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Participatory Action Research: Managing Smartphones In The Secondary Classroom

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PARTICIPATORY ACTION RESEARCH: MANAGING SMARTPHONES IN THE
SECONDARY CLASSROOM

by

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PARTICIPATORY ACTION RESEARCH: MANAGING SMARTPHONE

This dissertation, submitted by Andrea Simon in partial fulfillment of the requirements for the Degree of Doctor of Education from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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PARTICIPATORY ACTION RESEARCH: MANAGING SMARTPHONE

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Andrea Simon
December 16, 2021

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I wish to express my sincere appreciation to the members of my advisory committee for their guidance and support during my time in the doctoral program at the University of North Dakota.

This dissertation is dedicated to my mom, Mary Beth Rasmussen.
For being my best friend, greatest cheerleader, and source of inspiration.

Abstract

This research explores potential benefits and challenges associated with smartphone use amongst students in the high school classroom and policy considerations for the management of these devices. Managing student usage of smartphones in the classroom can be a complex challenge. Outside influences have infiltrated the learning space like never before, and student access to resources and distractions multiplies daily. Students need support and guidance in learning how to effectively manage their devices as they face life in the age of technology. Likewise, teachers need support in creating and applying effective policies and strategies to manage these devices in the classroom.

In this dissertation, relevant literature is reviewed, investigating the impact of smartphones on the changing learning environment and learners' expectations regarding technology use and possible solutions for smartphone utilization and policy deliberations. The primary goals of this study include equipping educators with knowledge of existing research and a set of resources to help maximize the benefits and minimize the detriments of student smartphone usage in the modern classroom. The methodology for this study involved a qualitative, participatory action research study that followed the inquiry process to inform practice. Key findings included the importance of involving and motivating students in the process and recognizing that teachers need various options for managing smartphones in the classroom; a one-size-fits-all model will not suffice, and adaptability is crucial for success.

Keywords: Smartphones, 21st Century Skills, Participatory Action Research

Definitions of Terms

The following terms are defined to help the reader understand the context of each term in this study.

21st Century Skills: refer to the knowledge, life skills, career skills, habits, and traits that are critically important to student success in today's world, particularly as students move on to college, the workforce, and adult life.

Participatory Action Research (PAR): is an approach to inquiry that involves researchers and participants working together to understand a problematic situation for the purpose of improving it. It is a context-specific approach that involves an iterative cycle of research, action, and reflection.

Nomophobia (NO MOBILE PHONE PHOBIA): is used to describe a psychological condition when people have a fear of being detached from mobile phone connectivity.

INTRODUCTION

Managing student usage of smartