which was created with their pseudonym attached to the file where any data collected has been placed.

This same process of description, analysis, and synthesis was followed for survey data. The researcher used these methods to find triangulation between the data collection methods. The pattern followed the same bold/italic selective coding based on relevance to the research
questions. The researcher used the same analytical coding process in determining relevance to developing themes in focus group transcripts. The answers to the focus group question were recorded and organized by the participant's electronic file after also using the boldened and italicized pattern for the triangulation of selective coding. These answers were then cross-referenced to the correct pseudonym before adding to each file (Hancock & Algozzine, 2017).

Three data collection methods - interview, survey, and focus group were completed for each participant, and each piece coded using the above bold/italic selective code methods. The data categories were re-inspected for common categories across all participants’ coded notes. As these tentative codes became more prevalent, the category file was more specifically named to reflect which research question had been answered by the category (Merriam, 2009). The original relevant data, denoted in the notes in emboldened font was then further selectively coded using blue font for information that was relevant to research question one, red for research question two, and yellow for research question three to have moved toward deduction of research questions being answered. Any elements and themes deduced through this categorization are presented in discussion form in the results of the research (Creswell & Poth, 2018).

The audio files transcripts were checked for completeness and clarity before being labeled to match/crossmatch with original interviews and focus group data. The files were then added to each pseudonym naming convention (Grinyer, 2002; Rogers 2006) to ensure no data for participants was lost. Naming convention (pseudonym) was the North American bird name which transitioned to the most popular baby names of 1976 discussed in the participant section above.
**Trustworthiness**

Trustworthiness is established and increased for this research by using member checks, triangulation, peer review, and external audit. These allowed the research to have credibility, dependability, and confirmability (Creswell & Poth, 2018). Nowell, Norris, White, and Moules (2017) clarified this further with the detailed description of the process of data analysis - to be done in a “precise, consistent, and exhaustive manner” (p.1) for qualitative research. Nowell, Norris, White, and Moules (2017) used this clarified description for the purpose of letting the reader decide and determine if the study was credible.

**Credibility**

Member checks were used to increase credibility by allowing the participant to cross-check the data in the transcription to check it for completeness. Stake (1995) referenced these members as valuable to making observations and interpreting the situations they were involved with during the process. After completion of the transcript, the interviewee checked for errors or omissions to the interview. The member check process increased the reliability of the study, as Creswell and Poth (2018) mentioned so they could “judge the accuracy and credibility of the transcripts” (p.261). The member check ensured the participant has been accurately represented from interview to focus group, all while adding dimension to the case study with their input to the development.

**Dependability & Confirmability**

Stake (1995) noted that with any two or more people, in this case the researcher and the participant, reviewing data, there will be some theory triangulation as well, since no two people will perceive the data the same way. Triangulation also exists in the form of three types of data collection with interview, survey, and focus group to allow the research questions answered in
the most stable and solid way, as if it were the legs of a three-legged stool. These triangulations created an audit trail and a “sense of interrater reliability to a study” (Creswell & Poth, 2018, p.262) to allow for the thick, rich descriptions of the data gathered.

Transferability

Transferability, as explained by Creswell and Poth (2018), as the information gathered being transferred to other contexts or situations. For this study, transferability will be low, because of a small number of high school sites that could have been used. The results of the case study potentially could be transferred to other similar high schools in the district or other districts similar in size to the district used for data collection. However, any transferability outside the context of similarly sized high schools would be minimal.

Ethical Considerations

The areas of ethical consideration in this study were avoidance of bias and familiarity, informed consent, and confidentiality. The avoidance of bias through peer review and member checking can create a space for an outside peer review to have the “illumination of the dark matter” that can often be omitted (Creswell & Poth, 2018, p.261). Informed consent for the participation in the case study means prior to participation in the interview process, the participants understood what is being asked of them and choose to engage in the study and sign consent forms. Informed consent also means the participants understand what would have been required if they chose to no longer participate in the study. Privacy of the participants has been safeguarded as much as possible. Any identifying information about a participant is removed from the transcripts, replacing with the identifying bird pseudonyms. The pseudonyms assigned to each participant ensured all data is contained in the file. Participants can access these files upon request, and the demographic data initially gathered will be kept in a secured location
within the researcher’s residence for a period of three years after the completion of the study. The personal information gathered will not be further referenced, sourced, distributed, or sold.

Summary

The purpose of this qualitative, intrinsic case study was to determine high school teachers’ perceptions of students’ cell phone use during classroom instruction. More specifically, this study focused on the high school teachers’ perceptions of students’ cell phone use during classes, both for instructional purposes, and the potential distractions from this instruction. The qualitative, intrinsic case study used semi-structured interviews containing 10 researcher created questions. A survey adapted with permissions from the National Teaching and Learning Survey was completed by each participant after the interview concluded. Focus groups created from common themes found were also conducted. The interview, survey, and focus groups were analyzed by the researcher to determine any themes that existed through open, selective, and analytical coding to determine if the research questions were fully answered. The researcher then responded to what those answers reflect about teacher’s perceptions of high school students’ cell phone use in classrooms. The participants were 12 high school educators with no more than 30 years of experience across content areas. All data gathered from this intrinsic qualitative case study was analyzed and will be safeguarded and pseudonyms were used from start to finish.
CHAPTER FOUR: FINDINGS

Overview

The purpose of this intrinsic case study was conducted to discover the perceptions of high school teachers regarding the use of cell phones by students in the classroom. Themes were discovered based on data analyzed from teacher interviews, surveys and further developed with focus group answers. This chapter describes research participants in this research study, including both core and elective teachers, male, and female to be discussed in the participant section in more detail. Next, the three research questions presented will be addressed based on data analyzed from interviews, surveys, and focus groups. Questions will be presented here in themes (narrative), charts, and tables based on the relevance to the three research questions. Participants' responses were analyzed and through open coding, selective coding, and analytical coding in order to determine common themes.

Participants

The 12 research participants who agreed to take part in this intrinsic case study were all high school level certified teachers who, from the time of their consent to participate, were given a selected pseudonym (Grinyer, 2002; Rogers, 2006) selected from a list of the most popular birds in North America (Del-Colle, 2018). After this was deemed not the most professional naming convention for human subjects, the bird name was then linked to a name beginning with the same letter from the top 100 list of most popular baby names in 1976 (babycenter.com, 2021). These pseudonyms allow the research participants to remain anonymous in their answers to interview and survey questions. The educators who chose to take part in this study are three males and nine females. The participants’ demographic breakdown is 17% African American and 83% White.
The teachers' experience in teaching ranged from three years to twenty-eight years. The least number of years and the greatest number of years are both female educators. A core subject at the high school level would be English, Math, Science, or Social Studies. Of the twelve participants, five of the participants teach core subjects. The other seven participants teach electives, a course required for graduation, or courses that support core subjects.

Shannon

Shannon is fairly new to teaching, with less than five years in the classroom. Shannon does not teach a core content class. The class taught by Shannon is a graduation requirement in South Carolina. Shannon believes in the holistic child approach and does not make blanket statements about any one group of students. This approach made some of Shannon’s answers caveat with the phrase “it depends on the student…”.

William

This teacher is a seasoned educator who has taught in numerous classrooms and subjects through the years. English is the subject William has spent the most time with. William teaches in an auxiliary and supporting role from time to time. William takes the time to understand the circumstances of the student and does not rush judgment. William tries to see situations for students from both sides of the aisle.

Christopher

Christopher is a teacher with many years of experience in the corporate world and joined the teaching field as a second career. Christopher can sometimes be reminded of what it was like to be a teenager. Christopher takes the time to truly think about what the answer to the question is. Christopher teaches a core subject course required for graduation.
Gina

Gina is a core content teacher whose course has an End of Course exam. Gina has the greatest number of years as an educator. Gina is a lifelong learner and is constantly growing and changing with the students. This teacher tries to see the good in all situations. Gina can sometimes turn things into a teaching opportunity where one was not necessarily obvious to other educators.

Carrie

This educator is new to teaching with one of the lower numbers of years in the classroom. Carrie has always wanted to be an educator since being a young child. Carrie finds a way to reach students and is very creative. Carrie teaches a core subject and has for each year of teaching at the high school level.

Brandy

Brandy is a seasoned educator with nearly the greatest number of years in the classroom. Brandy is very honest about the stance on cell phone use in the classroom. Brandy is very lax on letting students use their cell phones in class. Even during the individual interview, admitted to doing some of the things considered an annoyance to other teachers when done by students.

Brandy teaches an elective class.

Melissa

Melissa is a mid-career educator and works with many populations of students. Melissa does not teach a core class but does support the core classes the students are taking. The position of Melissa’s understanding that cell phones are a part of the commonplace in classrooms. In Melissa’s opinion, cell phones need to be embraced and used as tools in the class was apparent throughout the participant process.
Christina

Christina is a mid-career educator and has a very strong core of students that want to have these classes every semester. Christina teaches in the Career and Technical Education (CTE) field towards College and Career Readiness completers at graduation. Christina is very logical and no-nonsense when it comes to students' reality using cell phones in the classroom.

Stephanie

Stephanie is a Cusper - the end of GenX and the beginning of GenY generation educator. Stephanie admits there is a distinct non-attachment to a cellular device in personal life. Stephanie seemed to be taken aback at some points on how students interact with them in the class. Stephanie teaches an elective course where there are fewer opportunities for digital connection than other courses represented.

Danielle

Danielle is a realist. This educator knows cell phones are here to stay, and they should be used as tools for instruction when possible. Danielle teaches a core subject with an End of Course exam. Danielle understands that some students will not be able to focus or function in class without purposeful use of cell phones when possible.

Nathan

Nathan is a veteran educator. Nathan teaches a core subject. Nathan has a basic understanding of the need students have for using their cell phones and takes advantage of the technology students have at their fingertips. Nathan especially enjoys showing students technology at their fingertips they did not know before the demonstration. This allows the students to complete assignments they may have previously given up on.
**Tiffany**

Tiffany is a teacher with several years in the classroom. The current courses Tiffany teaches are an addition to the original licensure. Tiffany has a way of reaching students that not many others reach. Tiffany is able to work with several populations but becomes frustrated with cell phones. This frustration becomes even more when students do not have the tablet or computer technology they need to complete assignments.

**Results**

The results include information gathered from 12 high school teacher research participants. The participants responses were to address the three research questions on student cell phone use in class. The data collected came from interview questions (Appendix G) and a teacher survey (Appendix J). Focus group questions (Appendix K) were used to complete the triangulation (Hancock & Algozzine, 2017).

As the interview question and survey responses were analyzed, common themes began to inductively emerge. The interviews and surveys were analyzed using the open, selective, and analytical coding system from Chapter Three to bracket, memo, and then embolden or italicize information. This initial inductive coding with bold and/or italics was the first part of category construction for analysis of themes within the research using open coding (Merriam, 2009). After the open and selective coding was completed, analytical coding was used by way of color-coding text and separate information relevant or irrelevant to address the research questions. From this coding system, the researcher noted six common themes mentioned by at least two people for each of the common themes, thus creating a need to then deductively comparative these themes through focus group follow on questions. Any elements and themes deduced
through this categorization are presented in discussion form here in the results of the research (Creswell & Poth, 2018).

**Theme Development**

Based on the data collected from interview, survey questions, and focus group questions coding themes were developed during data analysis through the process of open coding, followed by selective coding, and then further analytical coding. All interviews were audio-recorded, with a transcript being generated in real-time using NVivo 12 software. A comparison of the interviews and survey questions was made to determine patterns or common themes for categorical aggregation (Stake, 1995). The categorical aggregation was used to create a system for initial analysis of the data as relevant or irrelevant to the research questions using the method of bracketing (Tufford & Newman, 2010) and memos (Birks, Chapman, & Francis, 2008). Bracketed information with memos from the interviews and surveys was emboldened if relevant to the three research questions. Irrelevant information to the research questions from the surveys and interview transcripts was italicized. The emboldened information determined to be relevant was further selectively and analytically coded using three colors based on which of the three questions it was relevant. Blue color coding was used to selectively annotate bracketed information relevant to *Research Question One: How did high school teachers perceive students’ cell phone use during class?* Red was used to selectively code participant responses to answer *Research Question Two: What did high school teachers perceive was the most frequent cell phone integration during class?* Yellow color was used to selectively code information for *Research Question three: How did high school teachers perceive potential uses of student cell phones during instruction?*
From this analytical coding, six common themes inductively emerged (Merriam, 2009) and were further researched to saturation using focus group questions located in Appendix K. The answers to focus group questions were then deductively analyzed with constant comparison analysis (Glaser & Strauss, 1967), and then associated with the data from interview transcriptions and survey responses. As the interview data, survey data, and focus group data as sources of participant information were analyzed, common themes emerged. Hancock and Algozzine (2017) explained themes should be as specific and explanatory as is allowed by the data. Merriam (2009) also wrote that themes should be mutually exclusive. From the 12 participants' data, the six common themes for student cell phone use presented were:

1. Frustration from parents or work messaging or calling the student during class.
2. Social Media/Snapchat.
3. Cheating.
4. Conducts research faster.
5. The appearance of students not being able to separate from their cell phones.
6. Playing games and/or music.

Each of these themes is discussed and outlined below in the following tables. These themes are described by themes and participant quote detailed in Table 4.1. Thematic categories are coupled with the research questions in Table 4.2 based on the teacher interview responses’ data analysis.
### Table 4.1

**Thematic Development**

<table>
<thead>
<tr>
<th>Themes</th>
<th>Participant Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frustration from parents/work messaging or calling students during class.</td>
<td>&quot;It’s my mom. It’s my dad'. Or some form of a family member,&quot; said Shannon.</td>
</tr>
<tr>
<td></td>
<td>Danielle noted, &quot;My mom just texted me, and I really have to call her back right now.&quot;</td>
</tr>
<tr>
<td>Social Media/ Snapchat</td>
<td>Shannon pleaded, &quot;Stop SnapChat and Instagramming and texting while in class.&quot;</td>
</tr>
<tr>
<td></td>
<td>Melissa reiterated, &quot;Just checking Snapchat and being on social media.&quot;</td>
</tr>
<tr>
<td></td>
<td>William echoed, &quot;We’ve all seen kids making TikToks.&quot;</td>
</tr>
<tr>
<td>Cheating</td>
<td>Gina claimed, “Taking a picture of a student’s work and then uploading it to theirs.”</td>
</tr>
<tr>
<td></td>
<td>“I think it makes it easier for them to cheat,” Christina asserted.</td>
</tr>
<tr>
<td>Conducts research faster</td>
<td>Christina touted, &quot;It's impossible to know everything. Kids need to know how to research.&quot;</td>
</tr>
<tr>
<td></td>
<td>William detailed, “…looking up stuff on your own and its being applied to the lesson…”</td>
</tr>
<tr>
<td></td>
<td>Stephanie quoted students, &quot;Hey, can I find it on my phone….I mean, it's quicker.&quot;</td>
</tr>
<tr>
<td>The appearance of students not being able to separate from their cell phone.</td>
<td>Stephanie proclaimed, “Some of our kids are on the verge of addiction….almost like an appendage.”</td>
</tr>
<tr>
<td></td>
<td>Shannon remarked, “…they can’t keep their phones out of their hands.”</td>
</tr>
<tr>
<td>Playing games and/or music</td>
<td>“I have some that play games all the time,” Melissa admitted.</td>
</tr>
<tr>
<td></td>
<td>Brandy deemed, “…they can use it for inspiration through music.”</td>
</tr>
<tr>
<td></td>
<td>Nathan stated, “…answering a text is different than sitting there playing a game.”</td>
</tr>
</tbody>
</table>

### Table 4.2

**Thematic Categories Aligned with Research Questions**

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Thematic Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>How did high school teachers perceive students’ cell phone use during class?</td>
<td>Frustration from parents or work messaging or calling.</td>
</tr>
<tr>
<td></td>
<td>The appearance of not being able to separate from cell phones.</td>
</tr>
</tbody>
</table>

What did high school teachers perceive was the most frequent cell phone integration during class?

<table>
<thead>
<tr>
<th>Cheating</th>
<th>Social Media/Snapchat</th>
</tr>
</thead>
</table>

How did high school teachers perceive potential positive uses of student cell phones during instruction?

<table>
<thead>
<tr>
<th>Researching Faster</th>
<th>Playing games and/or music</th>
</tr>
</thead>
</table>

**Frustration from Parents Messaging or Calling the Student During Class**

One of the most common themes that emerged, more than a quarter of the participants listed student cell phone usage to take calls from a parent or employer as a frustration in the classroom. Figure 4.1 shows this information for exact numbers. Most of the respondents that mentioned this in their teacher interview noted when responding to focus group questions, cell phones are a distraction to instructional time and becomes the focus of student attention. Survey question responses deemed 42% of teachers monitor students more closely because of cell phones. Some of the answers to the focus group questions described the student deems the call to take precedence over the course they are in and the lesson they are being taught. One of the responses to the question "what you think of parents calling during class?" revealed the teacher was also guilty of doing the same thing when their child is known to be in class. This was also the confession during focus group answers. Most of the answers provided the students get text messages more often from parents, and if there is an actual phone call being made, often, it was because of a legitimate emergency. When the parent recognized the student's cell phone number, it became the fastest way to reach them. Focus group responses mirrored this, with the add on that parents should still contact the school if they need the student to know something.
Common Theme One. Frustration from Parents Messaging or Calling.

Social Media/ Snapchat

This theme of social media and Snapchat was mentioned or discussed by more than half of the participants. The information is shown in Figure 4.2 below. The overwhelming majority of the respondents called social media a distraction. Teacher survey responses, 59% labeled cell phones a welcome break from routine. Nathan mentioned honestly probably not knowing about most of the social media use that goes on in class. Survey responses showed 10 out of 12 teachers spend under 30 minutes to 60 minutes out of every 5 hours of class in teacher-led whole-class discussion. The use of social media in other times, such as students videoing themselves dancing for TikTok, is impossible not to see. Others chimed in about TikTok - both watching and creating videos for - being something social media is used most for in the classroom. Teachers admitted in their survey responses that 59% of them have many activities going on in their room at the same time. A few teachers did mention social media having positive uses in the classroom, such as sharing the results of an experiment or looking up information to help complete a task or project. This was shown to be useful as 42% of survey
responses are doing hands-on and labs every day. Focus group responses added students are all about seeking that social approval. Teachers agreed that if students are using social media to show their accomplishments or share cool things they are doing in class, it is viewed as a victory.

![SnapChat/Social Media Pie Chart]

Figure 4.2
*Common Theme Two. Snapchat/Social Media.*

**Cheating**

A quarter of the participants listed cheating as an occurrence in their classes with cell phones. The biggest topic of cheating is the lack of integrity for the student who has chosen to do this. Perhaps linked in this aspect were the teacher survey responses where 50% agreed cell phones have made it necessary to change up how the class period is broken up. Also noted was the understanding students are not showing mastery of the topic if they copy answers or take them from the internet without citation. Teachers agreed the cheating happens in the form of pictures being taken of completed work and shared with others, or during assessments, students looking up answers on the internet. This was reiterated by answer in the focus group as the teachers mentioned students cheating by taking pictures. With 92% of teacher survey responses labeled being able to cheat more easily as a true statement. The students are deemed to lack
critical thinking skills if they are cheating/copying answers and have not learned how to study material without the use of their cell phones. One teacher’s perspective of copying answers in focus group was that they have even done away with homework since it is ineffective if it only shows that the student knows how to copy.

![Cheating Pie Chart]

Figure 4.3
*Common Theme Three. Cheating.*

*Being Able to Research Faster Than on a School Issued Device*

Three-quarters of the participants agreed students with cell phones and LTE can research classroom topics quicker than school-issued tablets. The common theme of being able to research faster was the largest participant focus group. The members stated students always have their cell phones available. If they are on them, why not use them? If students stay on task, then, of course, they are going to be faster. Survey responses showed that 42% of teachers think students with cell phones work harder on assignments. William verbalized it is a positive thing when a student is so engaged in the lesson; they choose the speed of researching their cell phones over their district-issued tablets.
A large majority of the research participants mentioned students using their cell phones could indeed be faster, both in initial interviews and in the focus group, but students need to be taught how to use the cell phone as a reliable research device. A student's information gained by asking Siri on an Apple device may not be the most legitimate of answers regarding the research topic. There is so much information available to students via their cell phones; one of the downsides to them being used for research is learning to differentiate between accurate and inaccurate reporting and or presenting of information on the internet available to their cell phones. One of the participants more plainly explained this by saying, "don't just Google a term without being first told how to identify or evaluate good search results."

One of the math teacher participants relayed results of students who had chosen to use their cell phones to cut corners or blatantly cheat with apps like PhotoMath and ended up with much lower test scores. The speed of their phones assisted them to find answers quickly, but then the student becomes reliant on the device to give them information. One participant remarked cell phones are just tiny computers now, and one drawback is the students will have lost the ability to do book research since not everything will be digitized, and this could be a future detriment. Teachers, 50% of the respondents, stated cell phones help students take more initiative outside of class. Another avenue some of the participants rationalized the difference between using a cell phone or not. For some students, this use meant the difference between completing the work or not. If students could use their cell phones for research, they would be more engaged and more likely to produce a better product. Survey responses indicated 67% of the teachers agree. Students produce a better product, even if the cell phone screen size sometimes takes more time to process. Thus, the group deemed cell phone usage in class was what the students were already comfortable looking at and manipulating to read things.
The Appearance of Not Being Able to Separate Themselves From Their Cell Phone

A third of the teacher participants agreed that students have difficulty separating themselves from their cell phones as they have witnessed in their classrooms. This sentiment was shown in initial interviews and was the most common stated during focus group. They agreed and elaborated on the connection students have with a cell phone bordering on addiction but is based on having been connected to technology their entire lives. And, in this focus group, almost all participants sympathized with the pseudo-addiction to cell phones as they answered and agreed even, they have trouble being without it or not checking it too often.

The teachers also recognized that they need to be given some opportunities to check their phones to maintain the focus during certain parts of the lesson for students. Most of the participants in this group mentioned giving specific times during the lesson, so students know is coming or built-in to "make it" to the time to check them and give their attention to the current project/lesson/or task. Survey responses showed 50% of teachers have changed their goals in teaching as a result of student cell phone use. Teachers responded there is a level of anxiety with
separation. When they have tried to remove/ban cell phones from class completely, it caused many difficulties, and students were willing to risk suffering the consequences of having them.

Figure 4.5
Common Theme Five. Students Not Being Able to Separate from Their Cell Phone.

Playing Games and Music

Nearly half of the teachers in this study agreed students playing games or music was what cell phones were frequently used to do. The teachers implemented brain breaks and turning toward games as a good reset for students from the academics and lessons. Some of the participants established and found for some of their students, academics were more attended to and better products created if a student was able to listen to their choice of music while working independently. Teachers answers in the focus group showed the majority of them allowed music or games, as long as the assignments were being completed and the students were not bothering another student. The diversions noted were not just from the student's cell phones and games they chose to play but also from the music of other students listened to at too high of a volume to not catch their attention. The teachers surveyed responded a benefit of cell phone use in class, 75% of them agree students create better products. The focus groups solidified this when several
teachers explained these generation of students are used to multiple sensory inputs at a time and that music helps them focus while creating the finished product.

![Pie chart showing Playing Games and Music](image)

**Figure 4.6**
*Common Theme Six. Playing Games and Music.*

**Research Question Responses**

There were three research questions asked for this intrinsic, qualitative study conducted to determine high school teachers' perceptions of student cell phone use in the classroom. Those questions have been researched using three methods: individual teacher interviews, teacher surveys, and focus group questions. The following are the research questions:

**Research Question One: How Did High School Teachers Perceive Students’ Cell Phone Use During Class?**

Twelve teachers were interviewed and then requested a survey to be completed and returned. These educators explained both the negative and positive aspects of cell phones in their classrooms, along with level of benefit or detriment in the survey for certain tasks with cell phones. After the commonality of the answers some teachers gave, they were coded and
bracketed and labeled to be common themes and were further discussed in focus group questions.

Teachers perceived cell phones to be a faster way to reach the student's information than the issued tablet is most of the time. Stephanie's response was, "if they are having to access something, they don't want to get out their school device. They don’t want to because by the time it runs updates, and it's clogged and slow, they've got their device in their hand and they ask to use it instead, I don't have any problem with that.” Tiffany echoed with “…most of their cell phones are way faster than the tablets.”

Teachers recognized cell phones are not something going to go away from classrooms. Based on survey responses, most teachers, 67%, agree they have made changes in the way they conduct each class as a result of cell phones. Melissa noted, “…we have to learn how to incorporate it into what we are doing because kids are not going to get rid of their cell phones.” Carrie also added that times have changed and “now everybody had a handheld computer every day.” William elaborated on this as well, calling the cell phone a “little handheld computer that is faster, more efficient and able to download more of the apps they need.” William also added another facet to this by saying cell phone use in the classroom as another digital device is a "change in thought" both for teachers and for students. Only 8% of the teacher respondents stated cell phones have had no role in the way their classes are run. Christopher stated in plain language in the class syllabus, "using a cell phone in this class for academic purposes is a privilege, not a right."

Brandy thinks students typically prefer to use their cell phones and recognized they can be used as a quick reference, for inspiration, or for listening to music while they work. Brandy also understands the relationships Shannon and Christina mentioned about a family member
calling. Brandy stated, "I mean, if my daughter is calling, there is a reason since she knows my schedule, and I will answer it."

One of the answers to research question one became a common theme is teachers recognizing the distraction can be caused by family members contacting the student during the course of the day/class. Shannon even detailed this further by explaining students feel the need to answer because "It’s my mom" or "It’s my dad." Shannon stated it then seems the students’ education is not a priority for the text or call. Danielle added when a student hears a specific notification go off or the buzz in their bag, sometimes "the moment of deeper learning that was so close has now been broken when the student could have been pushed" to the next level. Christina mentioned some students claimed the calls and texts even come from employers to add another level of potential distraction.

Nathan and Danielle both expanded this topic to another level as they explained how they build cell phone checks into their lesson plans. The 59% of teachers who admit to having many activities going on at the same time, 50% of them have changed the way those activities are divided for cell phone use. Danielle asked the students to check all their notifications at the beginning of class so it is deliberate and then can be put away. There is another technology break to be dangled for them at a specific time of the lesson. Nathan is of the understanding that a quick notifications check will curb distraction because if not, "if you're thinking about it the entire time and not looking at it, you're not paying attention to my lesson."

Stephanie and Tiffany followed this train by adding for some students it seems to be “glued to their hands like they cannot put it down” and “some kids are on the verge of addiction - like they cannot let a single ding or vibrate or flash on the screen go by.” Melissa, for “those students who just can’t keep their phones out of their hands,” has created the “convenience” of a
cell phone charging station. This charging station, Melissa explained, “…is all the way across the room.”

The final section for Research Question One is the teacher perception that students use their cell phones to cheat. Gina detailed this by explaining sometimes having been witness to an event where a student will use their cell phone camera to take a picture of other students’ work and either upload it as their own or copy the answers from the picture. Shannon also mentioned cell phones being used as cheats in the classroom. Christina explained cell phones could make it "easier for students to cheat, teenagers will always find a way."

**Research Question Two: What did high school teachers perceive was the most frequent cell phone integration during class?**

Based on the interview questions, survey responses, and focus group answers in this study for triangulation, the responses to Research Question Two are detailed. These responses were from each of the 12 participants in this section. Research question two sought to determine what teachers perceive students are doing most often with their cell phones when they are in use.

**Gina.** Gina had several beliefs in how students use most frequently with student cell phones during class. These uses include listening to music, watching videos of video games being played, or permitting students to play the games. Gina stated, “I never knew what Fortnight was or was about until I talked to my kids about how they use technology.” Of the teachers surveyed, 75% of them agree that cell phones and using them are a welcome break from the routine learning in class. The revelation for Gina that the games were able to be played with other people all over the world made sense since “it’s competition, and because kids like to compete, this is what they do.”
Carrie. Carrie expressed most of the time, the way a student acts on social media or interacts on their phones with social media can tell a lot about how they are feeling. The use can also give light to what they might be going through emotionally. Cell phones, in Carrie’s perception, come with “a different level of survival instincts” attached to them with high school students. This view of the students’ cell phone use can be witnessed during the independent work time that 100% of the teacher survey responses claimed occurs during a 5-hour instructional period.

Christopher. Christopher viewed cell phones to take away from classroom engagement. “There are so many ways they can slip around where they are supposed to be working on their phones.” As opposed to being on a tablet or laptop, it’s reasonable in Christopher's opinion on a cell phone "to flip back and forth on different apps" instead of completing the task they started with. Over half, 59%, of the teacher survey responses shared students use cell phones to avoid academic tasks.

Melissa. Academically, Melissa’s perception on how students use their cell phones most often included the calculator or to look up how to spell words, so they don't always "just ask me how to spell a word." Teacher survey responses showed that 50% of them agree there are sometimes that too many students need their help at once. Sometimes the student will use the cell phone "to look things up on Google." Melissa also admitted to letting students use "PhotoMath," because not only do they see the answer, but they get to see "how to solve step by step by step." Melissa also knows students "just love to check their Snapchat" and other social media.

Tiffany. Tiffany believed the students feel like the cell phone is a part of them as a person, so students would be more engaged academically if they could use their phones to do it.
But Tiffany also claimed last academic school year, trying to keep cell phones out of the classroom was "a big, huge struggle when the kids started fighting back against the rule" and "it wasn't enforced as much as it should have been because then I was like why am I making a huge deal out of this?" Many of the students in Tiffany's class did not have a school-issued device and were choosing to use their cell phones for academics. A survey question, 67% of teachers' responses stated with cell phones, students help each other more often.

Danielle. As was mentioned in Research Question One discussion, Danielle adds electronic and cell phone checks to the lesson plan. Also, the students most often choose to do their "do now" (warm-up) and then transition to their tablets for the notes or activities. "That transition, students said [sic] was easier to do on their phones, so I allowed it." Teachers survey responses, 58% of teachers feel that students work harder on assignments when they use their cell phones versus 42% that do not agree. When asked about what students are most often doing with their cell phones for this research question, Danielle clarified what was being asked with questions. The questions were, "Like what I ask them to do? Or what they choose to do?"

Academically, Danielle noted, students are in the lab or workspace and are using their phones for timers or to take pictures for evidence in their documents to turn in. "A lot of the time, though it's Snapchat and social media. So, I have to be very mindful that I know what they are doing on social media.” The response to survey questions noted that 42% of the teachers more closely monitor the use of cell phones and apps.

Christina. Christina thinks cell phones are "great" in the classroom. Their cell phones "don't have good service in there at all, so I can always tell when a student is trying to send a text because they are holding it near the window." The reasons for cell phones in Christina's class are often outside for communication and the apps they use to identify things and label things.
Christina also noted "most of them don't use the cell phone for academic purposes at all" in the class. They often use social media and Snapchat, to play games like Candy Crush, or watch YouTube videos.

William. William's perception is, "honestly, the kids who use them during my lessons are the kids that don't have tablets." The social media aspect is just the apps they have on their phones, sometimes making funny memes. William stated it is "hard to be on task when that is what you are focused on." William also identified some students who prefer to put in earbuds and listen to music while working.

Brandy. Brandy also noted some students in the class prefer to listen to music while completing independent work. But they have some students in the past who would FaceTime their girlfriend from another school and had the same class at that time. Brandy explained they would make the call so they could “work together” on projects and “keep each other company.”

Nathan. Nathan appreciates the students in the class who use the apps recommended to them. Once they download them, then Nathan sees “a lot of really good input from them, because they are troubleshooting.” Nathan also explained the student troubleshooting turns into collaboration and “helping each other saying things like ‘well this is how it works for me’ - a lot of problem solving and a lot of real understanding.” Most of the teachers agree, 67% of survey responses think students help each other more when they use cell phones. Nathan sometimes explained, "the technology presents things a little bit differently so that they have to understand the content to be able to use the technology." For non-academic purposes, Nathan detailed why students use their cell phones most often for TikTok videos - both watching and creating. Video games take their attention like Mario Kart and Call of Duty - which draw Nathan's attention.
when "five or more students have their phones out and look competitively at each other across the room."

**Stephanie.** Stephanie knows some students in the class would just prefer to do all things on their cell phones. "They are already out. They are in their hands. Why not allow them if I am just capturing a quick bit of information on Google Classroom or playing a game of Kahoot?" But in any one part of Stephanie's class, there will be five or six times in which a student must be asked to put their cell phone away. "Get off YouTube and get on… whatever we are working on."

**Research Question Three: How Did Teachers Perceive Potential Positive Uses of Student Cell phones during instruction?**

Christina called a cell phone "an entire set of encyclopedias at your fingertips." Christina emphasized the importance of technology being used as a research tool since it is "impossible to know everything, but kids need to know how to research and look things up for themselves." Gina similarly made a statement, "it would be very beneficial to help them expand their knowledge and understanding of different subjects…and to help them collaborate with other classmates." Melissa noted for specific populations of the students - such as Special Education or English Language Learners - cell phones allow them to "have the finished product they need to be the same or comparable to students that already know how to do those things."

Shannon deemed the most important positive use of cell phones for students in class is when they "bring in real-world examples," such as showing them how to use apps they "can take out of class to use in everyday life." Nathan spoke about the benefits of an app from class and being useable outside of school lives. Tiffany knows there are times in the lesson a student
would be too excited or wound up to find a positive reason for it, but once they are "settled into an activity - a cell phone could add more excitement to it."

Danielle described many tools that students know how to use on their phones, yet they cannot figure out the older models - like timers. Danielle stated, "they can kind of figure out the start and stop, but they definitely don't know how to clear it or anything else. So, it's way easier just to let them use their phones." The science aspect of it was a new take as well, when "students can use their phones to take a picture through the microscope and then zoom in to blow up the image." Danielle elaborated on student engagement because they are not always being told to put their phones away but are encouraged to use them to "specifically enhance what they are doing and learning."

William explained the most useful thing witnessed with cell phones is the speed to which a student can find information when asked to research something. "Hey, here is your assignment. You need to look these things up, and they just whip out their phones because it is what they are used to." The specific example William gave was a group of four students who were asked to look something up. Three of them had tablets, and one used her cell phone. "The kid who was on their phone found it first because it was so much quicker and intuitive, even just using LTE."

Nathan and Brandy both use apps and portfolios digitally, and most of the students in their classes choose to use their cell phones for these purposes rather than having their district-issued tablets do the same functions. Nathan reiterated the cell phone provides the opportunity to "provide tools that would otherwise be just available in the classroom to take home with them." Thus, creating more real-world opportunities revealed by other participants at the beginning of this discussion on Research Question Three.
Teacher Survey Results

After each interview was conducted, teachers were asked to complete the teacher survey found in Appendix J. The survey inquired about their teaching practices, philosophies, and use of technology, specifically cell phones, in a survey adapted from Teaching, Learning, and Computing:1998. The survey was completed independently and returned to the researcher. The survey was broken into Part K: Teaching practice in One Class, Part L: Use of Cell phones, and Part M: General Teaching Experiences. The results of the twelve surveys completed follows.

**Part K: Teaching Practice in One Class**

This section includes five questions for the teachers to begin to discuss their classroom teaching practices. Question K1-K3 are background and demographic type questions. These questions were included in the survey to show the variety of subjects represented and the varying levels of academic ability of the students represented to show all levels of students were considered by teachers when discussing their perspectives. Questions K7 and K8 ask the teacher to reflect on the last five hours of their teaching, and the types of activities students were involved in to determine how much of the time spent in class might have a tie into the level of student involvement with their cell phones. In this high school, there are four blocks per day, each block consisting of a 90-minute class period. In addition, there is a daily Advisory/Homeroom period lasting 30 minutes. During this advisory period, the students also have their lunch.

**Question K1-3. Circle the grades that you teach. How many different children or adolescents do you teach during a week in all your classes combined?** Complete the following table about the classes you are teaching now.
At the beginning of the section, K asked the teacher to circle the grade level that they teach. All teachers teach at least one grade level between 9 and 12; 10 out of the 12 participants currently teach all four grade levels. K2 asked how many different children or adolescents the teacher teaches during a week in all classes combined. The teacher answers varied from the lowest number at 15, and the highest number of 85, with the average being 55 students taught each week.

Question K3 asked the teacher to complete a table based on the classes they teach now. The teacher was asked to write the specific title or subject of the class and correlate it to the achievement or ability level within each class from Very Low, Below Average, Average, Above Average, and Very High. Across the survey responses, within classes, all five ability and achievement levels were represented. This information is shared in Table 4.3 and Figure 4.7.

Table 4.3

Teacher Survey Question K3. Complete the Table About the Classes You are Teaching Now.

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Very Low</th>
<th>Below Avg</th>
<th>Average</th>
<th>Above Avg</th>
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<td></td>
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</tr>
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<td>Gina</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Melissa</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nathan</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Shannon</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Stephanie</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Tiffany</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>William</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Question K7. Over the last 5 hours that you taught this class, roughly how many minutes did students spend in each of the following activities? The high school day is divided into four blocks. Each block is 90 minutes in length, and the students also have a 30-
minute advisory period during which they have lunch. The results are discussed below, shown in Table 4.4 and Figure 4.8. Teachers reflected on how much time is spent in these activities and whether it may change the level of cell phone use, both on and off task, within their classes.

Based on the teacher responses, the majority of them spend 30-60 minutes, but not over two hours, in each of the four tasks - Teacher-led whole-class discussion, Student-led discussion, Students working on their own, or Students working together in small teams.

Table 4.4
*Teacher Survey Question K7. Of the Last Five Hours of Teaching and Amount of Time in Activities.*

<table>
<thead>
<tr>
<th>Question</th>
<th>Under 30 min</th>
<th>30-60 minutes</th>
<th>1.25-2 hours</th>
<th>Over 2 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>e. Teacher-led whole-class discussion</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>f. Student-led discussion or giving a presentation</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>g. Students worked on their own assignments at their desks</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>h. Students worked together in small groups to complete an assignment as a team</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Teacher-Led Whole-Class Discussion.** Of the 12 responses, five teachers spend under 30 minutes in teacher-led whole-class discussion over a five-hour period, representing 42% of the responses. Five teachers spend 30-60 minutes out of five hours in a teacher-led whole-class discussion, also representing 42%. Two teachers spend 1-1/4 to 2 hours of the designated five in a teacher-led whole-class discussion, denoting 17% of the teacher participants.

**Student-Led Discussion or Gave a Presentation.** 42% of the teachers’ spent under 30 minutes out of the five hours of instruction in student-led discussion or students giving a presentation. Six teachers, 50% of participants, had their students spending 30-60 minutes of five hours in student-led discussion or students giving presentations. One teacher, 8%, spends 1-1/4 to 2 hours out of five with students leading a discussion or giving presentations.
**Students Worked on Their Own Assignments at Their Desks.** All teachers have students spend time working independently on assignments, but how much time was varied. The twelve teachers' responses were distributed across three choices. Two teachers, 17%, spend under 30 minutes with students working on their own assignments at their desks over five hours of instruction. Six teachers, or 50%, spend 30-60 minutes of five hours of instruction with students working on their own at their desks. Four teachers, 33%, use 1-1/4-2 hours out of five hours with students independently working on assignments.

**Students worked Together in Small Groups to Complete an Assignment as a Team.** From teachers reported, six teachers, representing 50% of the participants, spend 30-60 minutes of every five hours of instruction with students working in small groups to complete team assignments. Two teachers (17%) spend less than 30 minutes of five hours with students working together in small groups to complete assignments. Another two teachers (17%) spend 1-1/4-2 hours of five hours with students working on completing team assignments as a small group, while two more teachers spend over two hours with their students working in small groups, for the remaining 17% as displayed in Figure 4.8.

![Figure 4.7](image_url)

*Teacher Survey Question K7. Of the Last Five Hours of Teaching and Amount of time in Activities.*
Question K8. About how often do students in this class take part in the following types of activities? This question determined how often students in the class take part in the following types of activities. The answers to these sub-questions ranged from Never, Sometimes, 1 to 3 times per month, 1 to 3 times per week, to Almost Every Day. The data is found in Table 4.5 and in Figure 4.8.

Table 4.5
Teacher Survey Question K8. How often for Activities.

<table>
<thead>
<tr>
<th>Question</th>
<th>N</th>
<th>S</th>
<th>1-3mo</th>
<th>1-3wk</th>
<th>AE</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Work individually answers questions in the textbook or worksheets</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>j. Do hands-on/laboratory activities</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>k. Work on projects that take a week or more</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>l. Write in a journal</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>m. Suggest or help plan classroom activities or projects</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>n. Work in small groups to come up with a joint solution or approach to a problem or task</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>o. Work on a problem for which there is no obvious method or solution</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>p. Write an essay in which they are expected to explain their thinking or reasoning at some length</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Work Individually to Answer Questions in the Textbook or Worksheets. Five teachers have students answering questions in textbooks or worksheets one to three times per week, denoting 42% of research participants. Two teachers’ responses to students working individually to answer questions were sometimes for 17%. Two teachers have students working individually to answer questions 1-3 times per month, representing 17%. One teacher, 8%, has their students working individually in textbooks or worksheets almost every day.

Do Hands-on/Laboratory Activities. Five teachers, 42%, answered their students are in hands-on or laboratory activities almost every day. Two teachers, 17%, never have their students doing hands-on or laboratory activities. Two teachers (17%) responded that sometimes their
students are doing hands-on/laboratory activities. One teacher's students are doing hands-on or lab activities 1-3 times per month, indicating 8%. Two teachers, an additional 17%, have their students hands-on or laboratory activities 1-3 times per week.

**Work on Projects that Take a Week or More.** Four teachers, 33%, sometimes answered projects in their class take a week or more, keeping students engaged. Four teachers, another 33% chose 1-3 times per month students are working on projects that take a week or more. One to three times per week, students are working on projects that take a week or more was selected by two teachers, 17%. One teacher (8%) responded almost every day to having students work on projects taking a week or more.

**Write in a Journal.** Five teachers (42%) said their students never write in a journal. One teacher (8%) answered sometimes their students write in a journal. Four teachers, or 33%, have their students writing in journals almost every day. Two teachers, 17%, chose the response their students write in a journal 1-3 times per month. One teacher, 8%, answered sometimes their students write in a journal.

**Suggest or Help Plan Classroom Activities or Projects.** Seven teachers, 59%, sometimes have students suggest or help plan activities or projects. Three teachers, 25%, answered 1-3 times per month their students suggest or help plan activities or projects. One, 8% of teacher participants have their students helping to plan or suggest projects or activities 1-3 times per week. One teacher, 8%, never has students suggest or help plan classroom activities or projects.

**Work in Small Groups to Come Up with a Joint Solution or Approach to a Problem or Task.** Five teachers, 42% responded that their students work in small groups to solve or approach a problem 1-3 times per month. Three teachers, 25%, have their students working in
small groups to come up with a joint solution or approach 1-3 times per week. Two teachers, 17%, have small groups working on solutions or approaches in their classrooms almost every day. One teacher’s students never work in small groups to come up with a joint solution, 8%. One other teacher (8%) added students sometimes work in small groups to come up with a solution or approach to a problem.

Work on a Problem for Which There is no Obvious Method or Solution. Four teachers (33%) responded sometimes students work on a problem for which there is no obvious solution. Three teachers chose their students never to work on a problem for which there is no obvious method, representing 25%. Two teachers answered 1-3 times per week students are working on a problem that has no obvious solution, denoting 17%. Almost every day, students are working on a problem with no obvious solution in the classroom of two teachers, distributing an additional 17%. One teacher, 8% determined students are working on a problem with no obvious method or solution 1-3 times per month.

Write an Essay in Which They are Expected to Explain Their Thinking or Reasoning at Some Length. Five teachers (42%) expected their students to write an essay one to three times per month in which they are expected to explain their thinking or reasoning. Three teachers (25%) sometimes assigned students to write an essay. One to three times per week was selected by two teachers, 17% as the frequency students must write an essay to explain their thinking or reasoning. Two teachers, 17%, never asked students to write an essay in which they are expected to explain their thinking, as demonstrated in Figure 4.9.
Figure 4.8  
*Teacher Survey Question K8. How often for Activities.*

**Part L: Your Use of Cell Phones**

These two questions sought to find the teachers' perspective of the advantages and disadvantages of using cell phones within their teaching. The first question focused on the perceived advantages and the second question focused on the perceived disadvantages. Teachers were asked to answer the questions based on a five-selection Likert-type scale.

**L20. Which of these are advantages of using cell phones in teaching?** This question asks the teacher about the different potential advantages of using cell phones in teaching. These
answers are based on each teacher's perspective. The information is shared below, in Table 4.6 and in Figure 4.10, using abbreviations created by the researcher.

**Students Create Better Looking Products.** Three teachers, 25%, think students create better-looking products is Not True, Not an Advantage of cell phones in teaching. Three teachers, another 25%, think students create better-looking products is Somewhat True, Mild Advantage of cell phones in teaching. Three teachers, an additional 25%, answered True, Modest Advantage to students create better-looking products is an advantage of cell phones in teaching. Two teachers, 17% think an advantage of cell phones in teaching is True, Strong Advantage to students creating better-looking products. One teacher answered they Don’t Know, for 8%, if an advantage of cell phones in teaching is students creating better products.

**Cell Phones Provide a Welcome Break for Students from More Routine Learning.** One teacher, 8%, thinks Not True, Not an Advantage of cell phones creating a welcome break from routine learning. Three teachers, 25%, think cell phones provide a welcome break for students from routine learning is Somewhat True, Mild Advantage. Five teachers, 42%, answered True, Modest Advantage of cell phones providing a welcome break for students from more routine learning. One teacher, 8%, believes cell phones provide a welcome break from routine learning is a True, Strong Advantage. Two teachers Don’t Know, 17%, if cell phones provide a welcome break for students from more routine learning.

**Students Help Each Other More While Using Cell Phones.** Four teachers, 33%, answered Not True, Not an Advantage to students helping each other more while using cell phones. Three teachers, 25%, think students help each other more while using cell phones is Somewhat True, Mild Advantage. Five teachers, 42%, answered students helping each other more while using cell phones is True, Modest Advantage.
**Students Take More Initiative Outside of Class.** Two teachers, 17%, think students take more initiative outside of class is Not True, Not an Advantage of cell phones in teaching. Six teachers, 50%, think this is Somewhat True, Mild Advantage of cell phones in teaching meaning students take more initiative outside of class. Three teachers answered students take more initiative outside of class is True, Modest Advantage of cell phones in teaching, accounting for 25%. One teacher, 8%, answered Don’t Know if an advantage of cell phones in teaching students are taking more initiative outside of class.

**Students Work Harder at Their Assignments When They Use Cell Phones.** Five teachers, 42%, think it is Not True, Not an Advantage of cell phones in teaching, meaning students work harder on their assignments when using cell phones. Five teachers, comprising an additional 42%, think students work harder at their assignments when using cell phones is Somewhat True, Mild Advantage. One teacher, 8%, answered a True, Modest Advantage of cell phones in teaching is students working harder at their assignments when they use cell phones. Another 8%, representing one teacher, thinks this is a True, Strong Advantage that students work harder at their assignments when they use cell phones.

Table 4.6


<table>
<thead>
<tr>
<th>L20</th>
<th>NT</th>
<th>ST</th>
<th>TM</th>
<th>TS</th>
<th>IDK</th>
</tr>
</thead>
<tbody>
<tr>
<td>f. Students create better-looking products</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>g. Cell phones provide a welcome break for students from more routine learning</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h. Students help each other more while using cell phones</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>i. Students take more initiative outside of class</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>j. Students work harder at their assignments when they use cell phones</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

L21. Which of these are disadvantages of using cell phones in teaching? This question asked teachers to reflect on their classrooms and the disadvantages of cell phones in teaching. The four parts of this question only referred to the items being a disadvantage or not. The teacher participants' answers are shared below, in Table 4.7 and in Figure 4.11 using the researcher selected abbreviations.

**Cell Phones are Hard to Figure out How to Use.** Nine teachers, or 75%, think it is Not True, Not an Advantage that cell phones are hard to figure out how to use cellphones in teaching. Three teachers, accounting for the remaining 25%, think cell phones are hard to figure out how to use is Somewhat True, Mild Advantage of the disadvantages of using cell phones in teaching.

**Many Students Use Their Cell Phones in order to Avoid Doing More Important School Work.** Three teachers, 25%, think many students use their cell phones to avoid doing more important work is Somewhat True, Mild Advantage. Two teachers, 17%, answered this is True, Modest Advantage that many students use their cell phones to avoid doing more meaningful work. Seven teachers think this is a True, Strong Advantage, showing 59%, many students use their cell phones to avoid doing more important school work.
**Often Too Many Students Need My Help at the Same Time.** Six teachers, 50%, think this is Not True, Not an Advantage often too many students need help at the same time. Two teachers, 17%, often think too many students need help at the same time is Somewhat True, Mild Advantage of cell phone disadvantages in teaching. Three teachers, 25%, answered it is True, Modest Advantage that often too many students need help at the same time. One teacher, 8%, often thinks too many students need help at the same time is a True, Strong Advantage.

**Students Can Cheat Easier - Copying Work and Turning it in as Their Own.** One teacher, 8%, thinks students can cheat easier as a disadvantage of cell phones in teaching is Not True, Not an Advantage. Four teachers, denoting 33%, think a disadvantage of cell phones in teaching as students being able to cheat easier is Somewhat True, Mild Advantage. Two teachers, 17%, answered the disadvantage of cell phones in teaching is True, Modest Advantage of students cheating more easily. Five teachers, 42%, think students being able to cheat easier as a disadvantage of cell phones in teaching is True, Strong Advantage.

Table 4.7

<table>
<thead>
<tr>
<th>L21</th>
<th>NT</th>
<th>ST</th>
<th>TM</th>
<th>TS</th>
<th>IDK</th>
</tr>
</thead>
<tbody>
<tr>
<td>e. Cell phones are hard to figure out how to use</td>
<td>9</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>f. Many students use their cell phones in order to avoid doing</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>more important schoolwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Often, too many students need my help at the same time</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>h. Students can cheat easier - Copying work and turning it in as</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>their own</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part M: General Teaching Experiences

These three questions were asked of teachers to determine the changes which may or may not have been made in their practices in the past three years. The questions then compared how cell phones could or could not have played a part in these changes. Also, teachers were asked to note how they think about cell phones in their classroom.

M4. Compared to three years ago, how much do you employ the following practices? This question asked teachers to reflect on their classroom practices now as compared to three years ago. The five parts of this question asked teachers to determine their current climate in class compared to their previous climate. The question was answered using a five-answer scale.

Plan a Lesson Using Principles of Direct Instruction. Three teachers, 25%, responded Less than three years ago when asked how they plan a lesson using direct principles of instruction. Eight teachers, comprising 67%, answered they plan a lesson using the direct
principles of instruction the Same as Before. One teacher, 8%, answered they plan a lesson using principles of direct instruction More Now.

*Have Many Activities Going on in the room at the Same Time.* One teacher, 8%, answered Less than three years ago to how often they have many activities going on in the room at the same time. Four teachers, recording 33%, answered they have many activities going on in the room simultaneously, the same as Before. Seven teachers, the final 59%, answered they have many activities going on in the room simultaneously.

*Closely Monitor and Supervise Students While They Work.* Closely monitoring and supervising students while they worked Less than three years ago was selected by three teachers, calculating 25%. Adding 33%, four teachers answered they closely monitor and supervise students while they work, Same as Before. Three teachers, 25%, answered More Now to closely monitoring and supervising students while they work. Two teachers, rounding out the final 17%, answered closely monitor and supervise students while they work Much More Now.

*Evaluate Students Through Their Products Instead of Tests.* Five teachers, annotating 42%, answered they evaluate students through their products instead of tests the Same as Before. Five teachers, an additional 42%, answered More Now to how frequently they evaluate students through their products instead of tests compared to three years ago. Two teachers, the final 17%, answered they evaluate students through their products instead of tests Much More Now.

*Allow Myself to be Taught by Students.* Three teachers, representing 25%, answered they allow themselves to be taught by students the Same as Before. Four teachers answered More Now, accounting for 33%, to how often they allow themselves to be taught by students. Four teachers, 33%, answered they allow themselves to be taught by students Much More Now. One teacher, 8%, answered they Never Did allow themselves to be taught by students.
Table 4.8
Teacher Survey Question M4. Practices Compared to Three Years Ago.

<table>
<thead>
<tr>
<th>M4</th>
<th>&lt;3 years</th>
<th>Same</th>
<th>More</th>
<th>Much More</th>
<th>Never did</th>
</tr>
</thead>
<tbody>
<tr>
<td>f. Plan a lesson using principles of direct instruction</td>
<td>3</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>g. Have many activities going on in the room at the same time</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>h. Closely monitor and supervise students while they work</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>i. Evaluate students through their products instead of tests</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>j. Allow myself to be taught by students</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 4.11
Teacher Survey Question M4. Practices Compared to Three Years Ago.

**M4B. How much of a role have cell phones played in the changes to the practices you reported above?** This question asked teachers to reflect on how much of a role cell phone played in the changes to practices discussed in question M4. The answers discussed here are listed in Table 4.9 and Figure 4.13 below.

One teacher, 8%, answered No role at all to how much role cell phones played in the changes to the above-reported practices. Seven teachers, 59%, answered cell phones played a minor role in most cases to the changes in practices. Three teachers, 25%, answered a
Substantial role in many cases to the role cell phones played in their changes in practice. One teacher, 8%, answered cell phones played a major role in most of their practice changes.

Table 4.9
Teacher Survey Question M4B. How Much of a Role Cell Phones Play.

<table>
<thead>
<tr>
<th>Practice Change?</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Role</td>
<td>1</td>
</tr>
<tr>
<td>Minor Role</td>
<td>7</td>
</tr>
<tr>
<td>Substantial Role</td>
<td>3</td>
</tr>
<tr>
<td>Major Role</td>
<td>1</td>
</tr>
<tr>
<td>Not applicable</td>
<td>0</td>
</tr>
</tbody>
</table>

M7. How have cell phones in your classroom affected the way you do or think about the following? Question M7 asks how cell phones affect the way the teacher did or thought about a few situations. The results are discussed below, shown in Table 4.10 and Figure 4.14.

The Way You Organize Space/Seating in your classroom. Seven teachers, 59%, answered the way they organized space/seating was Not Affected by cell phones. Two teachers, 17%, made Small Changes to their space and seating because of cell phones. Three teachers,
25%, made a Moderate Change because of cell phones to space/seating organization in their classroom.

**The Way You Break Up Your Class Period into Activities.** Three teachers, 25%, answered the way they break up class periods into activities was Not Affected by cell phones. Three teachers, another 25%, made Small Changes because of cell phones to the way they break up class periods into activities. Four teachers, representing 33%, made a Moderate Change to the way they break up class periods into activities because of cell phones. The last 17% answered that two teachers answered there was a Big Change to the way they break up the class period into activities based on cell phones.

**Your Beliefs about Curriculum Priorities.** Nine teachers, totaling 75%, answered their beliefs about curriculum priorities was Not Affected by cell phones. One teacher, 8%, made Small Change to their beliefs about curriculum priorities because of cell phones. Two teachers, 17%, made a Moderate Change because of cell phones to their beliefs about curriculum priorities.

**Goals in Teaching.** Six teachers, 50%, answered cell phones did Not Affect their goals in teaching. Three teachers made a Small Change to their teaching goals because of cell phones, representing 25%. Three teachers, the final 25%, made a Moderate Change to their teaching goals because of cell phones.

Table 4.10
*Teacher Survey Question M7. How Cell Phones Affect the Way Teachers Think.*

<table>
<thead>
<tr>
<th>Cell Phones Affect?</th>
<th>NA</th>
<th>SC</th>
<th>MC</th>
<th>BC</th>
</tr>
</thead>
<tbody>
<tr>
<td>e. The way you organize space/seating in your classroom</td>
<td>7</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>f. The way you break up your class period into activities</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>g. Your beliefs about curriculum priorities</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>h. Goals in teaching</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
In summary, this intrinsic case study was conducted to discover high school teachers’ perceptions about the use of cell phones by students in the classroom. Chapter Four organizes the data presented to address the three research questions. Research Question One sought to discover the high school teacher's perception of students' cell phone use during class. Then, Research Question Two determined how those students integrate cell phones most frequently during classroom instruction. Finally, Research Question Three explored teachers' perceptions of student cell phones' potential positive uses during instruction. The data gathered from the participants’ interviews, surveys, and focus group questions was presented here in the narrative form of themes, charts, and tables based on the relevance to the three research questions. The six common themes were developed and aligned to address the research questions. Six themes discovered during the analysis of the teachers’ interviews and surveys on why and how cellphones were used in class included: Parents or work messaging or calling the student during class. Social Media/Snapchat, cheating, conducts research faster, the appearance of students not being able to separate from their cell phones, playing games and/or music.
CHAPTER FIVE: CONCLUSION

Overview

The purpose of this intrinsic case study was to discover the perceptions of high school teachers about the use of cell phones by students in the classroom. Chapter five describes the analysis process and the findings of this study. Information gathered and analyzed came from teacher interviews, teacher surveys, and focus group questions addressed based on the common themes that emerged through analysis. This chapter contains the summary of findings derived from the research questions. The summary of findings will be followed by discussing the study findings concerning the empirical and theoretical literature followed by implications. Addressed are the theoretical, empirical, and practical implications of the study. Next, the discussion of the research's delimitations and limitations is covered and examining implications for future research. After considering the study findings, limitations, and the delimitations placed on the study, recommendations, and directions for future research, chapter five was completed with a summary and addressed the research questions.

Summary of Findings

This study captured high school teachers' perceptions of student cell phone use in class. After a data analysis of teacher responses, the discovery of several common themes as they emerged through analysis: Frustration from parents or work was messaging or calling the student during class, Social Media/Snapchat, Cheating, Conduct research faster, The appearance of students not being able to separate from their cell phones, Playing games and/or music. In the high school classrooms, I work in, these themes have been and continue to be witnessed daily. The number of redirects of students from cell phone use back to task some days is staggering.
Research Question One asked teachers to give their perceptions of students’ cell phone use in class. Teachers perceived cell phones to be a faster way to reach the information the student is looking for than the district-issued tablet is most of the time. Teachers recognized cell phones are not something going away from classrooms. Teachers delved into cell phone use in the classroom as another digital device is a "change in thought" both for teachers and students. One of the teachers' common themes was the frustration of family members contacting the student during the day/class. Teachers noted cell phones are used as a quick reference, inspiration, or listening to music while they work. The majority of teacher participants agreed in an interview, survey, and focus group that cell phones create a more out-of-class initiative, create better student output, and change the way teachers break up classroom activities. Teachers agreed that for students, a quick notification check curbed distraction. High School teachers believed some, if not many, students are on the verge of addiction to their cell phones. In interviews and focus group question discussion, most teachers showed sympathy for this addiction's appearance, as they also have trouble separating from their devices.

In answering Research Question Two, high school teachers perceived most frequent off-task uses with student cell phones during class include listening to music, watching videos of video games played, or playing the games in class. Teachers understood the way students interact with their cell phones and on social media can tell a lot about their frame of mind. Teachers shared in interviews and focus groups cell phones take away from academic engagement in the classroom. Ten of the twelve participants shared in their survey that students spend more than 30 minutes up to two hours out of five working independently at their desks. Teachers saw cell phones as a quick way for students to find the information they are looking for or to document their work, but also know a check for information most often leads to a check of
social media. Teachers recognized some students prefer to use their cell phones for everything because they are already using them, and they have them all the time. Nine teachers, or 75% of the participants, agree cell phones are not challenging to figure out how to use for class assignments.

*Research Question Three* asked to gain insight into how teachers perceived potential positive uses of student cell phones during instruction. High school teachers listed troubleshooting as using the students' cell phones, and troubleshooting can lead to student collaboration. Teachers, 67%, chose mild to moderate advantage as to cell phones relation to students helping each other more often. Some teachers embellished the importance of technology used as a research tool. According to teachers, cell phones can create a more level playing field for students’ quality of work across populations. However, 10 out of 12 teachers selected the choice Not True on the survey concerning students working harder on assignments when they use their cell phones. Teachers did elaborate in focus group answers cell phones can create avenues for real-world examples and even bring excitement to a topic. Some tools students would need in the classroom are already on their phones, such as cameras, timers, apps for measurement, and the like. Teachers elaborated on student engagement increasing since they are not repeatedly told to put their phones away but are encouraged to use them to enhance the learning.

**Discussion**

The discussion section provides the review of student cell phones' practical and theoretical aspects and uses and integrates cell phones into instruction in the classroom. As new information gathered in this study was compared to the additional literature reviewed in Chapter Two, Empirical and Theoretical discussions will take place.
Empirical Literature

Ali, Papakie, and McDevitt (2010) placed the statistics at approximately 50% of students using phones in the classroom. The statistic reported by Anderson (2015) noted 78% of teens own a smartphone. Anderson and Jiang (2018), along with Schlosser (2018), noted 95% of teens have access to a smartphone, and 45% of teens admitted to almost continually being online. This screen time and connection affect the user and those around them and the teacher trying to instruct. This literature is comparable to the findings of teachers' perceptions of students not separating from their devices.

When used correctly, cell phones can be an asset to instruction and learning, but the increased availability of technology also increases the potential off-task behavior (Gao, Yan, Wei, Liang, & Mo, 2017). The research conducted for this intrinsic case study found similar statistics by classroom. Teachers noted students' cell phone use could be a positive asset in their classrooms, but most teachers understood the distraction cell phones could cause. Teachers also noted in their perceptions cell phones make it much easier for students to cheat. In chapter two, literature was reviewed and found of teens surveyed, 35% of them admit to having used their cell phones to cheat on a test or homework (Morin, 2019).

With the Internet's availability at students' fingertips, literally with touch screen technology on their smartphones, there is more of a possibility the students will be on their phones and less engaged in the classroom. Storch and Ortiz Juarez-Paz (2019) shared the accessibility of purposefully implemented technology in today's classrooms is a very viable option. Teachers have to become even more creative with how students interact with their technology, especially in school closures and virtual learning.
The literature review for Chapter Two found that some claim student cell phones contributed to first responders' speed in the Parkland High school shooting (Logan and Kamenetz, 2018). Students and their cell phones more often are becoming the reason parents are aware of a situation at school before the administration can provide notice (Goodrum, Woodward, & Thompson, 2017). However, teachers interviewed, and their survey responses and focus group conversations also showed parents calling and messaging their students during class time was a prevalent theme contributing to derailing the learning. Teachers noted it takes a long time for a student to refocus after an interruption, or the parents' call or message takes precedence over the learning.

Researchers who studied the negative aspects of cell phone use in class support the opinion: cell phones cause a multi-faceted detriment to student performance (Yaron & Vered, 2019). Teachers in this study explained the students' cell phones could distract the student from their learning. Some have even built-in cell phone breaks and checks to allow students the comfort of knowing they would have a designated time to answer messages or see their notifications. Many faculties claimed technology and their students' devices to access the Internet are intrusions and have become central to the off-task activities within their classrooms (Lanagan, Schott, Wykes, Szeto, Kolpin, Lopez, & Smith, 2016).

Berry & Westfall (2015), Tulane, Vaterlaus, & Beckert (2018), along with Zebroff (2019), cited when a student is using their cell phone in class for reasons other than instruction, the student is texting and sending messages on social media most of this time. The participants in this research discuss students. Teachers claimed that most of the time students used cellphones was spent non-academically or on social media; several teachers named Snapchat.
Teachers' perceptions of students' social media use on their cell phones became common and supported previous literature reviewed.

Teachers in this study noted students spend some of the time on their cell phones playing games. Some students are "wrapped up" in the gaming world they are playing (Erturkoglu, Zhang, & Mao, 2015) because this version being interactive and real-time. This version of the game could coincide with other students in the same room or another class at the same school. One teacher even noted students would be competing in the class against each other. The literature reviewed was parallel to the findings of this case study on students playing games.

A few of the teachers explained students want to put their headphones in and listen to music as they work independently. Based on interviews and focus group discussions, most teachers do not have any issue with students listening to music. This allowance supports the reviewed research of music being a comfort and allows them to work. Some students find comfort in the isolation and therapeutic effects of having music playing into headphones while they work (Zanders, 2018). The students can complete work while drowning out the other students' distractions and their cell phone interactions.

**Theoretical Literature**

In Chapter Two, the literature review discussed the theory guiding this study, being Vygotsky’s (1978) sociocultural theory. Based on the credence, peers, culture, beliefs, and attitudes influence learning (Rogoff, Dahl, & Callanan, 2018). Vygotsky deemed the engagement in the learning prepared the student cognitively but needs to be assisted by social interaction to most fully develop, depending on the student involved (Briner, 1999). A high school classroom student is being shaped daily regarding the type, amount, and quality of social interactions. Students are setting their norms based on what friends are doing, what they can do
in each class, and acceptable behavior based on the lack of consequence or acknowledgment of actions published as unacceptable in the student handbook (Kang, 2015). Vygotsky's sociocultural theory and social constructivism lenses view a school, and each classroom has and obtains its own culture. The shaping of students' active participation in this culture uses cell phones for either instruction or distraction.

The term nomophobia was first coined in 2008 during a study in the United Kingdom (Yildirim & Correia, 2015) to explain the anxiety created by being separated from a mobile device. The participants in this case study did not use the term specifically during their interviews but did refer to students' appearance bordering addiction to their phones. Research continues on nomophobia as an essential topic. Mendoza, Pody, Lee, Kim, and McDonough (2018) cited concerns about students' attention in class with their cell phones. Most of the time, nomophobia is related to a personal cell phone (Nagpal & Kaur, 2016; Gentina, Li-Ping Tang, Dancoine, 2018; Tams, Legoux, & Léger, 2018).

One of the participants explained nomophobia without using the term to discuss how much of a battle it was in class when the students' phones were supposed to go into a clear pocket hanging on the door. Although they could see their phones, the students could not touch them. This distance created a detriment to the level of instruction.

The research has shown that today's students are more distracted than any generation before them (Aaron & Lipton, 2018; Cheong, Shuter, & Suwinyattichaiporn, 2016; Kay, Benzimra, & Li, 2017). The amount of technology at their fingertips is more than ever before and is still a present distraction of YouTube platforms (Stauff, 2016). Now add in Tik Tok videos, both making them and watching them as was noted by the teachers in this study to be a
major part of the distraction. The typical dilemma instructors face with cell phones is the battle between the appropriate use and young adults' culture and habits (Bjornsen & Archer, 2015).

**Implications**

Discussion on three implications from the research findings is in the following sections. These implications are from the findings of the case study conducted. This section aims to address the theoretical, empirical, and practical implications of the study.

**Empirical Implications**

The intrinsic case study conducted was focused on gaining the perceptions of high school teachers about the students’ use of cell phones in the class. The observations made by the researcher created an interest in researching to understand more perspectives on the topic. There were moments of agreement with their views, and some answers brought awareness to angles not yet thought about within the focus groups. A few times in the analysis phase, I was brought to a pause to consider one of the participants’ opinions. One such moment was when more than one teacher agreed with Danielle that if students are using social media to show their accomplishments or "share cool things they are doing" related to the class, then cell phone use in class is viewed as a victory. This victory resulted from scholars deeming the students in today's classrooms as the Net Generation and expected them to be the technology-savvy leaders. However, most of the time, the Net Generation spends a large amount of their time using technology for off-task behaviors and interactions (Flanigan & Kiewra, 2018).

Teachers find a variety of ways to use cell phones during their instruction. One teacher, Tiffany, believes that if the student can use the cell phone, it "increases their engagement in the material" being taught. Another, Brandy, feels that having their cell phones can "inspire them" to be more creative. Nomophobia is the name used for the discomfort of not having a digital
connection to others (King, Valença, Silva, Baczynski, Carvalho, & Nardi, 2013). Fear of Missing Out (FOMO) is the term used for social anxiety that arises from the possibility of missing a social interaction or new happening (Dossey, 2014). Stephanie understands the “bordering addiction students have to their cell phones”, even just having them nearby them to use potentially can create a sense of calm and productivity.

Many of the teachers, Melissa and Tiffany, to name a few, can empathize with the students, as they also have "difficulty with separation" from their access to technology their cell phone affords. All teacher participants understand that cell phones are not going to become less prevalent in high school classrooms. The latest reports claim an average smartphone user will “tap, swipe, click their smartphone 2,617 times a day… top 10% do this about 5,427 times a day” (dscout.com, 2021). These participants know that with the right training, student cell phones can be an invaluable tool to have faster and more in-depth "access to the information needed for the learning taking place," - as William noted. At any time, this access can also be the portal to "any sort of distraction," explained Shannon, the student could ever imagine needing.

Theoretical Implications

In sociocultural theory, the certainty of learning influences peers, culture, beliefs, and attitudes (Rogoff, Dahl, & Callanan, 2018) became evident during this process. A school and each classroom have and obtain its own culture. The shaping of student's active participation in this culture by cell phones is for either instruction or distraction. The information learned was for teachers' perceptions of students in their classrooms from a southeastern high school. The sociocultural theory for the cultures may differ in shape and perception of what is readily accepted by the population-based on geographic location or other such factors. However, there
is a culture created in each school and taken part in by students who have access to a cell phone, thus, supporting the theoretical implication of cell phones being part of the school's culture.

The teachers mentioned the students seeming to have an addiction to their cell phones and checking them. Teachers noted the students' inability to allow notifications to go past without activating their screens to check-in. This simple action would not be a stretch of an explanation, in this researcher's opinion about the students seen daily, to with the behaviorism theory and further detailed with classical conditioning. Thorndike and Watson's behaviorism theory explains how students behave based on the interaction with their environment (Coplan, 2010). The likened interaction with their cell phones could also lead to behaviorist Pavlov and the hungry dog he trained to salivate at the sound of a buzzer the dog had associated previously with food (Gantt, 2020).

Another theory noted during this research was the connectivism theory. Connectivism states that people learn and grow when they form connections (Western Governor's University, 2020). More specifically of note for this research is the determination that two critical skills used in connectivism are to seek out important information and quickly filter secondary and extraneous information (Kop & Hill, 2008). Students noted as having this rapid determination of what was essential and what was extraneous with their cell phones when the common theme of being able to research faster.

**Practical Implications**

Although a single case study cannot provide a complete foundation for all high school teachers' perceptions of cell phone use, this study would suggest teachers in high school classrooms are aware of the competition with cell phones for students' time and focus on mastery of information. However, when teachers embrace the possibilities and potential cell phones can
bring to their lessons, they can continue to grow students. One teacher verbalized it is a positive thing when a student is so engaged in the lesson; they choose the speed of researching with their cell phones over their district-issued tablets. This method alone gives way to teachers being more able to use the phone as a productive tool in their classrooms. Another teacher noted it would be a shift in thinking for teachers and students for the cell phone to become a more integral part of the learning process, potentially in the future become the district issued device as opposed to a bulky and slow processing speed tablet.

Bringing these practical implications to the forefront and showing relevance, this researcher watched and took note of a few things from the Netflix documentary *The Social Dilemma* (Orlowski, 2020). This documentary focuses on how social media platforms are being intentionally addictive to the user. One of the individuals, a former employee of Google, Tristan Harris (2020), was interviewed. In his portions of the documentary, he made several relevant statements catching the attention of this researcher. One such comment was the platforms are training the user "if you pick it [device] up to look at it, there just might be something [25:00]."

Jaron Lanier (2020), another interviewed technology expert, explained, "we've created a world in which online connection is primary, especially with the younger generation...the very meaning of connection is manipulation [21:47]. It is the gradual change in your habits [14:45]." Tristan Harris rounds out this sentiment with the statement, "If you are not paying for the product, you are the product [13:21]." This habit also ties back to the Theoretical Implications discussion with the social media platforms playing to the user's classical conditioning. In the *Social Dilemma* (Orlowski, 2020), this classical conditioning was referred to by Joe Toscano as an intermittent positive reinforcement [24:33] to continually refresh their feed or stream rewarded each time with new videos or images.
For this researcher, cell phones are a fantastic tool to be used in the classroom. Some students forget their backpacks full of work. Some students lose their tablets by leaving the entire bag on the bus, but very rarely is there a time when the student forgets their cell phone. This strategy creates another platform to assist students in becoming self-advocates. Showing students how to use their cell phones to access the same apps and webpages as they can on their tablets creates relief for some students that are just forgetful of other things they deem less relevant to their lives and daily interactions. These students do not become disadvantaged in the technology-heavy curriculum our schools are in during this shift in academics.

**Delimitations and Limitations**

The decisions made to shape the study into the intrinsic case study of high school teachers' perceptions of student cellphone use took time to determine. Focusing on high school teachers helped address most of the K-12 student population with cell phones used in instruction (Scholastic.com, 2019). The intrinsic model made the best fit (Yin, 2014). The discussion of delimitations and limitations is below.

**Delimitations**

The researcher chose the intrinsic model since daily observation in high school classrooms of students interacting with their cellphones brought about the curiosity to learn if other teachers had the same observations. The literature review revealed a gap from the high school perspective, other than statistics of how many students in the high school age range have cellphones and how much reported time they use them. For example, Anderson and Jiang (2018) showed earlier, along with Schlosser (2018), noted 95% of teens have access to a smartphone, and 45% of teens admitted to almost continually being online. This information gap, along with a lack of reports or articles, determined high school classrooms' focus.
Initially, in the study’s framing, the researcher had determined the teachers who chose to participate should have a minimum of three years of experience and no more than 30 years. These boundaries became less restrictive to allow for the inclusion of a purposeful sample of the high school teaching population. This intrinsic case study's voluntary participants were all high school level educators with experience ranging from 3 years to almost 30 years. The teachers who took part were three males and nine females. The least and most significant amounts of experience were both females. The teachers completed a consent to participate in the research study, participating in an individual interview, completing a teacher survey, and after results were analyzed and common themes recognized, then were grouped into focus groups based on those common themes.

Limitations

Some of the limitations to this grouping were that all the Battery Creek High School educators received an email asking if they would like to participate in this research study. The target number of participants was 12 to 15 teachers. Of the more than 60 emails sent to request, 12 teachers chose to participate. Another limitation discussed in previous chapters is the number of males to female participants was not equal. However, the number was more balanced than previously anticipated by the researcher.

This research proposal approval occurred during the school year (2020-2021) when the instruction changed from face-to-face instruction to a virtual model based on the district's decision to close the physical buildings. The participants scheduled their interviews with the researcher during the completion of this fly-by-night rapid onset change. Virtual teaching affected teachers, in turn, had to become reactionary to the change. It could have caused some
changes in the answers to their questions on the interview or the survey, based on a potential higher emotional response or stress level.

**Recommendations for Future Research**

Teachers' perceptions of this self-regulation will shift as previous generations' teachers make way for the teachers born within GenZ (Aaron & Lipton, 2018; Anderson, 2015; Blair & Fletcher, 2011). This shift could potentially be an area for follow-up research as teachers' perceptions will change based on their generational bias and input. A case study could be used again for the teachers' perceptions five or more years from now once another generation of teachers begins their career and more of the older generation retire and move on.

Another area could focus on future research would-be teachers' perceptions at the middle school level. This focus could be possible since students of younger ages now have cell phones and carry and use them daily. A case study could also be used for this, depending on the school chosen, and it could also be an ethnographic case study if the focus would be more on the historical change of cell phones coming in to use in those middle-grade levels.

A third focus area for future research came from the teacher survey from section K, questions seven and eight. Question K7 asked the teacher to determine in their classroom over a 5-hour period how long students spent in the following activities: Teacher-led whole-class discussion, Student-led discussion or giving a presentation, Students worked on their own assignments at their desks, Students worked together in small groups to complete an assignment as a team. Question K8 sought to find how often students in their class were engaged in the following activities: Work individually answers questions in the textbook or worksheets, Do hands-on/laboratory activities, Work on projects that take a week or more, Write in a journal, Suggest or help plan classroom activities or projects, Work in small groups to come up with a
joint solution or approach to a problem or task. Work on a problem for which there is no obvious method or solution. Write an essay in which they are expected to explain their thinking or reasoning at some length.

The research surrounding Questions K7 and K8 could be qualitative or quantitative and delve deeper into student engagement in the classroom with their cell phones based on activity type occurring in the lesson. An example is a tally of off-task behavior involving the student's cell phone if a lecture was occurring or if independent desk work activities were in the process of completion. These tally charts could then turn into a comparative analysis of cell phone off-task behavior in high school or middle school classes based on the activity being done from the selection of tasks from Question K7 and K8. Teacher participants could complete Question K7 and K8, then the researcher would conduct an observation of each teacher’s class to tally the off-task behavior and what activity was being conducted at the time.

Summary

This intrinsic case study discovered high school teachers’ perceptions of students' use of cell phones in the classroom. The research culminated from the case study information gathered in teacher interviews, teacher surveys, and the focus group questions revealed the common themes as they emerged through analysis: Frustration from parents or work was messaging or calling the student during class, Social Media/Snapchat, Cheating, Conduct research faster, The appearance of students not being able to separate from their cell phones, Playing games and/or music. The chapter contained a summary of findings from the research questions followed by discussions compared to the empirical and theoretical literature reviewed in Chapter Two. Addressed were the theoretical, empirical, and practical implications of the study. This study provided consideration of the delimitations and limitations of the research. An examination of
future research implications was detailed to determine some potential topics for further or future research. This intrinsic case study allowed the researcher to understand other high school educators who have a stance on cell phones in their classrooms, yet they may understand, empathize, or experience the same connection to their technology devices.
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May 29, 2020

Summer DuPont
Jerry Woodbridge

Re: IRB Exemption - IRB-FY19-20-337 High School Teachers' Perceptions of Student Cell Phone Use in the Classroom: A Case Study

Dear Summer DuPont, Jerry Woodbridge:

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46: 101(b):

Category 2.(iii). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:
The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

Your stamped consent form can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. This form should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document should be made available without alteration.
Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether possible modifications to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office
April 29, 2020

Summer DuPont
Doctoral Candidate
Liberty University
3 Jarvis Creek Way
Hilton Head Island, SC 29926

Dear Summer DuPont:

After careful review of your research proposal entitled High School Teachers’ Perceptions of Student Cell Phone Use in the Classroom: A Case Study, I have decided to grant you permission to conduct your study at Battery Creek High School.

Check the following boxes, as applicable:

☐ The requested data WILL BE STRIPPED of all identifying information before it is provided to the researcher.

☒ The requested data WILL NOT BE STRIPPED of identifying information before it is provided to the researcher.

☐ I/We are requesting a copy of the results upon study completion and/or publication.

Respectfully,

Chad Cox
Principal
Battery Creek High School
chad.cox@beaufort.k12.sc.us
843-322-5545
APPENDIX C: DISTRICT RESEARCH SITE APPROVAL

Application Request for Research Project

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<th>YES</th>
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| ESTIMATED COMPLETION DATE: |

Research Project Description

1. Title of Research Project:
   High School Teachers' Perceptions of Student Cellphone Use in the Classroom: A Case Study

2. Describe the primary purpose of the research as well as the measurable objectives of the project. Examples: "The aim of this study is to ______ (Determine/Measure/Gather information on/ Investigate the consequences/Test the theory/ Analyze the impact/ Develop deeper understanding of high school teachers' perceptions of student cell phone use"

3. Provide a brief description of the research and how it will address improvement of educational policy, programs or practices:
   This information will potentially help teachers to deliver instruction using cell phones to their advantage and as the best possible tools. Even more relevant information to gather now that schools have had to adjust to virtual delivery.

4. How does the Research Project align with the strategic mission and vision of the BCS District, a specific school or classroom? If a section is not applicable to your Research Project, indicate N/A.
   - [ ] District/School strategic plan and educational goals to improve student achievement:
   - [ ] Research-based strategies related to improving districts, schools, curriculum, instruction, assessment, and improving learning for all students:
   - [ ] Improvement of learning for all students in the targeted student population(s):
   - [ ] Standards-based instruction and assessment, (SC State Standards, College-Career Ready etc.)

Rev 12/2014
Professional development and support for instructional or support staff:
Supervision and evaluation of instructional staff (and non-instructional staff, if applicable):
Diverse learning needs of students:
Use of technologies designed to enhance teaching and learning,
Creating a safe, nurturing and orderly school environment that is conducive to learning for all students
Engaging Parents, Community or Business partners

Data Requests: Please describe in detail any data or information that you are requesting from the District. This would include requests to administer surveys, conduct observations etc. Please be as specific as possible.

The researcher requests to individually interview each participating high school teacher (up to 15), to have each of those participating teachers complete a survey, and the researcher would then conduct an observation of each participating teacher’s classroom for one class period.

Other Relevant Comments:
Permission from Battery Creek High School building principal, Chad Cox, has been requested.

My signature below certifies that:
- I have received a copy of the Guidelines and Procedures for Conducting Research Affiliated with Beaufort County Schools and that I will comply fully with the policies and procedures outlined as part of my research.
- I have reviewed all relevant policies and procedures as outlined in that document related to responsible conduct in research including those related to ethical conduct and confidentiality.
- I understand that while working as a researcher under the supervision of a Beaufort County School District employee, I may have access to records and files that contain confidential information and that it is the employer’s obligation to protect the rights of these files and/or individuals and that
- I will follow the operating practices and procedures required while handling these records and will not inappropriately access or disclose this information.
- I acknowledge that if I misrepresent or omit any information as requested on this application I have jeopardized my continued association with Beaufort County School District and is cause for forfeiture of consideration.

Researcher Name: Summer D. DuPont
Print or Type name

Reviewed by:

Signature: ____________________________ Date: 4/29/2020

Reviewed by:

Signature: ____________________________ Date: 5/19/2020
Chief Instructional Services Officer

Disposition: APPROVED DENIED
APPENDIX D: INVITATION TO PARTICIPATE SURVEY

1. Are you a current high school level educator?

Yes

No

2. Do you have more than 30 years teaching experience in education?

Yes

No

3. Do you wish to participate in a case study about teachers' perceptions of student cell phone use in high school classrooms?

Yes

No
APPENDIX E: LINKED INFORMATION SHEET

1. What is your full name?

2. What high school do you work in?

3. What is your best email address to contact you?

4. What is a good contact phone number for you?

5. Which contact method do you prefer?
   Email
   Phone call
   Phone Text message
   Other (please specify)

6. What is your birth year?

7. Is teaching your first career?
   Yes
   No

8. If you answered "No" to question 7, what was your career(s) before teaching?

9. What is the best time of day to contact you, when needed?
   Morning (between 8- 10)
   Afternoon (between 10- 4)
   Evening (after 4- before 8)
   Other (please specify)
APPENDIX F: CONSENT FORM

CONSENT FORM

High School Teachers’ Perceptions of Student Cell Phone Use in the Classroom: A Case Study
Summer DuPont
Liberty University
School of Education

You are invited to be in a research study of high school teachers’ perceptions of student cell phone use in the classroom. You were selected as a possible participant because you are a current high school teacher with no more than 30 years of teaching experience in education. Please read this form and ask any questions you may have before agreeing to be in the study. Summer DuPont, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this study is to determine high school teachers’ perceptions of student cell phone use in the classroom.

Procedures: If you agree to be in this study, I would ask you to do the following things:
1. Participate in an audio-recorded Zoom interview. This should take approximately 60-90 minutes to complete.
2. Complete a survey. The survey will be emailed to you after the interview and will take approximately 30 minutes to complete. The survey should be returned within 5 business days of receipt.
3. Potentially participate in an audio-recorded Zoom focus group. This should take no more than 90 minutes to complete.
4. Review your interview and potential focus group transcripts for accuracy. You will be emailed a copy of the interview and focus group transcripts to comment or confirm accuracy. This should take approximately 30 minutes to complete. The transcripts should be returned to the researcher within 3 business days from the date of receipt.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

Benefits: Participants should not expect to receive a direct benefit from taking part in this study.

Compensation: Participants will not be compensated for participating in this study.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records. I may share the data I collect from you for use in future research studies or with other researchers; if I share the data that I collect about you, I will remove any information that could identify you, if applicable, before I share the data.
• Participants will be assigned a pseudonym. I will conduct the interviews in a location where others will not easily overhear the conversation.
• Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
• Interviews and potential focus group will be recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher will have access to these recordings.
• I cannot assure participants that other members of the potential focus group will not share what was discussed with persons outside of the group.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is Summer DuPont. You may ask any questions you have now. If you have questions later, you are encouraged to contact her at summerdupont06@gmail.com. You may also contact the researcher’s faculty chair, Jerry Woodbridge, PhD, at jlwoodbridge@liberty.edu.
If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

☐ The researcher has my permission to audio record me as part of my participation in this study.

____________________________________  ______________________________________
Signature of Participant                        Date

____________________________________  ______________________________________
Signature of Investigator                        Date
APPENDIX G: INTERVIEW QUESTIONS

1. How do you use technology as a part of your class? Provide examples.

2. How would you elaborate on the student input and output technology creates in a lesson?

3. What are cell phones being used for in your classroom?

4. When cell phones are being used in your classroom, what are they being used most frequently to do?

5. In your opinion, how often in a class period do students use their cell phones for academic purposes?

6. What do you believe are the added benefits cell phones can bring students during the lesson?

7. What do you believe are the diversions cell phones can bring students during the lesson?


9. How does the delivery of instruction using cell phones affect the engagement of high school students?

10. In your perception, how does the use of cell phones during a specific portion of the lesson - beginning, middle, or end - affect the length of engaged time for high school students? Provide specific examples for each.
APPENDIX H: INTERVIEW TRANSCRIPTS

Brandy

Researcher: Are you ready? First question, how do you use technology as a part of your class?

Brandy: OK. So, I use Google Classroom for everything, and I have all my life. I put everything on Google classroom that way if kids are absent, they can see exactly what I do in class because I post links and video links and all that kind of stuff. They start with my presentations and everything and then they did their actual piece of artwork and then on line they have to have a Google slideshow. I have used Google sites before, but it was more work for me because the kids work from regular Google sites, but they aren’t familiar with the slides. They have to switch to Google sites and they create a digital portfolio of each piece of their artwork and they have to have their artwork and an essential question. And then answer the essential question. That way they have a physical portfolio that has real art in it and then a digital portfolio that they keep throughout the semester.

Also, they use their tablets and their phones to do that. I mean, some choose not to use their tablets and use their phones to do it. A lot of the kids they can use their phones, but then they don't have enough data to do it. They want to do so, then they use their phones and their tablets as reference when they need to look up information for what they want to use to influence their artwork or to gather artwork or to look at a different artist or that kind of thing.

Researcher: How would you elaborate if a student does use technology for the lesson other than Google Classroom, do you feel that the technology that they use changes the output, or changes that end state changes their product?

Brandy: Well, I think the fact that I could possibly use that artwork - which I haven't done recently - in a digital gallery of some kind where I think that would make more of an impact on
the end product of the art. Sometimes when you put the artwork on the screen, it looks better than it does on paper. I think it does. Also, I think it is just the organizational skill to be able to put everything in one spot with all their written work. Their written work is what's important on the digital portfolio. I want them to be able to tell me in words what they learned. That is important.

**Researcher:** You said cell phones are used in your classroom for researching, and a lot of kids decide to use their phones instead of using their tablets. In your opinion, in your perspective, when cell phones are being used in the classroom, what are they being used most frequently to do?

**Brandy:** Ideally, I would like to say for all my work. Honestly, I will go check a text message if I hear my phone, or if the phone rang and I want to see who it is. If it's my daughter, I'm going to answer the phone. If it's my husband, he'll call my school phone. But I mean, there's times I don't normally answer the phone, but there's a reason why my daughter's calling, there's a real reason why she's calling. Right.

The tablets, I feel like, are used more. I feel like everybody's got it. Most people have a tablet and I feel like they are used more correctly than a cell phone. Cell phones, they are getting messages from whoever, does it bother me? No, as long as I'm not in the middle of teaching in front of the class, I want them listening to me. They use their phones for music too. And their tablets to listen to music while they're working on their artwork for me. I find that beneficial as well. I did think they do a lot of non-essential work on their phone. That's not work at all. But I don't think it hinders their artwork at all.

**Researcher:** You actually know that was the next question that I was going to ask you is the added benefits of cell phones. You think that some kids, if they're tapping into that creative side
of themselves, then the music would help them get where they were going with it and then kind of helps?

**Brandy:** A lot of, well some people tell me that it's nice time and with other people while they're working on their artwork. And honestly, that doesn't bother me either. You probably think that's horrible. But as long as they’re working. Because I'll be working in my dining room watching Netflix or something while I'm working. So, it really does that. Whereas it's a math teacher or something, I could see how that would be horrendous. But it makes me wonder what class the kid has that they're FaceTiming. I thought about that before. I used to have one a couple years ago, probably five years ago. He would FaceTime his girlfriend at [sic] every day. [sic] and his girlfriend were both art students and I feel like she was probably in an art class, at [sic]. I mean, like the art room is different than your math class or your science lab where you have to have the full-blown attention of the teacher. Their full attention on me, because I feel like they can’t do two things at once. Working on the artwork and now there's written stuff that's different, but most of them, they did their written stuff on the last day of the project or even do it at home.

**Researcher:** And in what specific ways do you integrate cell phones for instruction?

**Brandy:** I really don't. I mean, if it's their preference to use their phone over their tablet. That's okay. We're gonna use the phone instead of your tablet. It's just either or. You don't specifically put it there like, some teachers use it as like the answers to Kahoot or whatever. And some of I mean, some of the kids. What if they don't have a phone? As a mom, when my oldest daughter was younger, she went through a phase where we had to take her phone away. So, you know what if they don’t have it? What if I don't help them? You know, they have a tablet. If they pay the 20 dollars or if they can do the fee waiver, if they couldn't pay the 20 dollars. Most people
had a tablet. Like I had, I think I had one student that said he just wouldn't get a tablet. So that flight plan for cell phones.

**Researcher:** OK, so then the last question actually that I have to ask you, maybe your answer might be different, but maybe you could just tell me hypothetically. Does the use of cell phones during a specific portion of the lesson - if you use it at the beginning or the middle or the end - does that affect the amount of time that kids are engaged in the lesson?

**Brandy:** No more than what I normally do. I mean, like I said, they can use it for inspiration through music. They can use it for reference. They can use it throughout the whole lesson. And if they choose me, they can call somebody or as long as I don't hear the conversation. You probably shouldn't write all that. I mean, I don't think cell phones aren’t a hindrance in my classroom, but I realize that I'm one of those problem teachers. If I were an academic teacher, I would probably hate me as the art teacher allowing whatever. You might actually be doing them a favor so they come to your class. They face time with their friend. They listen to the music so that when they go into the math class, they’re not as inclined to still keep using it because they've been using it in your class. And there was this one kid, he would try to play games all the time. I mean, there's some kids that'll just stop. He didn't. Not on the phone, though. He was on his tablet. It would be nice if you had some kind of software to monitor what everybody's doing. Now playing games, you're not doing what you're supposed to be doing. Answering a text is different than sitting there playing games. Now, I guess that is one thing that I don't like. And if I catch that, it may come either put it away or, you know me, you're not going to do right by you. Now, if they finish the project ahead of time and I haven't started a new project, I don't care like that. No one annoyed by it would pull his out and he would play video with something that's fun. If they do that, then that happens a whole lot. But generally, I try to have something like a
coloring page or something and then adult level color and page for them to work on this image.

But sometimes I realize they just needed this disconnect.

**Carrie**

**Researcher:** The first question is how do you use technology as a part of your class?

**Carrie:** So that is actually a great question because I've used different forms of media and communication because I'm in communications. That's what my background is in. And I've always been trying to find the ways that communication evolves. So that's how I end it. Like when I was little, I want to be a journalist. So that's how I ended up doing, like the yearbooks that I find that different models of communication and understanding that says people are different. There's reasons why we have different modes of communication and finding not only works for you because there are styles. I prefer to write everything down for us. The reason is I don't like really being behind a screen. But understanding this digital age and the kids. And I remember at a point where I can get a T-98 calculator, your love calculators and were expensive, and they were so confusing to use because it really wasn't accessible because they used to be so expensive. And then I remember when I got to my senior year I had a calculus teacher because I always thought I was bad at math. And then I met her and I was like, man, I didn't know how I'd get out of cash. It was like I was great when in defeat. Like, I know that's gross. But I was at Miss State and it was in a middle college programs, the same colors and everything as well. But in Memphis, Tennessee, and it's in Lemoine - which is a private small historically black - HBC - you but they have a middle college program, right? Well, bridge where you can earn college credit. And so, she was one of those regions where she told me we asked her, how do you feel about calculators? Because at that point, everybody had told me like, oh, you need to be able to
do everything, you can do a calculator is cheating for you. And she touched and told me and this changed my whole way and opened me instant communications in different ways of doing things. She said a calculator is only as good as its master.

I’m sure she was very open with us. She's a brilliant lady and she made math makes sense and she showed me how to use the functions and how to use it anyway. And then I realized it's not just putting the computer in front of me. And I think a lot of things that were wrong with education was people felt like when I was in school, we had to get them in with kids. We have to do this. It took a lot of programs and different types of technology being shoved in people's faces. But it was those teachers who actually took the time to show me how to use it. Would you do it with anything? You have someone like you should. And with my kids, I noticed, OK, I want them to learn how to use the tablet. But the standards went to states are the standards is the same is they have to learn how to use a computer. You have to learn that there are different styles of communication, just like their spouse in the way that you speak. Depending on your audience. So when you understand you're an easy you understand how certain modes of even transportation work. That's the way communication works. It's all about different situations and how to apply them. I say in order to start, just like we start with our kids emotionally, when we say we can't teach them anything until we open up with them, you have to meet them where they are.

Which is sometimes like what's in their hand. There's significant enough to where everybody can even get a laptop or or computer when I was in school. Now everybody has a handheld computer every day. And if I can get my face and my word in your hand and show you how to get in your head, I shall. And I see you and you see me doing it for my hanging. And I make sure that I use my phone and press when like before we start. Before we got this green card
thing. I would be updated when we do our right things from my phone from the back of the classroom because I'm able to walk around and see what you're doing on your phone. And I have phone jail, which is my current and in my contract. The very first day I hit you at a service with our expectations. We go through it, we walk through it, we understand any questions. And now and I try and make it interesting, too. So it's not just trying to make it right. I hit you with all these things. It's also like I like the way that I learn as I like to make jokes. If it's funny, I can remember. And especially because I've read so much and I like being able to read different points of view and listening to people. I get I have so many stories and anecdotes. To throw in there and how mistakes happen in kids like their vulnerability. Because even if you start looking at them as US media, they're a lot more vocal in theirs. Why keep it in sight?

We're constantly seeing me like when I tell them there's different ways to communicate when my kids were actually using my email now I had the Band app with my kids, which I absolutely love. I have read about your team and every team in my English team and I have and I use those their is there and I feel like a social media and I can upload lab videos and talks and anywhere I can get them ready for the call. But it also starts in the class. We're building that relationship with them and making them feel comfortable and just telling them right from the gate. It's not that you're not getting something is because now you haven't had the time to sit down and actually explore it and learn it. And what we're gonna do here in English for is I feel like for me, English for it is communications. It's taking everything that you've learned thus far in English one, two, and three and even through elementary school. And now it's time to apply it and see and find your voice and see where it goes in the world. There are teenagers and what I've noticed now with your book, because I use Instagram for the [sic] yearbook page is a lot of my kids who have more of the visual they can design. When I'm recruiting there, a lot of them are on
Instagram because my platform is more about pictures and visual beauty and things like that. A lot of my more popular kids and more of my social peers are Snapchat because it's really, not what they do. And they, like those are the kids like love and Snapchat was a fight with the cheerleaders cause I was like, first of all, you're on Snapchat.

But you have a lot of times people don't even realize that the kids who are usually in your face are the ones they get that. Are we? They do the work. They want to be engaged. They want to be helpful. They want to feel useful. And when I get in trouble, they're afraid to come to you because every time you do, you just kind of like we understand you have different things in their way. You feel like you don't have my attention and I'm quietly whispering around trying to explain to you, like I'm helping this kid and help them improve their grades. And they're talking to me because I feel safe with me as their peer that I know. I'll go to you and advocate for them. I have to listen to the kids because I love them. It's not necessarily of some of them, you know, we're so used to making it, either they come or they don't. When there's the middle grey area kids who want to come, but they don't know how to find their mode of communication because they come from all different types of family that families, they have different communications. There's also the emotional barriers, also the communication barrier. There are some something locked up in their rooms all day. Behind the video games and their parents are doing whatever in their like in their own little islands and the way they fight. They literally text them to go get somebody to come. Dinner's ready.

People don't realize like also that has communication. That's why when they come through the door and you're expecting them that they should just know how to thank you because they can't speak. They can. They have, of course, basic intelligence, but they haven't had time to sharpen certain skills, whereas they've been able to sharpen more at home.
I've seen our kids have become stronger writers. And that was one of our initiatives. Now we're trying to get them to be stronger speakers and advocates because there it's in there a lot of our kids too. And understanding that you might not become what we're doing certain things because we'll leave it, and I absolutely hate public speaking. And the first time I realized, like, oh, people listen to what I have to say. It was very scary. But, I knew that in order to be a teacher, I had to learn how to not only write it and model it in that way, but actually speak it and make it engaging and make it entertaining. If you give someone else the control for your narrative that made you give someone else the ability to write the story for your life and God's purpose for your life. And I'm not giving that to anybody else. And I'm not gonna let my kids give it up. And I think the more that you understand that, it creates a different type of mentality.

**Researcher:** The only thing that I have to ask you that you didn't answer and what you were just saying is when you specifically tell kids in your classroom to use their cell phones to do something, do you think it changes the time that they're actually engaged with you based on when in the lesson you actually use a phone?

**Carrie:** The timing matters. My classroom is the first 20 minutes, because in the first 20 minutes they say we also have an app that I had gotten because every year, every month I get a free e-book from is called Kobo and it's an audio book. And they also have digital e-books. And what was funny was my kids actually they enjoy listening to the audio book and they enjoy it. But they kept asking me, could they go down to the library to get the physical book to follow along? I remember they have the audio books. And so I think that with Their Eyes Were Watching God, they were listening to it. I try to find the audio book so they can always read along with it. I think people realize, they think, oh, well, they're getting bigger, so their brains should be getting bigger, but it's like how many times has it does it have to be biologically
proven that your brain does not stop developing until you're a certain age and then even then your brain can also learn new things? Make new connections and also understanding that trauma is held in your body longer than it might be held anywhere else. But you have a right. You have ways and grounded techniques if you can. Start applying how to communicate yourself, understand how these things happen and why these things happen. You can control your reactions. And that goes back to life saving habits. But if it is really beneficial because it makes you a more wholesome person. Because I don't ever want my kids to feel like a number and I feel like a lot of schools did. And I even felt like one of those kids and I feel like our kids feel like this sometimes because they're not the ones always getting recognized. It's like, oh, they're there. This number or that number, this number. But that doesn't mean you don't have value. If anything, you are so creative, so innovative and so unique that a number cannot beat you. People have to take you as a whole. Existence. That's what makes things effective for change because our kids aren't our push pencil pushers. Our staff aren't where we always find new ways of being fans while making it through the storm, through their creativity to build where we want to be. And understanding the ways will come. They've got to come. But you can't have ready. You learn how to analyze this when you see it coming is like, oh, I know how to how to deal with BS. In situations like that, doing stuff that I would do to survive in a family or to even protect the family's honor because I don't know how to deal with all those layers is the vibe. It's like once you deal with someone's basic need to survive and you provide those things, we start thinking about things other than that. But when you're still trying to live every day and keep a roof over your head every day, you don't have time to worry about how somebody made you feel or somebody say it to make you feel. It comes with a different type of level of survival instinct. And then you have our kids in the middle, too. They are just going through regular teenage stuff and
be it feel inadequate and insecure for all different types of reasons. And you honestly can see it in how they behave on social media. And teaching our kids how to behave on social media, because there are adults that done that very on social media.

**Christopher**

**Researcher:** Question number one, how do you use technology as a part of your class?

**Christopher:** All my classes are set up with Google classroom and use as their primary way to communicate with my students and only just to give them those out with their homework for the night. But what their expectations are, the mission there is for them to log in to Google classroom every afternoon after school like 4:30-5. And I typically don't post or homework until about 4:30 or 5, notes the homework for that evening. So, we'll be discussing the next day stuff they need to write up or bring in. I don't require either the posting assignments or manual classroom. I'm just, I don't have the student yet quite there. I just never really feel I've never felt comfortable with either percent of my students being able to communicate with me with their son through classroom. And I'm pretty much old school in terms. I want a written form that gets into the form of thinking too. Do they have to deploy when to get to college? Electronically, online school. Even though you're on an online program right now and I achieved my second national program online, I'm pretty good with that online stuff. But I don't think my 14-year olds are good enough. I'd like to give having give me hard copy back. I like them to be able to write and think completion. If I'm teaching ninth graders, my mission is to make them really great sophomores.

**Researcher:** If you use technology in the lessons that you're using, can you elaborate on how that changes the student output? Or affects it, maybe not changes it, but affects it.
Christopher: If they do what I ask them to do, which is check in Google classroom every day. Then they're pretty much have no excuses for not knowing what's going on in class. Even if they weren't in class, they're still supposed to check into Google cause they're out sick. So, it's another way to just keep them on task as opposed to being completely electronic.

Researcher: What are cell phones being used for in your classroom?

Christopher: Or the wonderful students get their laptop? I don't have my laptop yet. In charge is broken. There is no fault in that chapter to my book, which I'm writing a thousand one excuse too. I can't give clearly my desk. One of those things was I count the days on one hand that every student cloud showed up their laptop, full speed, ready to go. So, on those days, I say, OK, well, you have to follow now the no phones law is off now. You may use your phone; you may use your phone for Internet access if I catch you going somewhere else on your phone. Besides, we're working on right now, which is designing a Google classroom or your bills or no questions or you push into a classroom. Then you lose the phone. You have to make it the assignment. So, I use it that way. Otherwise, it's just free phone zone.

Researcher: So that actually brings me to question number four. When the phones are being used in your classroom, what are they being used most frequently to do? If you tell a kid that he ask permission to use the phone for the academic assignment, is that academics, what he's doing most frequently?

Christopher: You know, it really depends on the student, you know, the violators are after about day two. So, it's pretty easy. You know, I use that as a way for them not to be able to use it as a way for them to be able to complete the assignment. I'm trying to eliminate excuses why they can't do it. The no phone zone is when you walk in the door. If I tell you, you may use your phone and no phone zone law is off and you can use your phone, but you're using it for academic
purposes only. And for some reason, now is a reckoning purposes only. Then you lose the phone privilege because I present that of my syllabus was using the phone in the classroom for academic reasons is a privilege, not a right. Your phone basically should be in your backpack or away.

**Researcher:** How does the delivery of instruction - when the kids are using their cell phone - how does that affect their engagement in the actual lesson?

**Christopher:** I think it takes him away from the engagement because there's so many ways that they can slip around where they're supposed to be doing on their phone. But on a laptop, it's pretty straightforward. You're working on the assignment. It's either in the classroom or it's on the whiteboard or it's in the agenda as opposed to begin to clash. But if I'm sitting there, you know, digging into thinking on my phone, you know, it's reasonable to flip back and forth on different apps.

**Researcher:** In your perception, if you if you specifically were to use the cell phone for a portion of the lesson, whether it be the beginning, the middle, or the end of the lesson, does it matter? Does it affect the length of time that kids stay engaged in the lesson based on where in the lesson it's being used?

**Christopher:** I don't really have any metrics on that, but I would just guess and say yes, at the end of class they're marching and setting their agenda for a humungous lunch. Who's in my next class? So, it's easier for them to go off the screen, be off the radar and do something else. I typically like to have at the very beginning or possibly in the middle. There are times where I break them into groups and of course, there's always that one or two students in the group that doesn't have a laptop. So, OK, it's on your phone. You have to complete the task. Who's describing the group? Security is working on it. You get points off of your off task to complete
the task. So, I think toward the end of the class, fifty- and eighty-five-minute class, you know, somewhere around minute 70, they're really rock and roll into the next class. That's not the point. Time to say, OK, let's put our phones up. That means I'm going to be checking my email. We check my messages. Ding, ding, ding, ding, ding. You know, it's gonna be very difficult to get them on a task that section of the class. I everyone looked at that statistically, but I'm just guessing. Knowing my class and how they function when they first walk in and how they functionally walk out. I mean, I think at the end of the class, you know, the rumble on and you know, you're wrapping it up. I usually try to say, like, if I've got 12 minutes left in the class, I usually try to say an eight-minute video which helps them with their reading assignment that night. Watch the video. And I usually last three or four minutes of class. OK. Tell me the five things. Clean white sheet of paper. The five things you remember from the video. Phones are put away, laptops are done. Now they're thinking, writing and oh, by the way, you can collaborate and talk to your classmates through to remind yourself what you saw in the video.

**Christina**

**Researcher:** The first question is, how do you use technology as a part of your class?

**Christina:** I'm a big believer in technology, so it's impossible to know everything. I think that the kids need to know how to research and look things up for themselves. The kids actually, my students get very irritated with me because if they asked me a question instead of me just telling them, even if I know the answer, sometimes I'll be like, well figure it out. Figure it out. And you know, I have field guides and things like that for animal species, but they're also online, so the kids are not going to pick up a book and try to figure out what species it is. So, we've moved all of our dichotomous keys and field guides online. And one of the coolest things is that
they have apps for that now. Yeah. A lot of them are still in development, but Audubon has a great one for bird certification. Virginia Tech has a good one for trees. So that's kind of still developing. I don't know why this field is a little bit behind in putting things online, but it is what it is. But I use Google Classroom a lot as well.

**Researcher:** Well, let's see. I put provide examples. But you did an amazing job doing that without me having to ask you. How would you elaborate on the student input and output that technology creates and the lesson? If you use Google classroom or you tell them to use one of the apps that you were just talking about, or you tell them to look it up. How do you think that they input and output?

**Christina:** I think there's two basic scenarios for that. One is the they love it and they grasp onto those apps and technology and that's all they want to use or they pretend that they're dumb and they can't do it because I mean, can you hack into a fortnight or whatever it is on school tablets, but they can't upload a form onto Google classroom? It's odd. A lot of the students just want me to tell them the answer. They want that instant gratification. Even looking it up online takes too long in their minds. And that's a little bit disappointing. But that's why it frustrates them. But I make them do it anyway and I make them share it with the class.

**Researcher:** What are cell phones being used for in your classroom?

**Christina:** We really don't use them that much in the classroom itself. I don't have good service in there at all, which is great because I can always tell when a student is trying to text because they're holding it up near the windows or something like that. When we go outside, we use cell phones a good bit, both for communication because I've got kids doing projects here and projects there and then the apps that we talked about. So, I don't really use cell phones a whole lot. I don't really care if they have him out as long as they're not in use or becoming a distraction.
Researcher: You actually just answered question number four, too. My fourth question was, when cell phones are being used in class, what are they being used most frequently to do? So how about this one, in your opinion, how often in a class period do students use their cell phones for academic purposes?

Christina: Whew is none an option? No. Most of them don't use it for academic purposes at all. Some do. Because they don't have a tablet. So, they're getting onto Google Classroom on their cell phones. Some of them. Which is weird. They say it's easier or they would rather use their cell phone than their tablet. I don't get it, but I don't really care as long as you're getting the work done. And they seem to be. Those are the ones that I watch really carefully to make sure they're not just snap chatting.

Researcher: What do you believe are the added benefits that cell phones can bring students during lessons?

Christina: I think that having an entire encyclopedia set at your fingertips is it's amazing to me. We didn't have computers when I was in elementary school until like fifth grade and then it was just Oregon Trail, so much dysentery. But yeah, we literally at home had an encyclopedia set and we was missing one. I think was like an M, or one of the N and I always felt like I had a lack of knowledge. But if we got curious about something, we had to look it up and knew it. I think that kids these days, they don't realize the benefit. The advantage that they really have with being able to look up anything. I think that it makes it even more important to teach them what credible sources are.

Researcher: What you believe are the diversions that cell phones can bring students during the lesson?
**Christina:** Snapchat and Snapchat, any and all social media, texting, phone calls. I've had students get phone calls from parents, from employers. Parents are texting the kids in the middle of class like it's OK. That's a big issue. They're trying to watch YouTube on their or play games like Candy Crush going on, because you can do that without having good service. So, apparently you can do that. Also cheating. And it's that's not exclusive to cell phones, unfortunately. But I've seen kids doing their homework with their cell phone and somebody has taken a picture of their homework and there's copying answers that way. So, I think it makes it easier for them to cheat. Not that they wouldn't cheat anyway, but it just makes it easier and more efficient. Speed. Oh, it made me feel icky.

**Researcher:** How does the delivery of instruction, if you're delivering instruction using cell phones, like you said, that the students sometimes are on Google Classroom on their cell phones, how does that affect the amount of engagement for high school students?

**Christina:** I really think its kind of neutral. These kids are gonna be distracted by almost anything a butterfly out the window, another kid farts or something drops in the classroom. They're all very, very easily distracted. I don't think that the use of the cell phones for academic uses. I don't think it's any different than them being on their tablet and having YouTube and Candy Crush on there or jumping back to my high school days and passing notes and things like that. We were still distracted, and we didn't have cell phones, had a bag phone, but we didn't have games, you know - like, oh, oh, the TI 83 with the games. Yeah, yeah, I had that. So, I think that teenagers are always going to find a way to be distracted.

**Researcher:** In your perception, if you do use a cell phone for the lesson, does it change the length of time a student stays engaged? If you use it at the beginning, at the middle, or at the end
of the lesson, does where in the lesson you use it change the length of time a student stays engaged?

**Christina:** Yes, because as soon as that cell phone comes out, it does become a distraction. So, if you're doing that towards the end of the lesson, then, you know, they're already starting to get mentally drained and they're going to want to gravitate towards those things that are distractions and social media and things like that. If you're doing it at the very beginning of the lesson, I feel like it is a slippery slope that you're not going to want to put it back away. I think that middle of the lesson. It's kind of the middle ground, literally. So, they're engaged in the lesson already, so they're in that mindset that they're not quite to the very end of the lesson where they're mentally drained and wanting to think about something else.

**Danielle**

**Researcher:** I'm going to start, How to use technology as a part of your class?

**Danielle:** Because we're one to one district, I use Google Classroom all the time. And so a lot of times the students use just their tablets and things like that. This past year, I started doing where even students don't have a tablet, they are allowed to use their phones. And then we kind of did kind of like a break time where in between transitions I allowed students to check their phones and things like that, or a lot of students chose to do their Do Now on their phones because we would do Do Now and then go to notes or some kind of activity. And so that transition, they said that it was easier to do it on their phones rather than their tablets. And so I allowed that. But every day we use school or classroom of some form or something.
**Researcher:** How would you elaborate on the student input and the student output? What they put into a lesson and the product that you get out of it? If technology is being used for the lesson.

**Danielle:** I think it depends. Honestly, I don't. I think it depends upon what we're doing and how involved or invested they are in the lessons. Depending upon how I use the technology, I feel like sometimes it could be really great. And their stuff that they hand out is really great. And then there's other times, like, for instance, if I do a lab with Google Sheets or something like that, I don't feel like it's very good. Just, and this is probably my fault because they've never been taught how to use Google Sheets. Does that make sense? You're going to do Google slides for your presentation. They can knock it out. It looks great. Most of us, like, put these fancy transitions and do all this wonderful stuff to it. And then stuff that they definitely don't use very often is not as great as I wish, but I don't spend the time to teach them every step. A lot of times. Does that make sense?

**Researcher:** It does. And actually, in the first question, when I said you using technology in your class, you answered question number three. It said, what are cell phones being used for in your classroom? But is there anything else you would like to elaborate on about cell phones being used in your classroom?

**Danielle:** Being a science classroom, we do use cell phones for a timer. A lot of the times, especially when we're in the lab, just because kids don't know how to use a stopwatch. I don't think they can. They can kind of figure out the start and stop, but they definitely don't know how to clear it or anything else. So, it's way easier for them to use that. And then there's been a couple of times where we've been in the lab where like this last semester we looked at microscopes and I allowed them to take pictures so they could blow it up and look at stuff underneath the
microscope better. And so that was really cool. Hard because you have to like focus that perfectly with your phone. But the kids really liked it because they could zoom in really far and everything else on their phone.

**Researcher:** Then question number four is when cell phones are being used in your classroom, what are they being used most frequently to do?

**Danielle:** Like what I ask them? Or what do they choose? What are they doing with them? A lot of times it's Snapchat. Or something like that, like I have to be very careful, especially the first couple weeks that we're in the lab and they're using it for a timer or they're using it to take a picture because they want to add it into their Google doc so they can show their evidence. Whatever the case, I have to be very mindful that I know what they're doing and their own social media. And I have to like basically nip it in the bud then and be very strict. Otherwise, that's what they do all semester.

**Researcher:** Okay, so in your opinion, how often in a class period do students use their cell phones for academic purposes?

**Danielle:** Like if it's a class that you have told them they could use their cell phone for the entire class period, how? I guess quantifying it? Like what percentage of the time are they actually doing academics? I think it depends on the kid. But if I take like the average Joe in my classroom, I would say probably 50 percent of the time, maybe maybe a 60 depending upon the activity they're doing. They're all for it. But if we're just sitting at our desk and we're doing an activity or something like that, I would say 50 for sure.

**Researcher:** I think number six, actually, you already answered. The added benefits that cell phones can bring students during a lesson, I think that all of the things, the examples that you
were giving me are definitely the added benefits. But conversely to that, number seven is what do you believe the diversions that cell phones can bring during class?

**Danielle:** Less distraction and faster. Like just I mean, all they get notice that notifications constantly in class over Snapchat, Instagram and anything like that. And especially this last year, I had such a hard time with drama in my class between girls fighting and stuff like that that they would get a Snapchat from someone in a different class and then that person would immediately shut down because someone said something in the Snapchat. And that instant and so that I think that for sure is a diversion or the thing that kills me is when my mom just texted me, I really have to call her back right now. And that that also is just that constant. It's in your pocket. It's in my book bag. I hear it buzzing. I have to check it. And so, they break that moment. They were doing so well. And then they broke that moment of really deep thinking that I could have pushed them over the edge as they wouldn't have gotten that notice or notification a few seconds ago.

**Researcher:** You already answered no eight to number eight. Question is what specific ways do you integrate students cell phones for instruction? And you did that already. Number nine. How does the delivery of instruction using cell phones affect the engagement of high school students?

**Danielle:** I so I have to say it See, these are still hard questions because it's so iffy. I think again, I mean, my classroom is super different because it's literally I feel like sometimes it's two different classes, like we do lab, we do activities or we do lecture or whatever the case may be. And so when we're doing that activity or we're doing that lecture, it definitely brings their engagement down because if they get bored at all, I'm just gonna check the time. And that leads to all the notifications that they write. At that time. So that engagement goes down. But I microscopes. I'm so excited that I did microscopes this last semester because it really increased my engagement and got their phones moved past Snapchat to where they wanted to use them.
Let's time it and see what is the heartbeat of that, Daphne, that you see in that pond water or take your picture and really zoom in and look at that heartbeat or whatever the case we were doing. It increased my engagement in that part because I allowed them to use their cell phones or like when we're in the lab and I ask them, OK, you just did this activity. Now take a picture. Take a picture from this angle and then put it in your lap, put it in your Google doc or your Google Slide presentation, whatever you want to do. But take a picture of it. Use your phone for that reason and stuff like that. I think that part increases the engagement. Does that make sense today in your question? Like instead of constantly being told by a teacher, put it away, put it away, put it away, you find a way for them to pull it out and use it specifically to enhance what it is that you're doing. And then that makes them realize that not every teacher is a cell phone hater or not. You know what I mean? Like you're able to use it for academic purposes to enhance and to expand on what you are doing.

**Researcher:** Then, number 10 in your perception, how does one use of cell phones during a specific portion of the lesson, whether it be the beginning, the middle or the end affect the length of engaged time?

**Danielle:** Does it change the amount of time a student is engaged in the lesson? Yes, I absolutely think so. So, I feel like when I use it in the beginning, they get out there notes like I made it purposeful where OK, check your notifications, put them away. Let's put that part away. You get out this part of your phone like Google or pictures or whatever the case that we're going to be using. They get that part and then it lengthens. If I do it in the middle, I lose them altogether simply because they got to like they had all the notifications and then they looked at Snapchat and now they want to be on Snapchat. Does that make sense? But if I wait till the end, I feel like halfway through the lesson maybe that they OK. You check my phone. It's been it's been
60 minutes. Spent an hour. I haven't checked my phone. I've been doing this. And then that's I start noticing that they start thinking about that and then I lose them even more. Does that make sense? But if I with that being said, if I tell them, OK, guys, like we're gonna do that now, we're going to do notes and then at the end you're gonna do this activity and you get to use your cell phones and I want you to use your cell phones. That part I feel like if I lead with that and I tell them I'm going to give you times with your cell phones. Sometimes that helps their engagement. They're like, OK, well, I want to check right now because she's going to give me this time at the end. And I don't know you and I don't have to, So, I that's I mean, the middle I feel like is the worst part. But if I give in in the beginning, sometimes depending upon the drama that's going on, most of the time, I can keep him engaged real for the rest of the class period.

**Gina**

**Researcher:** My first question for you is how do you use technology as a part of your class?

**Gina:** Well, I use technology as a learning instrument. I use more so of the calculator than the computer per say, I use the computer as well as a means for kids to generate graphs or collection of information and take these documents and produce a display model as a result of their collection of information.

**Researcher:** And how would you elaborate and when you have the opportunity to give the students technology to use in your classroom to create products, does it change the output? Does it change the product they create for you if they use technology as opposed to pencil and paper?

**Gina:** Yes, it does, and especially in me being able to read it can make it more legible as well as presentation. I try to tell them that their presentation is everything and they need to make sure. They only get one opportunity to make a first impression. So, presentation is everything. So, yes, I encourage them to use technology. Also, when it comes to communicating verbally because
they have the mechanisms for checking and spelling and end punctuation. Then sometimes we still have a challenge because I teach math. They don't understand why it's important for them to be able to do to communicate in written form in math. Outside of this math computation. So, I have to communicate to them that communication is both written and verbal. And it's important for them to be able to communicate their thoughts and ideas in math as well as in any other content area.

**Researcher:** Number three question is what are cell phones being used for in your classroom?

**Gina:** Cell phones are being used minimally to the point memorably in my classroom. I tried to tell kids not to use cell phones because despite technology, they use it more so in a negative than a positive. Based on what I have experienced or doing research that they shouldn't be researching in order to help them do the work that I'm assigning to them. And I feel that if more so use for a cheating mechanism, than a learning instrument and this isn’t helping them. So let's use minimally that actually answers.

**Researcher:** And you answered question number four. Question number four was what if they are using cell phones? What are they doing with them most often? But you just answered that question for me. The next question is what do you believe are the added benefits that cell phones could bring to a student in your classroom if they were using them?

**Gina:** The added benefit would be if they would use them as a learning tool. It would be very beneficial to help them to expand their knowledge and understanding of different subjects, of different kinds of materials for research, to help them collaborate with other classmates and collaborating meaning discussion and taking a picture of student's work and uploading it. But there's always going around and taking a picture and going back and copied information. Well, collaboration around different topics.
**Researcher:** And then back for the flip side of that coin is that the diversions that cell phones bring students during a lesson. What do you think most often diverts their attention from the learning with the cell phone?

**Gina:** Listening to music or watching or playing a game. I never knew what or what night or fortnight was about until I talked to my kids about how they use technology. And that was the response from quite a few of my students that they used to play video games. Video games. Now with the video games and be able to play with people from all over the world. It's competition because kids like to compete. They do. I'm learning that they're using it more so for that.

**Researcher:** If you chose to use cell phones in your classroom for the delivery of instruction, how do you think that could affect the engagement of the high school student? Do you think it would benefit them or would it be a negative?

**Gina:** It could be both. It could benefit them if it is used properly and they say on tests it could be used as a negative if they are not on task and they use using it to text back and forth, because I feel like they do more texts than that, they do research or using it as a learning instrument. Because I don't think the parents also contribute to their distraction because the parents text them or call them during the class period, which distracts them.

**Researcher:** If cell phones are being used during a specific portion of the lesson, if you use the cell phone at the beginning, or the middle, or the end of a lesson, does that affect the length of time that high school students would stay engaged in that lesson?

**Gina:** I think it is, it would help. To have them engage and it would have to be very structured, very structured. I think it would, because if you use it at the beginning of the lesson, once the activity is over, you want to move to something else, then I think they may want to stay engaged with the technology. If you do it in the middle again, once the activity is over, you may have
trouble with them trying to transition from it into something else. But, I think if it is used at the end then they would stay engaged because it would be one to ask. Time is running. And then at the end you have something that you have to produce. A turn in class would be over and they would have to leave. But I think it would be better a gauge for me and my perspective at the end so that they could give feedback or produce something or not for the exit. That's pretty common for a lot of people, they are almost saying it was a dangling carrot. Like if you can keep them engaged in the lesson because they know the cell phone is coming later.

Melissa

Researcher: The first question is how do you use technology as a part of your class?

Melissa: When you say technology, anything do you mean, anything in your class that has to do with tech? As long as it's used for academic purposes by calculators. Even if you need to look up something on Google. A lot of my kids struggle with like how to spell words and I will allow them to use their resources, tablets, cell phones, things like that. So as long as you're not sitting there playing games and checking your social media, I don't mind.

Researcher: How would you elaborate on the student input and output? So when you let them use their resources, when you let them do things, how do you feel like that affects them?

Melissa: Like the products, like the finished product? I'm going to go back to my population that I serve. I'll just say our SpEd population, I think for the finished product, it helps them. It helps them to have the finished product that they actually need. For example, if they're doing a writing assignment and they struggle to spell words. If that phone allows them to learn how to spell or show them how to spell a word, then I think the finished product will be the same or comparable to students that already know how to do those things. You know what I mean? My idea of the
way to actually give them help is the help that they need is the support that they need, but they use their devices in the right way. It can give them support that they need so that their assignments can look the same as a regular students’ assignments.

**Researcher:** And you actually just answered question number three is what our cell phones being used for in your classroom. But question number four, when cell phones are being used in your classroom, what are they being used most frequently to do?

**Melissa:** I think in my classroom calculators and sometimes I'll prompt the kids to take out their cell phones. They look it up on your phone. If you don't know how to spell words that way, you don't always have to ask me to spell a word. So fast to Google a word or a definition quickly. I will admit that I have let kids use photo math. I think photo math is the one that shows them the answers and how like answer them the problem. I'll allow them to use that so they can see how that problem to solve because it goes step by step by step back.

**Researcher:** In your opinion, how often in a class period do students use their cell phones for academic purposes?

**Melissa:** They're probably not quite as sneaky in class with that because I’m pretty straight forward about what they're supposed to be using it for. I think so. You know what? If they use it for about 30 minutes out of a 90-minute class period, I don't mind 45 minutes out of the 90 minutes last year. I don't mind. Especially if we're doing writing all day and they need it to look at how to spell a word. And I keep referring to spell a word because I just I've been really into them. Use the resources of asking me to spell the word area in your hand all day long.

**Researcher:** You answered number six about the added benefits that they can being using them as a resource. But on the opposite side of that, what do you believe the diversions are?
Melissa: Social media, they love checking their Snapchat, they love checking Facebook or just texting their friends or taking a photo, a class or video. Things like that. And I know which students do those things. So, I try to keep an eye on those students or I've started this year thing called the charging station. And so, for those scenes, they can't keep their phones out of their hands. I let them charge it on the charging station, which is all the way across the room. They don't have it in their hand. They're charging it across the lane and it just stays over there for you. So, I don't know. I think just checking their Snapchat. Being on social media. And I don't I don't really have kids. I play games all the time. It's more of the Snapchat in the future.

Researcher: How does the delivery of instruction using their cell phones affect the engagement of the students?

Melissa: Are you saying that if they're allowed to use their phones, that they're more engaged in what we're doing? Depending on what it is, I think they're more engaged. I've done games where they're allowed to use their phones and they love it. So, if you can find something that If you can find something that makes them use your phone for engagement. They like things like that, but just having it out and not doing anything with it. I think that doesn't work for them. But if you're purposefully using the phone for the assignment, I think they're really engaged with it.

Researcher: So, in your perception, how does the use of cell phone during a specific portion of the lesson, do you think if you use it at the beginning or the middle or the end, that it changes the amount of time that they're engaged and what you're doing?

Melissa: I haven't really thought about that one because I think I've used that each of those articles that you just said. I think more towards the middle and the end is appropriate and helps them more engaged. I think at the beginning, not so much. Does that make sense? Because I think in the beginning it's all me. Like I'm telling them what to do. I'm showing them what to do.
You don't need your cell phone right now. But I'll let you get it out in the middle of it. So, I would have to say they're more engaged if they do it in the middle or the end. I think in the technology age that we were in, we have to embrace it. It's not going anywhere. So we have to learn how to incorporate it into what we're doing because the kids are not going to get rid of their cell phone. You can lock them up. You can do whatever it is. If you look at my phone, I've just checked my watch when I said turn. The more you are against it, the more they find ways to sneak and do it. So, I think you just you know what? We can use our cell phones as long as we're doing it for this or whatever. I think if you just let them. Bring it habit out. Or I mean, not lately, habit out checking your social media, but hey, if you're not a writing assignment and I see you're looking up stuff on your own and it's being applied to the lesson, then I don't mind at all. Yeah, I think some it's some of the time, you know, they pull out the tablet. The tablet has to be turned on. It wasn't charge last night and then it's updating in the middle of what they're trying to do. Or, you know, sometimes it's just so fast for them to just get out their phone and just do what you asked them to do. And I think that that's when a teacher realizes that they embrace it and they use it for their benefit. And I think that it's because they're not going anywhere. So that's why I think five years ago I probably would have had a different answer. Yeah, I think five years ago I probably would have had a different view. But now, as more and more kids coming in with all kind of devices and watches, because I do everything on my watch, too. So, I'm sitting there like, okay, I can check my Facebook on my watch as well or I can do, you know, so I don't know. I just think we've got to embrace it. Yeah. And for those teachers that are not really too I think they're setting themselves up for just a hard time in June. Yeah, I think most of their time in the classroom will be spent on addressing, hey, no cell phone and no simple just no.
Nathan

Researcher: How do you use technology as a part of your class?

Nathan: All right. So, being math and having very limited calculators as a school at least that are working, the fact that we can now have like a graphing calculator on a student's phone has actually been super helpful. Before I had to be careful about what homework assignments I gave to make sure they didn't use one of those. Whereas now I can do anything because I either have it on their phone or their tablet. And it's all they're all free apps. So that's been great. That's the biggest one, at least the ones that use the most regularly. We've done some special projects, one where I've used it. It's actually a huddle. There is, especially for coaches. But you can do slo mo and actually put angles on. There is a free app. We actually had a pre-calculus class with a softball with a bunch of softball players. And so, we went in like the optimal launch angle and just holding your iPhone up there and people were hitting and we were doing in the slow motion with the angles and that had kids out in the outfield marking on that. We were measuring distances and saw what the angles was for this one. There's a program I think they use on their tablets, but you can take a video. This new video you've made and you can put it up there and then it goes, I guess about a tenth of a second if you throw a ball or something and you can just keep marking where the ball is and give it some kind of distance. So, we put like two objects six feet apart. We said, OK, these two are just 64 and intellectually give you like a graph of the object you're throwing that tells you like the speed and velocity given time and again using nothing more than just little video, that little cell phone. And the program that was already on their tablet. So those are some of the main ones we've done, of course, in Kahoots. We've done as a class the use of cell phones for those. That's the biggest ones I can think of right now.
Researcher: How would you elaborate on the student input and output when technology is used in the lesson?

Nathan: So let me make sure you repeat the question.

Researcher: Yes. How would you elaborate on the student input and output that technology creates for them when they're when the technology is used during the lesson?

Nathan: Oh, say the good and bad out there where there's parts where, for example, what they're using. When I tell you fun app, use this on your phone, then I'll see a lot of really good. input from them because they're troubleshooting because, you know, they often use it. But, you know, just go find an app that does this to budget every month and then they have to go figure out how does this work on this one. And you have to know the math behind it to know how it works for that particular one. And they'll, like help each other and say, well, this is not how this works for me. So, I'll see a lot of problem solving and a lot of real understanding. Or maybe they don't understand that. That gives me. Oh, so, OK. So they were, you know, being robotic and they were able to do it just like I showed them, but they weren't really understanding it. And so now I can see that because they're having trouble with this. So that technology sometimes if it's presenting things a little bit different way and they have to understand what the content is to be able to use the technology, then it's really great. The other side is that sometimes it lets them have an excuse to do disengaged. The fun things on technology like photo math to just do it without having to do anything. And I'm not even a gets photo math. Especially that I don't tell my younger kids about the young ones. But for my AP calculus class, it's great because I tell you that there are way more problems in calculus than I'm ever going to get a chance to show you. And so, you know, for those kids that they're doing it because they want to learn, not because they want a homework grade, then for them it's great to be also. OK, this is what I did. I don't
know if this is right. Scan it and see get some other things. And I give them the caveat of saying, OK, you're smart enough to know that might not be right. I mean, I've used this app and it give me wrong answers before. And then it can be a actually walking through their steps. No. Does this actually laptop can I find a problem on this? Whereas for some students itself, it's all right. This copy it down. And so I'm getting both. But I think in the end it comes down to the student is a choice the student makes. And it was always the most choices students make. It was a choice the student made before we had technology.

**Researcher:** Number three question you pretty much answered already. It was what are cell phones being used for in your classroom? But when cell phones are being used in your classroom, what are they being used most frequently to do?

**Nathan:** Are you saying what I ask for the use or just in general? What are they most frequently actually doing with them? Texting. Now, I will say in my lessons, I give a five-minute break in the middle. And that that's one of the things I've started recently was actually Mr. [sic] who suggested it. And it's worked really well because especially from a higher-level classes. You know, I have students who really want to use their cell phone, but also really do want to do well in the lesson. And so that it kind of gives them that that light at the tunnel can make it a five-minute break. Then I could pull it out a bit. I get students like dancing around doing TikTok videos, but it's five minutes so they can do whatever they want. That's OK.

**Researcher:** In your opinion, how often in a class period do students use their cell phones for academic purposes?

**Nathan:** I would say probably 10 percent. We'll be brutally honest about it again. That's because the majority of the cell phone use that I have students do this for out of class purposes. Let there be thought. There are sometimes that there are some exceptions, but for the majority, the cell
phones are a great tool for me to be able to provide students tools that I have in my classroom that they cannot take home with them. And so, I don't have as much as we were them a lot as a class, but mostly for at home and out of classroom.

**Researcher:** What do you believe are the added benefits that cell phones can bring students during a lesson?

**Nathan:** Yeah, well, the other one is showing them different things that actually, you know, you can do this on your phone because, you know, some of you think, well, you can just do this on a calculator and say, well, how many of you have a graphing calculator? But, you know, they're always going to have the phone, but they never go anywhere without it. They don't go to sleep without their phone. So I can show that, hey, you take your phone, turn your to your calculator, turn it sideways, which that usually blows your mind right there. They've never actually had the calculator up and turn it sideways and realize that it has a whole bunch of other buttons. So it's not a four function calculator, you know? Well, where do these buttons come from? He’s magic. He just did as much of that was on the other show and stuff like that, that, you know, that sort of stuff that they can relate to. Now, this is something I had something I had before I ever met this teacher. And I can use whatever he's talking about right now on here. And that does it add like a real, real world thing that, you know, whenever I get this, you know, this calculation or whatever this operation comes up, I can do this. I don't even need his fancy calculator. I can do this right here.

**Researcher:** Then on the converse of that, what do you believe that the divergence cell phones can bring students during the lesson?

**Nathan:** This is I've battled this because I am really, really bad at using cell phones during random meetings and stuff, too. So, I get that sometimes you just kind of need that little
distraction, whatever. And so, it's one of those things where if it's a quick thing, you know, I'm good at seeing something. In some ways, I think that actually get your mind off of it, because if you're thinking about it the entire time and not looking at it, you're not paying attention to my lesson. Neither if you there's something to think about has been this text message. How do you pull it out? Look at it. Quick. Put it away. And that way you're focused. It's when I have a student who's staring at their phone, who's been staring at their phone for 20 minutes and has no idea what's going on. That's when it becomes a problem. Now, I can say I'm not very observant. And so, I usually am really bad at catching those.

**Researcher:** You actually answered one, already were with talks about integrating student cell phones during instruction, but you just sitting there just explaining that. So, number nine question. There are only 10 of them, by the way. How does the delivery of instruction using cell phones affect the engagement of high school students?

**Nathan:** I'm trying to think. I think it goes back to students that want to be engaged, are going to be engaged. Now, there are some students that by adding the cell phone use, you'll grab them in. But there are some students about adding that you're going to take them out because that's just going to give them excuse. And I think it really kind of balances out. So, students that really want to be engaged, you're giving them an extra tool to be engaged with. And that's great. Students that don't want to be engaged; you're going to give them an extra tool to be disengaged. And so, I don't ask.

**Researcher:** That is the last question, in your perception how does the use of cell phones during a specific portion of the lesson, whether it's at the beginning of the lesson, the middle of the lesson or the end of the lesson, does that affect the length of engaged time for high school students?
**Nathan:** OK. I would say yes, because when you get those early on, then that's you. This is the service should know that this is what the entire lessons are going to be. And it's really hard to go heavy technology and then take it away midway through the lesson. So, I like to do. So, this is a video. I'll do whatever we're going to do beforehand, make sure all information's out there. And then by hook from here on out, the rest of the lesson. You go out, figure this out. Now, one to one, go around and help you with it that way is dumb in that way. If a student does finish early and they become disengaged. I don't have to try to pull them back in. But they did their work. There's their reward. They finished early. Great. Good for you. Enjoy your free time. But I have a bother. There have been times where I've done that beginning and then tried to pull them back. And that's really, really hard to be like, okay, you know, put all this stuff away and no, I don't want to be there.

**Shannon**

**Researcher:** How do you use technology as a part of your class?

**Shannon:** Right. You do want just like a list? I use PowerPoint. I use R. I use Boxlight. While recently we've been using Zoom. What else do I use? I use Google classroom. Everything Google, Google Slides, Google Docs, Google Sheets. I let my kids use their cell phones if they don't have a computer, if they prefer it over a computer. I'm not that strict on it as long as they're getting the work done. In the past, I also have used apps like I believe it's my fitness pal to kind of show them some real-world applicable ways to track their nutrition and their fitness.

**Researcher:** How could you elaborate on the students input and output, like based on using technology or not using technology? Does that change their end product?
**Shannon:** For some, yes, and for some no. I would say that I surprisingly do have a bunch of kids that ask for paper copies if something is online that they prefer doing it in paper. I've had kids talk to me about it, prefer to have a textbook. They would prefer to be able to touch things. And then I have kids that get on and boom, it's done, and they like being able to finish it. So, I think it is very dependent on the child.

**Researcher:** What are cell phones being used for in your classroom?

**Shannon:** My kids do use it for Google classroom, but more often than not, I do have to repetitively ask them to stop Snapchat and Instagramming or scrolling through Instagram and texting. While in class like I said earlier, I'd let them use it for school purposes, but I do have to stay on top of them for personal reasons. Now, when we're in the gym, if they have 10 minutes to get dressed at the end of class. And if they don't take the full ten minutes, I do allow them. That's kind of like their free time after we finish that if they're on their phone for a personal reason. In that 10-minute span, I'm not strict on that.

**Researcher:** You actually answered question number four. So, I said when cell phones are being used, what are they most frequently used for? Next, in your opinion, how often in a class period do students use their cell phones for academic purposes?

**Shannon:** If a kid is using their phone, how often is it for academics? As compared to non-academic purposes, it's not compared to. Versus? So, like if I'm allowing them to use it if it's their preference? I feel like that's very hard for me to quantify because again, I think that also goes back to the kid. There's some kids that I have to stay on top of because every time I look over them, I can tell they're switching from Snapchat to what they're supposed to be doing. Or I have the kids who just get their work done and then they're using it for purposes, personal purposes once they're done.
**Researcher:** What do you believe are the added benefits that cell phones can bring a student during a lesson?

**Shannon:** I feel like when we bring in real world examples, so like, for instance, when I teach them how to use my fitness pal, it allows them to connect the material to ways they can take back home to their friends, to their family and actually be able to apply the material in their everyday life. Especially with my content, I think it's really important to give them ways to be able to use it going forward. Even when we do our sex ed unit, they have to call a hotline. So even when I give them like suicide prevention resources, websites and apps and text lines, like if they were in a crisis, that they could be able to use their phones for those sort of things. Now, when we do that unit in sex ed where they have to call most of time, we don't get a lot of responses from them. They don't actually call. And their responses I don't want to call it. I don’t want to talk to someone. And for that particular assignment, I do pretty much. It's because I mean, it's the set curriculum. I'm not supposed to change it, but I for that one, I make them call because I feel like that's a skill that kids are losing today. And it's important to be able to talk to someone, especially if you're in crisis. Texting someone is one thing but being able to have a conversation with someone is another. And so, I give them a bunch of other resources. Texting in chat rooms and stuff like that. But that's definitely something that they can take out of the class to be able to use in their everyday life.

**Researcher:** Now, on the converse of that. What do you believe the diversions that cell phones can bring to students during lessons?

**Shannon:** I definitely think it can be a distraction. I think my probably my number one pet peeve is when their responses. It's my mom. It's my dad. It's some form of family member. And it does bother me that education or with the kids learning in the classroom is not the focus of a parent
wanting a response during class time is a focus. So, I think that social media takes away their attention. When we have kids that have watches and alerts and all this sort of thing, and so I have a bunch of them that are on their watch, just like I could be type in responses thinking that I don't know what they're doing. So, I do think it is a distraction for a lot of kids.

**Researcher:** In what specific ways? Actually, you answered that one, too. So, in what specific ways you're integrating the student's cell phones during instruction. But the way that you explained it earlier in the benefits I think's pretty much answers that question, too. How does the delivery of instruction using cell phones - like if you're actually teaching a lesson, specifically using a cell phone - how does that affect the engagement of the kids?

**Shannon:** I really hate to keep going back to this. I still think it's kid dependent. Like one particular project we do about fitness centers in our area. The district tends to block a lot of stuff. So, I tell them to use their resources. If you have a phone, you can check out a fitness suit like a fitness center's Instagram page, their Facebook there where that sort of thing. And so, when I give them that capability to go on their phone and use those social media outlets, some kids really connect to that. But then I still have kids that don't use social media and don't really care. Some of them actually have use their phones in class to call a fitness center and ask them a question that they can't find online. And so, we kind of like you can't find an answer is our phone number. And they're like, you call him, And give me the answer. So some of the kids kind of shy away from that, and so it just depends on the kid if they're an outgoing kid. They're really engaged like, oh, cool, I got to make a phone call and talk to someone. Kids are really into social media. It engages them more when we do projects like that but I have some kids, that want to be reading books the whole time on Monday. So, it's a little harder to engage in those in those sorts of projects.
**Researcher:** This is actually the last question. In your perception, how does the use of cell phones during a specific portion of the lesson, whether it be the beginning of the lesson, the middle or the end of the lesson, how does that affect the length of engaged time?

**Shannon:** I would say they're more engaged, sure. It's incorporated in the middle or the end? The middle being you've kind of done something now they get to use it and then you kind of come back to it so they know that they've gotten that they've had that a little bit of time and then they read some. A lot of times they refocus a little bit better because of it. They've been able to use what they want to use and then come back at the end. Too though, it's kind of OK, you're gonna get to do this. It's some for some elements, kind of a reward or an excitement building to what they're gonna get to do. So, they're a little more engaged if they know that they're gonna have that opportunity I would say at the beginning it's too early that you kind of lose them because they got it and then they got it taken away for the rest of class.

**Stephanie**

**Researcher:** First question, how do you use technology as part of your class?

**Stephanie:** Well, first and foremost, my entire curriculum’s built into PowerPoint, so every single slide, all of my curriculum, it literally is like eight hundred slides long. So, yeah, literally every day every bit of information is in there. So, I use technology first and foremost in that way. And then with my students, of course, I use Google classroom. I use Google forms, like to do some, like just informal survey sometimes or quizzes or whatever. I kind of think of all the things they create projects in Google as well. So, they create in Google slides. Google Docs. Think of all the things I have them use. Those are the main ones, I mean, they go on and use the Internet to search for things or whatever We use technology to record. I do a lot in my voice unit.
We take kids’ books and they have to turn them into scripts and then record them as like an audio book. So, they use some technology there. Yeah. And I do find I use remind to connect through text messages as well. I have some parents on there, but mostly just students.

Researcher: How would you elaborate on the student input to a lesson and the output from the lesson? The product from the lesson that technology creates.

Stephanie: Could you ask me that again?

Researcher: Yes, when you're using technology for the lesson, does it affect the input the student gives to the lesson and does it affect their output? Like, how does the product change if they use technology?

Stephanie: I kind of feel like honestly, I am not sure you get better results using technology. I'm not 100 percent sure of that because I feel like, you know, when we're doing regular theater stuff. So, like my classroom is very active as runs probably in the building. The closest thing to my class you'll see is P.E. class because they're physically active and moving around demonstrating, you know. So, the level of engagement is really high because I'm like right there and it's a very in the moment thing. And then when you kind of put technology and then it kind of feels like all the other classes, you know. All right. Yes, laptops. Now we're going to do that. Is now going to do that? So, for me, I'm not sure that a great like the output is being higher with their use of technology. I feel like the kids in my class, specific to my room, they enjoy that they're doing something different than the rest of their school day, so I'm not. I think when I hit that whole, like, grab your laptops, this is what we're doing today. I kind of get a groan and it's back to reality. So, I'm not sure that they don't. I don't know. My class is very different than a lot of people. But I think, like, I give my kid the in-person stuff. I don't think they're like, ever excited when I say grab you, grab your device. It's good let’s go.
**Researcher:** Well, then that actually brings me to the next question. What are cell phones being used for in your classroom?

**Stephanie:** So sometimes it's just for sure because like oftentimes if they are having to access something, they don't want to get out their school device because by the time it runs updates and it's clogged and it's slow, they've got their device in their hands. So, they just like, hey, can I log in on my cell phone? And I don't have any problem with that. As a teacher, of course, that makes it harder for me to make sure that they're actually doing what I asked them to do. But it's quicker, I mean, than the laptops at the school, because the kids never update them. And it's just they're clogged all the time. So, you're not charged. You know, so it's like, you know, the cell phone tends to be, I think, almost more convenient because I don't I don't tend to like spend an entire class on mine. It's not like, OK, you have to have that out. It's sometimes might just be like gathering a quick response or something like that, you know, what's the pair, DAC or whatever? Or Kahoots. I forgot to mention that I use both of those my classroom, but those they play Kahoots from their phones and most of what they do, they just prefer to do it from their phone if they can.

**Researcher:** Your Segway. When the phones are being used in your classroom, what do you in your perception, what are they being used most frequently to do?

**Stephanie:** Wow, I'm surprised that there's - it's hard to gauge. I'm just trying to think of like how many times in a class like I see a kid with a cell phone. When I know that we're not using cell phones, you know. I'd say there's probably at least five or six times per class, I have to ask somebody put their cell phone away like we're not using them. And then if we're using numbers of students, using them and replace them for their like, school device, I probably still have to tell at least one person. Hey, you're not awesome. Get off YouTube and get on you know, whatever
we're working on. It requires just a little bit more, you know, monitoring, I guess, if the devices are out.

**Researcher:** What do you believe are the added benefits that cell phones can bring students during the lesson? But you actually are the answer that when you said that it's just so much faster for them to find what they're looking for. So, then the converse of that would be what do you believe the diversions are that students can have during a lesson? But then you just said YouTube or whatever. How does the delivery of instruction using cell phones affect the engagement for high school students?

**Stephanie:** I don't know. I mean, I think there's the good and the bad. The good is the fact that, like, that's their device, they're comfortable with it. It's right in their hand. It's right in their pocket. It's always out, you know. So, like it is faster, like for the type of thing I do where I'm not going to use it for an entire lesson, like, hey, I'm just capturing a few responses in Google classroom or whatever. It's fast, I mean, other than them, like I said, pulling out their devices and waiting for them to get there. But the diversion would definitely be the distraction factor because while they've got a tab open trying to work on what they're supposed to be working on for class, there's, you know, all these other push notifications coming through that they're getting. You know, TikTok, new TikToks and Instagram's and that's the distraction factor, I think is all the other things going on. So, it's not it is not an isolated way to connect just to what I'm asking them to do. It's also connecting them to all the other social things and other things that they wanted to look at, at any given time.

**Researcher:** In your perception, how does the use of a cell phone during a specific portion of the lesson, whether you use it at the beginning, whether you use it in the middle, or at the end of the lesson, how does that affect the length of the engaged time for kids?
Stephanie: That's a good question. So dependent. If I if I use it at the beginning, middle or end, does it change the amount of time that they're engaged with it. I tend to think for me, the least time I use it probably is the middle of class, because for me, a lot of times it is used in terms of like more like a bell ringer type or a wrap up type thing. You know, not necessarily maybe in the middle of the class. I think what's difficult about having the students use it in the beginning of the class is that now you have once your activity is done, you're dealing with the like, OK, put it away, you know. No, don't call your friend. Sure, dealing with the like, the waves that are left after that sort of activity has gone by and I think it's hard because, you know, overall, we've got this idea like no technology, like don't get your cell phones out, like, I don't want to see them or whatever. But then we also use them. And it's hard to kind of like, I think toe the line between like, I don't know that they understand. It's one thing to use it in support of the classroom and it's another thing to use it as a as a distraction from year. Because it's you know, I don't I'm not like I don't ever want to see a teacher because like I said, sometimes I just let them use it. Hey, can I use it? Absolutely. Like if it gets you through what we're doing. I don't mind. But yeah, I think it's finding that balance between having the students understand when they're using it in support of their learning and when they're using it to distract from their learning. So that's the issue mostly for me. And I think even as adults, I mean, if we were to pick up our phone and, you know, like, oh, I was just going to look at the date for something, you know, you open up your calendar and all of a sudden you got, you know, six messages on there. What are you going to do? You're going to look at them. It's like right in front of your face, you know, and I almost feel like I mean, some of our kids are on the verge of like addiction, like technological addiction, where they have to check it. They cannot let a dingo pass or vibrate or if a flash on the screen. I mean, that's to me, the more the more troublesome thing is like they know they're not supposed
to do it. It's not like the policy is not clear. It's not like they don't understand. But it's just the
draw to it is so magnetic for them that it's almost like they don't out. It can't outweigh, you know,
like the negative doesn't outweigh the like necessity that they have to pull it. I mean, like I had
one student this year, like even talked to a counselor is like, I'm afraid she's literally addicted to
her phone. Whether it's digging or not. I mean, she literally has to pick it up and look at it like
eye every two minutes. I think that that is it. It's a very real thing for our students like they feel. That
cell phone is almost like an appendage. I mean, we maybe we don't get it. Or like, maybe I
shouldn't say we, but I like I grew up as a I was at the tail end of Gen X, the very beginning, a
millennial. I'm sort of on the cusp of both. And like, I didn't grow up with technology. I didn't
have a cell phone until I made it all the way through college without a cell phone. And thinking
like, you know, maybe I'm missing out because I'm theater and like, I don't generally sit and I'm
not generally at my computer. You know, I'm on the person that is dinged. Oh , my God. I don't
even know how many times a week they probably hate me for power school because I take I take
attendance on my clipboard, but I don't always submit it right then on power school, I'm the
person that always gets the like. This is key importance email. Please make sure you update this.
You have not submitted your attendance for the thing. I always have my attendance and I try to
don't. And I just like my class gets in. I get excited to start my class and I just go like I don't I'm
not at the computer. Like I'm up and moving and the classes up and moving and I just forget to
do it . So, I don't know. I think I'm maybe just a different generation, and I think part of it maybe
is my makeup, too. Sometimes I just I just want to be in the present. I mean, like holding that
phone in my hand, I just feel like sometimes I'm just missing out . So just put it down like this.
Things on the phone sometimes. You know, and sometimes I'm distracted if I use it . But I mean,
I just sometimes I just feel like I just need to put it down just to be more aware and more mindful of whatever's unfolding in front of me and not right here in front of me.

**Tiffany**

**Researcher:** How do you use technology as a part of your class?

**Tiffany:** Probably the first the most important way that we're able to use technology in my class is with Google Classroom and Google Drive. I rely on that. Just read every day. I try to stay away from making physical paper copies of things. And so, if I can scan like one copy of the chapter. Plus, we have limited workbooks and that kind of stuff in textbooks. I think I only have like five textbooks and so I and everything and then I put it on the on to Google classroom and Google Drive. So that would probably be the first one the next. Then what comes after that is the whiteboard. I guess it's not really a whiteboard, whatever it's called. Boxlight. There you go. Yeah. You know, a lot of my lessons. You know, because I'm supporting their different core content classes. You know, if this is a group of them or all, you know, kind of having trouble in the social studies, trying to learn about, you know, economics or anything. I'm able to sort of like you use a whiteboard for that to kind of walk them through it, you know, show them like quick videos and graphic organizers and stuff like that. So that's probably the other than the Google Stuff technology. It will be the kids use their tablets. Those that have them. I like the tablet to do like games, like the quiz lid and the Kahoot. And they'll do activities like making my maps and, you know, just basic things called Power Points. But they're not that anymore, now they use Prezi a lot. Generally, I'm kind of old school. I'm not crazy with Kami. I don't like using it myself. In my youth and I just wanted to ask if I know I would. I have even just for like this summer when you know, in the spring when we were doing all of this, I just created my own
kind of activities, like if I gave them a reading, you know, and wanted them to look for like main idea. And I would also attach another activity sheet that I made that would have, like, you know, paragraph one and main idea. And then I would just have a bunch of lines like something to accompany it, because I guess they struggle with it as much as I do. Maybe when they don't like it, it's easier for them to use something that's been created on Google Drive. And then they don't have to worry about like making boxes and stuff.

**Researcher:** How would you elaborate on students input and student output like the product that they create if they're using technology?

**Tiffany:** I know this sounds crazy. Hopefully you've heard it before, but my kids would rather do their work with it like they'd rather do something on paper or a poster board. I'd like to do choice projects because, you know, it's what's best for them and it makes it a little bit more interesting for me to see what they come up with, because sometimes they come up with these great ideas and I'm like, oh, I'm gonna do that next year. So, I do often give them choices, you know, more for like summative assessments and, you know, the end of the unit kind of stuff where they bring it all together. So, they don't really like to use the computer as much as, you know, basic - paper, markers.

**Researcher:** What are cell phones being used for in the classroom?

**Tiffany:** This year was a struggle. You know, I first started off first semester saying that they could use their cell phones at certain times and, you know, listen to music and that kind. I was very liberal with it, but all they did was play on their cell phones. And, you know, I struggled with it and I didn't know it would happen that way because I'd been teaching newcomers for, you know, couple of semesters before that. And they weren't like that. So being a little bit true, like high school class from 9 to 12th grade, you know, they were totally abusing it. And I waited until
the end of the semester and then I revamped it. You know, I had a new crew come in. That crew I bought a kind of like an organizer over the door organizer. And I told them to put their cell phones in the organizer. And that lasted for like two weeks. And then they started fighting back. So, it was a big, huge struggle. And I didn't enforce it as much as I should. You know, I was like, why am I making such a big deal out of this? But it really it just distracts them. And I know this year I'm going to be black and white. No cell phones, you know. If they don't have the technology, they'll supplemented by saying, OK, use your cell phone and be honest. Most of their cell phones are way faster than the tablets. But I wasn't sure if that's something that was going it was the case in your class, but it was driving me nuts. And they're like, oh, you bring to school, you know? So, like, it caused them to lie. I'm like, oh, like, this is crazy. I'm not going to pat them down, you know? Right. But I knew they bring that phone every day. So, if a student doesn't have a tablet, I'm gonna tell you straight up, I thought about it this year because I had like a few students that didn't have tablets. And it frustrated me to no end. I'm going to dig in my pocket and pay for it. I want to make sure all my kids have tablets. I don't care where the money comes from. So as long as your parents are okay with it, that's going to be my plan this year.

**Researcher:** You actually answered a question, four and question five. About what the cell phones are being used for and then how often like if a kid was using their phone and they were saying it was academic, how much of the time is actually academic that they're using it for?

**Tiffany:** If they were saying it. Most of the kids did have tablets. So, they kind of use them mostly for academics. If they said they're not the kids. I just had some kids that were on their cell phone and like wouldn't ever get off. So, it's really hard to gauge. I would say if left up to them, they would have been on their cell phone. One hundred percent of the time. But, you know, I
had some I don't know, like, how do you say it, like some kids just couldn't get it out of their hand, like it was like glued to their hand. But then other kids just put it put it in the little pocket every day and still kind of I'm just that it longingly. Though it's hard to spell. But yeah, I don't think they really used it very much for academics. So if you use a Kahoot or Quizlet, you have the students answer on their tablets more than you would have them answer on their cell phones. Some teachers have them all pull out their phones because they've already got them out anyway.

**Researcher:** If you were to deliver instruction that was specifically using a cell phone. How do you think that affects the engagement of the student? Do you think they would be more engaged in what was going on? Or less?

**Tiffany:** Okay. So, I put like something like this like a zoom or an activity and ask them to do that. Would they be more engaged or less? Whew. Good question. I would like to say that they would be more engaged. Because it's something that they're very comfortable with. And, you know, they do not really like doing activities on their tablet. You know, the cell phone is like a part of them as a person, you know. So, I feel like they would definitely be more engaged with the cell phone.

**Researcher:** In your perception, how does the use of cell phones during a specific portion of the lesson - if you were going to use a phone and you use it during the beginning of a lesson, during the middle of the lesson, or during the end of the lesson, how do you think that affects the length of time that the student stays engaged?

**Tiffany:** I would if I if I was looking for a way to use the cell phone in in a lesson, I would probably do it in the middle. Because usually at the beginning, they're, you know, they're excited and excited. You know, they come in, they're chatty, they're okay. What are we going to do? And then when you kind of give them give it over to them, you know, to kind of do the activity that
accompanied whatever you've been doing, you know, they've sort of gone. But if they had their cell phone, I think that they would be more excited about it.

**William**

**Researcher:** Question number one, how do you use technology as a part of your class?

**William:** So far, I've just used the apps that we have on the class link. So that includes, obviously everything in Google, the G suite, but also some of the apps that kids use that are not quite as well known. Everything I do with research, teaching research methods I mean, it's all technology based. So, that includes like looking at books, the catalog is online. There's no card catalog. I'm trying to think. Video. I always when I do lessons, I try to incorporate video as well. Usually just breakup instruction and keep it lighthearted. But probably what I do when I use technology is I want to teach to the kids so that they can use it. And not just be me using it. I want them to learn how to learn and not just not so that it's, you know, their tablet is something that their teacher tells them to work on. I want them to learn the programs.

**Researcher:** Question number two is how would you elaborate on the student input and output that technology creates during your lessons? Like if you're teaching them how to use the technology, which is something you just said, which kind of answers the questions. But how would you elaborate on the input and output for them?

**William:** Input and Output? I do give them like a most of the time I'll give them some sort of assessment at the end to see how well they actually know what they want over what they used. But it's more a matter of because I'm in such a different role. How well they actually use, you know, their outputs and everything with technology is up to their teacher. They're the ones who are gonna see. Give me another example.
**Researcher:** So, if you have a student and you're using G suite with a student, how do you think that the technology helps them with the product, like the finished product for them? Do you think that it's technology that's going to make them a stellar rock star? Do you think that technology is going to be something that hinders them because they don't know how to use it? Is technology going to be an asset to them or not?

**William:** Yeah. Like I'll give you an example. I went into an English class a couple of years ago and taught kids in three classes for one teacher, two CP, one honors how to use Google sites and how to create their own Web site. And really, that was secondary to what I mean, what they were putting into the website was pages and pictures and video that just showed that they had read the book that they were supposed to read. But really, it gives them a skill like, hey, I can build a Web site, even if it's a basic, very basic Google. So, when they graduate, maybe they can go off and tell a future employer, hey, I do know how to do this. I think it helps. I think it helps. And if we have honestly if we have if we're one to one district. They need to know backwards and forward try to use what they have.

**Researcher:** During these lessons that you're talking about, what our cell phones being used for?

**William:** Cell phones are honestly the kids who use them during my lessons or are kids who don't have tablets. So, they are using them for academics. They are. They will look up something. And I hate to say it, but oftentimes it's quicker. Even though there's spotty, you know this as well as I do, there's parts of the building that service is spotty and Wi-Fi isn't an option. But I do have kids who will look up research questions and get their answers quicker on their phones. And, if they don't have a tablet.

**Researcher:** When the phones are being used in class, what are they most frequently being used for?
**William:** In my experience, I see them using them for the legitimate purpose, and it's generally only the kids who don't have a tablet who use it for the legitimate purpose, other kids, you know as well as I do that we've all seen kids making TikToks and doing Snapchat. I'd like to think they're doing that when the assignment is over and when they've completed that portion. But, you know, I walk around a lot. So, there's less of a chance that they're trying to quietly use their phone for being on social media. I do think social media, though, is probably. It's probably the number one reason that they're using their cell phone.

**Researcher:** How often in a class period does a student use their cell phone for academic purposes?

**William:** I mean, in my experience, probably two or three times out of ten. Honestly, 20 to 30 percent is legitimate.

**Researcher:** What do you believe are the added benefit cell phones can bring to students during the lesson?

**William:** Honestly, exactly like I just said, I am one of those who thinks if they had access to Wi-Fi, it would not necessarily be a bad thing. I don't know how we could implement that in a controlled environment, but I think it's just second nature to teenagers when you ask a question and then you say, hey, here's your assignment, you need to look these things up. They just whip the phone out to do it because that's what they're used to, right. The texts. And they may have the habit right in front of them, but it's easier and quicker to do it on their phone because that's the type of technology they're used to using. What was that? What was the second part of that question?
Researcher: It wasn't. Not yet. Well, I mean, the question was the added benefits that cell phones can bring during a lesson. And then the next question is what about the diversions that cell phones can bring during a lesson.

William: Diversions are obvious. The social media aspect, the type of apps that they have on their phones, not to mention even just a couple of years ago, we had kids who would use their camera from their phone as during a lesson to take pictures of their teachers and turn them into memes. And I'm not going to say that those memes weren’t funny because they were. But that is something that they do. And it's hard to be on task when that's what you're focused on. If you've got your phone out, obviously, there's gonna be situations where something disturbing happens in the classroom. And if you've got your phone out for, you know, with your camera. Something like that. That's not necessarily good. And then the other one I would say and this is a very small percentage, but I do have kids who will work on a lesson while listening to music on their phone. They'll put their earbuds in and to me, as long as you're on task. That's not a problem.

Researcher: How does the delivery of instruction using cell phones affect the engagement of high school students?

William: I think it increases engagement. We used to tell them we've got something to do now and you're gonna need your cell phone for it. They're gonna be reaching for it. Honestly, it's the same thing which what I just said with like, what's the app? It's not Quizlet, but Kahoot. I've been in classes because that's another thing I like to do, is go around to different classes and just join Kahoots while they're on it and try to challenge the kids to beat me at any subject in it. Like if I beat them and it's something they've been studying all semester, then they should feel ashamed. I see more kids participating on Kahoot when they can use their phone. You can do it
with your tablet, but they don't. They just choose not to. I don't know what it is. And you the QR code. I will say there's a couple of classes, science classes where they can use the merge cubes. I don't know if you've seen those, but it's an app on the phone that you can download, and you choose a topic. It's usually biology or anatomy or something like that on the merge tube and it's this actual physical block. But with the app on your phone, it turns it into like a 3D viewer kind of thing and you can see different angles and aspects. It is, as far as I know, they don't even make that app for tablets. It's not a P.C. thing. So, yeah, the kids can get the app and use it on their phones. That stuff like that certainly increases engagement.

Researcher: In your perception, how does the use of cell phones during a specific portion of the lesson, whether it be the beginning of the lesson, the middle of the lesson, or the end of the lesson, how does that affect the length of engaged time for high school students?

William: It doesn't matter. I guess maybe I should. I know. I think it could matter. Honestly, I think that teen psychology is a whole other subject. I think if you engage them in any portion of the lesson with their cell phone using some sort of technology, that cell phone only. And show them that it can be used for a purpose other than just for a distraction, then they're going to start looking at it in a different way and they're going to look at. I've got my I've got my tablet. I can send in everything through Google classroom they've already started to look at, hey, I don't need to print. I don't need to be hooked up to a printer because I don't have to print as many pages anymore. So, it's a change in thought. I think they can start looking at their cell phones as, hey, here's another instructional device. And if I use it during a portion of the lesson, I'm not going to and maybe I'm not going to reach for it as many times during class. The rest of the class. And that's just that's just my gut. It would take probably a couple of years of training to implement something like that. That change in thought. But, I definitely think that it could be used for that
purpose. Even if it's just you wouldn't want to do a whole cell phone lesson. I don't think that would. Ninety minutes is a lot of science. Yeah, that's way too much. But little by little, incorporating it into what you're doing in the classroom. I think it would change their perspective. I think it would change not only the perception kids have of cell phones in the class, but teachers as well. So, a kid doesn't want to use a tablet because it's a pain in the butt. It's like this big, bulky, cumbersome thing when they have this little handheld computer that's faster, more efficient and is able to download a lot more of the apps that they need. So why don't we as a district give kids? BlackBerry, a handheld computer. And that's essentially a cell phone that doesn't make calls. You know what I mean? Like that every kid walking around with a cell phone instead of this thinking tablet. What's funny is like when I did the school news, the program I used, I had to use an iPod or in other cases when I said wasn't was in use. I used my phone because it's an it's only an app. It's not available on P.C. So, there's just another example. The kids could be doing that kind of thing themselves if they had the right technology. And I'm not saying that we need to become an Apple district, but, you know, if we had like some sort of educational, you know how some schools are I pad schools like Apple does educational packages with whatever. These kids don't use tablets because they don't know how to use them. They weren't raised with the Oregon trail in there. You know, they're in their school classroom with a one year that everybody gets 20 minutes. That's not the world we live in anymore. Again, I think it was a biology class for whatever reason, and I was trying to help them with a paper and something was there were some question about cell structure or something . I don't have a clue. I don't teach biology. I'm interested in it. But I was like, well, let's look it up. The kids that I asked to look it up, it was a table of four. Three of them had tablets. The kid who was on their phone, she found it first because it's so much quicker. She knew the search terms that she did it the same
way they were doing it. And that's without Wi-Fi. That's just using LTE. But cell phones are so much more intuitive like they want to. They tell you what you were thinking before now. You know what I mean? And I say that, and I don't mean it in a negative way because it just is. But seriously, when you have a device in front of you that is more powerful on LTE than it is if you were actually on a structured Wi-Fi system and then, oh, my gosh, I'm just I can't even imagine. And then it tells you what you're thinking, you know? Did you mean blah, blah, blah, blah? And you know, and then it finds the answers for you.
APPENDIX I: PERMISSION TO USE AND MODIFY TEACHING, LEARNING
AND COMPUTING: 1998

Re: Permission

HB
Hank Becker <hjbecker@uci.edu>
Sun 11/3/2019 5:40 PM

Yes, of course you may use and/or adapt any or all of the questions in our 1998 survey. Hopefully, with all the time that has passed and the changes to technology since then, you'll choose to adapt more than use directly! Good luck with your research!

Hank Becker
Emeritus Professor of Education

DD
DuPont, Summer Dawn
Sun 11/3/2019 5:07 PM

Good evening.

My name is Summer DuPont and I am a doctoral student at Liberty University. My dissertation focus is high school teachers' perceptions of student cell phone use in the classroom. Your survey would be greatly beneficial for my research as a second data gathering tool. I would be willing to share with you my proposal thus far if you would prefer.

I am sending this email to request permission to use and modify your Teaching Learning and Computing: 1998 survey for schools and teachers for my dissertation research.

Thank you in advance for your attention and consideration.

Summer DuPont
APPENDIX J: TEACHER SURVEY

Adapted with Permission from Teaching Learning, and Computing: 1998

A National Survey of Schools and Teachers

Describing Their Best Practices, Teaching Philosophies and Uses of Technology

Teacher’s Survey: Combined Versions 1-4

Henry Jay Becker, University of California, Irvine

And

Ronald E. Anderson, University of Minnesota,

Principal Investigators
PART K: YOUR TEACHING PRACTICE IN ONE CLASS

K1. Circle the grades that you teach.

9 10 11 12

K2. How many different children or adolescents do you teach during a week in all of your classes combined? ________________

K3. Complete the following table about the classes you are teaching now. List each class period you teach on a separate line, even if the classes are in the same subject. If you teach a single, self-contained class all day, write “self-contained.” If your teaching assignment changes frequently, use your current responsibilities.

For each class you teach, write the specific title or subject of the class (e.g., Algebra II; Reading-Lang. Arts) and circle the achievement or ability levels of the students in the class relative to all children or adolescents of that age. Circle ALL achievement levels that apply to at least 5 students. By “very low” or “very high”, we mean more than a year below or above average students in that grade.

1. __________________________________________ Very low   Below Average   Average   Above Average   Very High

2. __________________________________________ Very low   Below Average   Average   Above Average   Very High

3. __________________________________________ Very low   Below Average   Average   Above Average   Very High

4. __________________________________________ Very low   Below Average   Average   Above Average   Very High

5. __________________________________________ Very low   Below Average   Average   Above Average   Very High

K7. Over the last 5 hours that you taught this class, roughly how many minutes did students spend in each of the following activities? (Circle most appropriate)

   e. Teacher led a whole-class discussion (students listened and answered questions)
      Under 30 minutes  30-60 minutes  1-1/4 hours to 2 hours  Over 2 hours

   f. Student led a discussion or gave a presentation
<table>
<thead>
<tr>
<th>Time Range</th>
<th>Under 30 minutes</th>
<th>30-60 minutes</th>
<th>1-1/4 hours to 2 hours</th>
<th>Over 2 hours</th>
</tr>
</thead>
</table>

**g. Students worked on their own assignments at their desks**

<table>
<thead>
<tr>
<th>Time Range</th>
<th>Under 30 minutes</th>
<th>30-60 minutes</th>
<th>1-1/4 hours to 2 hours</th>
<th>Over 2 hours</th>
</tr>
</thead>
</table>

**h. Students worked together in small groups to complete an assignment as a team**

<table>
<thead>
<tr>
<th>Time Range</th>
<th>Under 30 minutes</th>
<th>30-60 minutes</th>
<th>1-1/4 hours to 2 hours</th>
<th>Over 2 hours</th>
</tr>
</thead>
</table>

**K8. About how often do students in this class take part in the following types of activities?**

**i. Work individually answers questions in the textbook or worksheets….**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Never</th>
<th>Sometimes</th>
<th>1-3 times per month</th>
<th>1-3 times per week</th>
<th>Almost Everyday</th>
</tr>
</thead>
</table>

**j. Do hands-on/laboratory activities……**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Never</th>
<th>Sometimes</th>
<th>1-3 times per month</th>
<th>1-3 times per week</th>
<th>Almost Everyday</th>
</tr>
</thead>
</table>

**k. Work on projects that take a week or more…..**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Never</th>
<th>Sometimes</th>
<th>1-3 times per month</th>
<th>1-3 times per week</th>
<th>Almost Everyday</th>
</tr>
</thead>
</table>

**l. Write in a journal…..**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Never</th>
<th>Sometimes</th>
<th>1-3 times per month</th>
<th>1-3 times per week</th>
<th>Almost Everyday</th>
</tr>
</thead>
</table>

**m. Suggest or help plan classroom activities or projects….**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Never</th>
<th>Sometimes</th>
<th>1-3 times per month</th>
<th>1-3 times per week</th>
<th>Almost Everyday</th>
</tr>
</thead>
</table>

**n. Work in small groups to come up with a joint solution or approach to a problem or task…..**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Never</th>
<th>Sometimes</th>
<th>1-3 times per month</th>
<th>1-3 times per week</th>
<th>Almost Everyday</th>
</tr>
</thead>
</table>

**o. Work on a problem for which there is no obvious method or solution….**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Never</th>
<th>Sometimes</th>
<th>1-3 times per month</th>
<th>1-3 times per week</th>
<th>Almost Everyday</th>
</tr>
</thead>
</table>

**p. Write an essay in which they are expected to explain their thinking or reasoning at some length….**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Never</th>
<th>Sometimes</th>
<th>1-3 times per month</th>
<th>1-3 times per week</th>
<th>Almost Everyday</th>
</tr>
</thead>
</table>
PART L: YOUR USE OF CELL PHONES

L20. Which of these are advantages of using cell phones in teaching?

f. Students create better looking products…
   Not true, Somewhat true, True, True, Don’t Know
   Not an advantage Mild advantage Modest Advantage Strong Advantage

g. Cell phones provide a welcome break for students from more routine learning….
   Not true, Somewhat true, True, True, Don’t Know
   Not an advantage Mild advantage Modest Advantage Strong Advantage

h. Students help one another more while using cell phones….
   Not true, Somewhat true, True, True, Don’t Know
   Not an advantage Mild advantage Modest Advantage Strong Advantage

i. Students take more initiative outside of class….
   Not true, Somewhat true, True, True, Don’t Know
   Not an advantage Mild advantage Modest Advantage Strong Advantage

j. Students work harder at their assignments when they use cell phones….
   Not true, Somewhat true, True, True, Don’t Know
   Not an advantage Mild advantage Modest Advantage Strong Advantage

L21. Which of these are disadvantages of using cell phones in teaching?

e. Cell phones are hard to figure out how to use…
   Not true, Somewhat true, True, True, Don’t Know
   Not a disadvantage Mild disadvantage Modest disadvantage Strong disadvantage

f. May students use cell phones in order to avoid doing more important school work…
   Not true, Somewhat true, True, True, Don’t Know
   Not a disadvantage Mild disadvantage Modest disadvantage Strong disadvantage

g. Often too many students need my help at the same time….
   Not true, Somewhat true, True, True, Don’t Know
   Not a disadvantage Mild disadvantage Modest disadvantage Strong disadvantage
h. Students can cheat easier-copying work and turning it in as their own….

Not true, Somewhat true, True, True, Don’t Know
Not a disadvantage Mild disadvantage Modest disadvantage Strong disadvantage

PART M: GENERAL TEACHING EXPERIENCES

M4. Compared to three years ago, how much do you employ the following practices?

f. Plan a lesson using principles of direct instruction (review, teach, guided practice, individual practice)…

Less now than 3 years ago  Same as before  More now  MUCH more now  Never did

g. Have many activities going on in the room at the same time….

Less now than 3 years ago  Same as before  More now  MUCH more now  Never did

h. Closely monitor and supervise students while they work….

Less now than 3 years ago  Same as before  More now  MUCH more now  Never did

i. Evaluate students through their products instead of tests….

Less now than 3 years ago  Same as before  More now  MUCH more now  Never did

j. Allow myself to be taught by students….

Less now than 3 years ago  Same as before  More now  MUCH more now  Never did

M4B. How much of a role have cell phones played in the changes to the practices you reported above? Circle only one.

6. No role at all (cell phones were not related to those practices)

7. A minor role (in most cases)

8. A substantial role in many cases

9. A major role in most of those cases

10. Not application/No changes
M7. How have cell phones in your classroom affected the way you do or think about the following?

e. The way you organize space/seating in your classroom….
   Not affected     Small change     Moderate change     Big Change

f. The way you break up your class period into activities….
   Not affected     Small change     Moderate change     Big Change

g. Your beliefs about curriculum priorities….
   Not affected     Small change     Moderate change     Big Change

h. Your goals in teaching….
   Not affected     Small change     Moderate change     Big Change

RESEARCHER ADDED BACKGROUND QUESTIONS

A1. How many years have you been a teacher?___________________

A2. What is your area of certification?___________________________

A2A. Is this certification area the area you are currently teaching in?___________

A2B. If the answer above was no, what are you teaching in?_____________________

A3. What brought you to teaching as your profession?

________________________________________________________________________

________________________________________________________________________

A4. In what grade levels have you taught?

________________________________________________________________________

A5. What grade level do you teach in now? ____________________________

A6. What subject(s) do you teach currently?___________________________
A7. On a scale of 1 to 5 (one being not at all comfortable and 5 being exceptionally comfortable), how comfortable are you using technology during your lessons?_______________

A8. Is there anything else about cell phones in your classrooms you would like to share?____________________________________________________

____________________________________________________

____________________________________________________

____________________________________________________

Thank you for completing this survey. Please scan this document and email to summerdupont06@gmail.com.
APPENDIX K: FOCUS GROUP SEMI-STRUCTURED QUESTIONS/GUIDE

1. What are your thoughts/stance on (common theme)?
2. How do you perceive the (common theme)?
3. Based on (common theme), how does this play out in your daily class?
4. How does (common theme) most often present itself?
5. What would your biggest impact to academics be based on (common theme)?
6. How does (common theme) influence academics?
APPENDIX L: FOCUS GROUP TRANSCRIPTS

Group One

Researcher: Focus group one was created after I looked at all of the common themes found when I did individual interviews with each of you. Thank you all for continuing to meet with me and help me in this process. This group’s common theme was frustration from parents messaging or calling students during class. Let’s get started.

Question one is What are your thoughts and or stance on parents, or family members, or employers messaging and/or calling students during class?

Danielle: Honestly, it happens. Something comes up, I do not think they should just call, a simple message telling them “Hey, I am picking you up early” or “This happened” I think is important.

Christina: I believe this is a distraction to class for the students.

Shannon: It is disruptive and undermines the importance of school.

Danielle: But, calling, if it is that important they should call the school. We live in an age of communication everyone has to be available and in the know. Even kids and parents.

Brandy: Well, I am guilty of this as a parent.

Researcher: Okay, then, question two, how do you perceive the parents, or the employers, messaging and/or calling students during class?

Brandy: As a parent, I hope my child gets my message, as a teacher, it really doesn’t bother me.

Christina: I think it’s disrespectful.

Danielle: Calling is frustrating because students think they should just answer, even in the middle of lecture.
Shannon: I perceive that the parents or boss don’t care about the student’s education. Or prioritize it.

Brandy: But I think that is because of the nature of what and how I teach that it doesn’t bother me.

Danielle: Messaging is less of an issue, because they can check it and then usually put it back down. Or they’ll say Ms. [sic] my mom just texted me can I answer it, which is a nice courtesy.

Researcher: Okay, then that rolls into the next question. Based on Parents (or employers) messaging and/or calling students during class, how does this play out in your daily class?

Christina: The first time, I usually let it slide or comment to the student that they should not be getting messages during class. After that I contact the parent.

Danielle: If a parent calls, they are not allowed to answer until it is their time, and then I ask them to go to the restroom. Or I ask them, oh, you need to go to the restroom, sounds great. And then I give them a pass.

Brandy: Calling is generally not an issue.

Shannon: I ask the student to put the phone away after they tell the individual, no matter who it is, that they will speak with them later.

Danielle: Messages, I try not to say much unless we are in the lab or they stop paying attention all together. If it is a quick text that is fine.

Brandy: Texting is definitely the norm.

Researcher: You all have kind of answered this next question, but I want to ask to give the chance. How does parents messaging and/or calling students during class most often present itself?

Brandy: For me it’s the student not engaged with the class at the time.
**Christina:** I mean, cell reception in my classroom is limited, so it becomes obvious when a student is trying to respond to a message.

**Danielle:** Students think because their parents are calling them they can stop everything because that becomes most important.

**Shannon:** Right. The student says but it’s my… typically mom. I tell them it doesn’t matter you are in school and need to be focused on learning and can respond later.

**Danielle:** Students think they need to answer even during a test. So, modeling and explaining with them becomes important during that time. Most of the time it is messaging, though.

**Shannon:** I mean, if they come to me or communicate that they have an emergency, that’s a different scenario.

**Researcher:** So, a situation can dictate. Then, what would your biggest impact to academics be based on parents or employers messaging and/or calling students during class?

**Danielle:** It becomes the most important, so everything else drops, including classwork and paying attention.

**Shannon:** And it’s an interruption to the lesson.

**Christina:** Agree. Interrupting the lesson. The instructional time.

**Brandy:** It is really not an issue for me as a teacher.

**Researcher:** Okay, so interruptions and loss of attention. I think I can see where this is going, but does parents messaging or calling students during class have an influence on academic? And, if so, how?

**Brandy:** It really doesn’t in my class.

**Shannon:** Yes. It interrupts instructional time and takes the student away from their assignments.
Christina: Absolutely! The student’s academic roll or mode or mood is interrupted, and the focus becomes responding to the message.

Danielle: If we are doing a lab and the student gets a message on her watch from their parent, some students have been known to leave the lab and answer their phone, so it reduced the attention and then the student has to pick up where they left off which makes it hard so they lose time.

Christina: Students think it’s okay because it is a parent, a guardian, or a supervisor and that can become a behavioral issue.

Group Two

Researcher: Hi everyone! Focus group two was created after I looked at all of the common themes found when I did individual interviews with each of you. Two of you were part of my first focus group, the rest of you are new to this process. Thank you all for continuing to meet with me and help me in achieving this goal. This group’s common theme was students using social media during class.

The first question I have is What are your thoughts or stance on students using social media during class?

Nathan: Oh goodness, at best it is a distraction, and at its worst it is a very difficult medium to cheat on tests and other assignments.

Melissa: I have some students that would constantly be on their phones for social media if I didn’t give them boundaries in my class.

Christopher: I agree, totally. When there is time given, the amount of notifications is tremendous.
Danielle: So, I am weird about this, for communication, I’m the same as with texting, only when appropriate.

Carrie: I used to have a system for them to put their phones away for class, but that was overwhelming to try to compete with.

Shannon: I think the student should use social media to supplement class. For instance, to learn about [sic] different ways to be healthy or fit.

Danielle: BUT being a [sic] teacher, I love when students take pictures of fun things they are doing and share it because I want them to be proud.

Melissa: Social media is all about that approval.

William: Social media can be used effectively in limited circumstances during class. Like using Twitter to gather thoughts on a subject from different experts or celebrities using Facebook for thoughts on actual news items.

Carrie: That is true. They do pay attention to who’s trending and what they say.

Danielle: Right! I want them to be able to share too and get others excited about the learning. But, for social media communication, it needs to be used in class appropriately.

Researcher: Okay, so you said appropriately. Question two is how do you perceive the students using social media during class?

Melissa: They are mostly wanting to check SnapChat. They use this to message, but to also keep up with their friends.

Nathan: Most of the social media use I am probably unaware of, honestly. But, some of it is impossible not to notice though, like when students start filming themselves dancing.

Carrie: We have all seen a student making a TikTok, I’m sure.

William: Or a funny meme that was created to be posted.
Christopher: I definitely hear the videos being played, that quick music loop.

Shannon: As a teacher, if the student is using the social media for personal reasons, I perceive them not to care about the class or the material.

Danielle: It does take away from what they are doing, for sure. I mean, even during lab, it become how can I post this, and their mind wanders.

Shannon: Which can be perceived as a lack of respect for the teacher.

William: It can get out of hand if not monitored correctly, quickly.

Melissa: You’re right it is about monitoring and giving space, working with it rather than against it.

Researcher: If that is the case, then based on students using social media during class, how does that play out in your daily class?

Nathan: Those students making TikTok videos is what I see most often.

Christopher: As soon as their cell phones are able to be used in the class, you can tell if they are using them for academics or if they are scrolling through posts on social media, just by their posture.

Carrie: And the way it affects their mood. Some of the way students interact with social media tells me a lot about where their heads are.

Danielle: Yes! I give them time during their Do Now to check their phones, messages, posts, whatever. Then it is my time. And after they can use them for their assignments. But only then.

Shannon: Typically, they put them away when I ask them to. If I have to ask more than once, they know they will lose their phone.

William: Which is not a daily activity in my room. It only comes to that once or twice a semester.
Melissa: I have made them the convenience of a charging station. But, I made sure it was across the room to give them that space from it while they are being helped with more charge. It seems to curb some of that.

Researcher: So then how does students using social media most often present itself during class?

Nathan: I’m sticking with the TikTok videos. They are either making them or watching others.

Danielle: A distraction.

William: Most often, yes, it’s a distraction. Students using SnapChat to share stories from their classroom intended to make their teachers or other students look bad.

Melissa: That does happen. True.

Christopher: They are so connected to them.

Shannon: For me, they use SnapChat and TikTok mostly. SnapChat seems to be where they message, and they like to make TikTok videos if they have time.

Researcher: If they have time to, okay. What would your biggest impact to academics be based on students using social media during class?

Melissa: Oh, for me and my students, it is that they went on to their phones to check something and then they get drawn in to just watching one more video.

Carrie: And then they are disengaged from what was going on and have to almost reset.

Nathan: I see a lack of understanding due to being distracted at critical times.

Shannon: In my class, the biggest impact to academics is having to remind them to put their phones away, which takes away from instructional time.

William: But, if anything, if there were a way to incorporate using social media and phone in class it might engage the students more and lead into other activities.
**Christopher:** Right.

**Danielle:** There are both negative and positives to social media in class.

**Researcher:** Then along that thought, does students using social media during class have an influence on academics? And if so, how?

**Danielle:** Well, okay, so again I am weird. When they are distracted by it and using it as an excuse not to do work, or are more worried about it than the work, then it negatively affects them. When they use it to share their cool ideas or what they are doing they can positively shift the mind frame that [sic] is cool and can be fun.

**Carrie:** Yes! I have some things we do in class that I encourage them to share with their friends on social media, and some things I wish they would share more. But, then they can ruin a train of thought with the wrong snap.

**Shannon:** That is true. I can also teach them a lot about social media presence, responsibility, and managing their time wisely.

**Melissa:** I hadn’t thought about it like that. Teaching them about social media presence.

**William:** It absolutely has an effect on academics right now as it is a distraction, but if used as part of a lesson plan - like finding a video to post that shows an experiment you did, it could be used effectively to influence the academic process.

**Nathan:** Now, see that I could see as a positive. Right now, I only see critical times being missed by distraction.

**Christopher:** Yes, me too. Distractions over positives.

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**Group Three**
**Researcher:** Good morning! Focus group three was created after I looked at all of the common themes found when I did individual interviews with each of you. Two of you have been part of one of my first focus groups, so you aren’t new to this process. Thank you all for continuing to meet with me and help me in achieving this goal. This group’s common theme was students using cell phones to cheat. I will go ahead and ask the first question.

What are your thoughts/ stance on students using cell phones to cheat?

**Christina:** I think that the cell phone use for cheating cat is out of the bag. I’ve seen students taking pictures or receiving pictures of completed homework to share.

**Gina:** I believe this is unfortunate. Students don’t understand how they are negatively impacting their learning experience by cheating. They just want to complete the task or assignment not to grow academically.

**Shannon:** The students should be monitored. However, we have to trust them and teach them personal integrity.

**Researcher:** Okay, then how do you perceive students using cell phones to cheat?

**Shannon:** It is because they didn’t study, or they don’t understand how to cite work.

**Christina:** It is the phone pics to share work that I see.

**Gina:** Society, parents, and schools are not instilling in students the importance of education. It is evident by the students’ desire to cheat instead of learning the curriculum.

**Researcher:** Thank you. Then based on this, how does using cell phones to cheat play out in your daily class?

**Gina:** Cell phones are a distraction to students. And as the cell phones vibrate, students give their attention there instead of what is going on in class.
Christina: I make sure all students have their cell phones put away during class. I’ve done away with homework because I don’t believe it to be effective if they are just copying someone else’s.

Shannon: If I were to see a cell phone during a test, I would take it away, but I have been fortunate not to have had this incident.

Researcher: That is a good thing. Then how does a student using cell phones to cheat most often present itself?

Christina: It is students Googling answers or sharing pictures of completed work.

Gina: Most often it is present during an assessment.

Shannon: For me it is students copying and pasting information without giving credit.

Researcher: Then would you consider that the biggest impact to academics? Or what would your biggest impact to academics be based on using cell phones to cheat?

Christina: It is decreased mastery of the material because they are not critically thinking about the concepts, they are just copying answers.

Gina: This is students shortchanging themselves and not learning to become independent and knowledgeable about learning concepts.

Shannon: Yes. They didn’t learn the material and haven’t learned how to study without relying on their phone.

Researcher: Does students using cell phones to cheat have an influence on academics? If so, how?

Shannon: I think I kind of answered that already, but it really is if you don’t learn to study or have integrity within the classroom, what kind of student or employee will you be in the future?

Gina: Absolutely, I agree with that. The students are shortchanging themselves by doing it.

Christina: Critical thinking is so valuable.
Group Four

Researcher: Hello All! Focus group four was created after I looked at all of the common themes found when I did individual interviews with each of you. This group is by far the largest group. All of you have been part of one of my first couple focus groups in some grouping, so none of you are new to this process. Thank you all for continuing to meet with me and help me in working toward gathering data for my research. This group’s common theme was students being able to research faster with their cell phones.

The first question is What are your thoughts/ stance on students being able to research faster with their cell phones?

Shannon: If that is the case, then let them.

Melissa: I have kids ask me all the time if they can just look it up on their phone.

Tiffany: Agree. They are able to research faster because their phones are always on them and they can quickly look up information without requiring a charged computer.

Brandy: That is a good point, because I’m the teacher that thinks they shouldn’t need a phone since they have district issued tablets. But, with their phones, they never have the issue of websites being blocked, so that is a plus.

Christina: Students are more efficient with a cell phone to do research than the laptop or tablet, however I do think that they still lack the ability to identify credible sources.

William: I was thinking the same. Cell phones can and sometimes should be used to research faster given a certain set of parameters - for example, don’t just Google a term without first being told how to identify or evaluation good search results.
**Gina:** I agree, having the device will allow students to have access to the information faster, but there is also the need to ensure students understand they should not plagiarize because they are not helping themselves.

**Nathan:** Well, for finding quick facts. But, in [sic] class it allows students to find answers and solutions without having to actually understand the content.

**Researcher:** Let’s follow that with the next question. How do you perceive students being able to research faster with their cell phones?

**William:** It is a positive thing when a student is so engaged in a lesson that they pick up their cell phone in order to research the answer to a question faster.

**Tiffany:** Faster is better. But sometimes the screen is so small that they can’t get a large amount of information on it, so it requires more pages, which may end up taking longer than just using their tablets for research.

**Shannon:** That is true, but they are more comfortable and understand how it works more than a computer.

**Christina:** They Do use them so efficiently.

**Gina:** They also need to understand how to determine relevant information and not be scammed.

**Nathan:** There are positive ways students can use them to research and get help outside the classroom.

**Melissa:** Cell phones in my class are mostly used to check spelling of words and grammar. The students want to make sure they are creating a good product to turn in.

**Brandy:** In my class it is for references and for inspiration.

**Researcher:** As checks and references. That means based on students being able to research faster with their cell phones, how does this play out in your daily class?
Gina: I don’t do research daily, therefore I don’t know.

Christina: I encourage students to use certain apps or websites on their phones when we are working outside.

Nathan: In class, it is used for cheating the process by using apps. Productive use is typically done out of class.

Melissa: I encourage them to use their phones as a reference if they can find the information they are looking for without my help.

Brandy: My students use them for references and watching videos for technique or style.

Tiffany: I prefer for my students to use their school tablets in the classroom. If they don’t have a tablet, the cell phone is the next best choice. They are also able to bookmark pages and save their searches easier on the tablets.

Shannon: But, if they want to use their cell phones, I let them as long as they can stay on task.

William: Honestly, cell phones could be given the same attention that a tablet or desktop computer has, only they seem to work faster and are accessible to most students.

Researcher: Accessibility is a good point. Then how does researching faster with their cell phones most often present itself?

Gina: Most students are always connected to his or her cell phone. Information is readily available to students.

Christina: That is true, they already have them, and want to have them out.

Melissa: As long as they can use them without getting sucked into something else that was not where they started.

Shannon: Yes, if they ask to use it and stay on task, I let them. Unless they truly cannot complete the task on a phone.
Nathan: Sometimes they use them for positive things like apps to get help understanding content. But, in my experience it is used negatively as a short cut by cheating.

Tiffany: Sometimes we will be talking about something and a question comes up that I’ll ask a student to look up the answer for. If they take out their phone, it is usually quicker than if they had to log in to their computer.

Brandy: Most times in my class if a student is doing research on their phones it is to find something I have asked them to.

William: During a lesson, whenever a question is asked by a teacher or even by a fellow student, students are more apt to reach for their cell phones to check for an answer than they are to really dive deep into research on their tablet. Thankfully, most of the time this still ends up with them receiving the correct information.

Researcher: The correct information is important to answering the question. What would your biggest impact to academics be based on students being able to research faster with their cell phones?

Shannon: For me, it is as simple as a student completing work versus not completing it.

Tiffany: If students could get their school assignments on their cell phones they might be more willing to learn the information and complete assignments.

Brandy: And the research being done faster would mean more class time for production.

Melissa: When my students are using the device they are comfortable with, this gives them more confidence to complete work and turn in things they are happy with.

Nathan: In my experiences, students who are accustomed to using it to cheat end up with disproportionately poor test scores because they never learned to do the work without a device. Students who use it to fill gaps in their content knowledge do very well.
**Gina:** There is so much information on the internet which can pose a problem if students don’t understand how to differentiate between accurate and inaccurate information.

**Christina:** That is very true, and cell phones are just tiny computers now.

**William:** It is much more difficult though to ensure that students don’t exchange speed for correct answers. The apps available to students on their tablets or desktops contain reliable, targeted information for research purposes, whereas asking Siri for a correct answer doesn’t guarantee much.

**Researcher:** The research aspect of their phones, does students being able to research faster with their cell phones have an influence on academics? If so, how?

**Gina:** Knowledge is power. Providing students with resources and information about opportunities to improve their quality of life is a positive impact on students learning concepts.

**Christina:** Before I mentioned cell phones being tiny computers. Students have lost the ability or were never taught how to do book research. This may be detrimental later in life since not everything is on the internet, and not everything on the internet is accurate.

**Melissa:** We always need to be aware that students might not recognize that.

**Nathan:** And, as with everything, there are positives and negatives to the use, depending.

**William:** It absolutely depends. And the influence cell phones have of being accessible and containing the same methodology of finding information as a tablet is relative. But, to be used correctly it would require whole-scale training by a teacher on correct usage of a cell phone as an academic device.

**Brandy:** The academic influence in my class is that the level of completion is higher.

**Tiffany:** Mine too.
Shannon: Yes, and if it is the only technology they have, it often means they will do the work versus not doing it.

Group Five

Researcher: Hey! Focus group five was created after I looked at all of the common themes found when I did individual interviews with each of you. Two of you have been part of one of my first couple focus groups, and two of you are new to this process. Thank you all for continuing to meet with me and help me in working toward finishing my research. This group’s common theme was students not being able to separate from their phones. The first question is What are your thoughts/stance on students not being able to separate from their cell phone?

Stephanie: I feel that our current students have basically grown up with a device in their hand, constantly connected to games, the internet, apps, entertainment and their contacts.

Melissa: And it’s like they don’t know what to do without it.

Danielle: This is the time we live in. It is becoming an addiction, and hard to break from students. But I am bad too.

Tiffany: I am understanding because I have a very difficult time separating from my cell phone too.

Stephanie: Their cell phone almost becomes a part of them, which creates a great deal of anxiety around breaking that connection.

Melissa: That break in connection can cause behaviors too in class.

Tiffany: But, I know even having a hard time separating myself that there are times that I can’t use my cell phone.

Danielle: I have to set reminders too.
**Researcher:** Then how do you perceive students not being able to separate from their cell phones?

**Stephanie:** My perception is that maybe students have a fear of missing out on something that prompts them to constantly check their phones, which over time becomes almost like an addiction. I think that many of our students struggle to make authentic human connections and live mindfully in the moment. I think they use their phones in search of connection, but ultimately do not find what they need.

**Tiffany:** I know that it’s hard, but there are times that they need to put it away and focus on their work without the cell phone as a distraction.

**Melissa:** That’s why my charging station is so effective, it forces the split, but they see it as a benefit.

**Danielle:** It is their age and the time.

**Stephanie:** I think that mostly cell phones just end up filling their time, distracting themselves from whatever feelings or tasks they don’t want to face.

**Researcher:** Thank you for that. Based on students not being able to separate from their cell phones, how does this play out in your daily class?

**Danielle:** I have to set rules and regulations that they can use them during certain times, otherwise I am fighting a losing battle. I start my class and give them time during their Do Now, then I tell them it’s my turn, then at the end they can have them as long as they are working.

**Tiffany:** I bought an organizer to hold all of the students’ cell phones in pockets while they are in class. Most students would not put their phones in the holder and would lie to me when asked to do so - they would say they didn’t have a cell phone.

**Danielle:** My first year I tried to take it away completely and failed.
Stephanie: Students don’t all have the same feelings about separating from their cell phones. For some students its mostly a non-issue during class, but others can become verbally aggressive and defiant about being asked to put their cell phones away and stay on task.

Melissa: I have those that get an attitude, but not so far as to be verbally aggressive thank goodness.

Tiffany: It would make me so disappointed that they would lie to a teacher rather than follow class protocols. Also, I always give them time toward the end of class to take out their cell phones and use them if they need to. So, I don’t prohibit phones, just the times when they can use them.

Stephanie: Some are even willing to take it far enough to risk being written up for it. Also, I find it interesting that even the same student can vary in their attachment to their phones day by day. I think there is an emotional component, depending on how their day is going, that causes this fluctuation.

Researcher: That is an interesting point. The day by day you mentioned may affect this next question. How does students not being able to separate from their cell phones most often present itself?

Danielle: A distraction if not modeled correctly or given time. A losing battle.

Stephanie: Students who cannot separate from their phones usually presents itself in class as a student trying to constantly sneak a look at their phone. Whether it is hidden in their lap or on the table. Some bold students that will use just use it right in front of the teacher without concern for repercussions.

Melissa: I agree, I have some students who try to be sneaky, and some who are just blatant about it no matter how many times they have been asked or told.
Tiffany: Yes, usually mine hide them in their laps or behind their bookbags on the desk. Again, they choose to disobey the class rules rather than just follow them.

Researcher: So, then what would your biggest impact to academics be based on students not being able to separate from their cell phone?

Stephanie: I think the biggest impact is the loss of instructional time.

Danielle: It is a distraction and less communication in person.

Melissa: Most of my student struggle to focus to begin with, much less adding in their phones and connectivity. It makes it very difficult to keep them on track toward completion.

Stephanie: I heard or read somewhere that every time you even glance at your cell phone, even if you don’t actually take any action on it, it causes your brain to be distracted for an average span of seven minutes. I don’t know if that is true, but I don’t think it’s implausible.

Tiffany: Not focusing on their educational duties, and instead focusing on YouTube or something else.

Stephanie: Right, Let’s just say that it’s five minutes. If a student looks at their device even four times, which I think is probably on the lower end, during a regular 90-minute block class, they ultimately end up missing out on 20 of the 90 minutes. So, roughly 22 percent of the information given in that class.

Tiffany: So, in the end it would be lower grades, little understanding of the content, and possible failure.

Researcher: Well, that answer seems to play to the last question. Does students not being able to separate from their cell phones have an influence on academics? If so, how?

Tiffany: I do think that my answer would be the same.
**Stephanie:** I absolutely believe that students not being able to separate from their cell phones has a negative impact on academics. I think students being constantly - even if only momentarily - distracted causes an overall loss of valuable instructional time and ultimately a decrease in their understanding of all subject, which only compounds over the time of the student’s school career.

**Danielle:** I think it depends upon the teacher and how the cell phone is being used. Like I said before, I give my students leeway. So, as long as I do that then it is not a big distraction, or if I let them use it during a lab they love it. But, if I take it away completely then it is a rebellion and a fight.

**Melissa:** I have said this before and will keep saying it. Cell phones are not going away. So, we as educators need to learn to embrace them and use them to our advantage rather than competing with them.

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**Group Five**

**Researcher:** Hello All! Focus group five was created after I looked at all of the common themes found when I did individual interviews with each of you. This group is by far the largest group. All of you have been part of one of my first couple focus groups in some grouping, so none of you are new to this process. Thank you all for continuing to meet with me and help me in working toward gathering data for my research. This group’s common theme was students being able to research faster with their cell phones.

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Researcher: The research aspect of their phones, does students being able to research faster with their cell phones have an influence on academics? If so, how?

Gina: Knowledge is power. Providing students with resources and information about opportunities to improve their quality of life is a positive impact on students learning concepts.
**Christina:** Before I mentioned cell phones being tiny computers. Students have lost the ability or were never taught how to do book research. This may be detrimental later in life since not everything is on the internet, and not everything on the internet is accurate.

**Melissa:** We always need to be aware that students might not recognize that.

**Nathan:** And, as with everything, there are positives and negatives to the use, depending.

**William:** It absolutely depends. And the influence cell phones have of being accessible and containing the same methodology of finding information as a tablet is relative. But, to be used correctly it would require whole-scale training by a teacher on correct usage of a cell phone as an academic device.

**Brandy:** The academic influence in my class is that the level of completion is higher.

**Tiffany:** Mine too.

**Shannon:** Yes, and if it is the only technology they have, it often means they will do the work versus not doing it.

**Group Six**

**Researcher:** Here we are group six! Focus group six was created after I looked at all of the common themes found when I did individual interviews with each of you. All of you have been part of one of my other focus groups in some grouping, so none of you are new to this process. Thank you all for continuing to meet with me and help me in working toward the finish of gathering data for my research. This group’s common theme was students using their cell phones in class to play games or music.

Let’s get going. What are your thoughts/stance on students using their cell phones in class to play games or music?
Brandy: For me it’s simple. Music yes, games no.

Christina: Students now have grown up with the tv on all the time, cell phones accessible, and talking to someone in person. They are used to several sensory inputs at one time and feel most comfortable in this environment.

Gina: If students have completed assignments and/or tasks for the day, I have no problem with students playing games or music as long as he or she is not interfering with the learning of other students.

Melissa: That is kind of the way I feel about it too. If a student isn’t bothering anyone else and is getting the work done, then I let them.

Nathan: I typically give students a lot of liberty in regard to cell phones, as long as it is not distracting other students, or during a test. This means some students use this to play games or listen to headphones in class, even when I am teaching. My philosophy behind this is that they are old enough to make that decision for themselves and live with the consequences.

Christina: I think brain-breaks are important and games on cell phones can be a good way to reset the brain. Certain games can also introduce or enforce academic concepts. Music can be very beneficial as a motivator for students during independent work.

Researcher: Okay, then how do you perceive students using their cell phones in class to play games or music?

Melissa: For some kids, having their music playing puts them in a bubble and they actually concentrate and focus more on what they are trying to work on. So, for me I encourage it for some.

Christina: That is what I meant earlier when I said a motivator for students during independent work, they see it as a bonus or privilege.
Nathan: Right, for some students it is a major distraction, for others it’s just a minor one, and for some it helps them shut out noise so they can focus.

Brandy: In my space, it is about the students listening to music to relax and feel the work they are producing for their projects. Games, still a no.

Gina: I have not had students listening to music while they work, it is usually after they have finished tasks for the day.

Researcher: Based on students using their cell phones in class to play games or music, how does this play out in your daily class?

Brandy: Okay, so I know before this I kept saying no games. But, if a student finishes projects ahead of time, they can play games. And, they can listen to music anytime, as long as I don’t need their attention.

Nathan: Some students use them constantly, some occasionally pull out their phones only to respond to a text, and others use their phones for games when they are on a break or are not supposed to be doing something else.

Christina: They can be a big distraction, and I think its disrespectful when Candy Crush is more interesting than my lesson.

Gina: Earlier, I have said that students can use them when they are done with tasks. So, this does not play out in my daily class. Students doing work should not be using cell phones. Last year, I collected cell phones at the beginning of the class period and returned them at the end of the class period.

Melissa: Right, but we have all seen how much trouble that can cause with behavior and focus. That becomes all they think about.
**Researcher:** They become more focused there. How does students using their cell phones in class to play games or music most often present itself?

**Nathan:** Occasional use during class that causes some distraction, but not major.

**Christina:** For me, it is most often when students are distracted or disturbed by a fellow classmate listening to music way to loudly.

**Brandy:** In my class it is music during work with games as a reward for finishing a successful project.

**Melissa:** Music is most often of the two that I see. There is some Candy Crush or other gaming from time to time, but it’s mostly kids wanting to plug in their ears and listen to whatever music they like.

**Gina:** I have noticed the students are focused and quiet when they use cell phones.

**Researcher:** Then let me ask - What would your biggest impact to academics be based on students using their cell phones in class to play games or music?

**Nathan:** When I said earlier that it is that student’s decision, it is also the students who miss content when distracted, that results negatively in academics.

**Brandy:** Music is a big impact on helping kids focus on their work in my class. Games can be a big distraction.

**Gina:** The biggest impact would be students being attentive and engaged.

**Melissa:** The games can definitely be a distraction, but the music sometimes seems to settle them into a rhythm.

**Christina:** Right, but as long as that music isn’t a distraction to the students near them. And, let’s be honest, some listen so loud it would distract a student across the room.
Reseacher: There are those students. Does students using their cell phones in class to play games or music have an influence on academics? If so, how?

Gina: If implemented appropriately and demonstrated what the overall goal would be prior to getting started, I think it would have a positive impact on academics.

Brandy: Yes, I think it depends on how you allow each.

Melissa: I think they do have an impact and it would depend on how it was viewed and being used.

Nathan: Right, I was going to say it could be either negatively, or not at all, but it is depending on the student.

Christina: I was going to say similar; it depends on how it is being used, the music for sure.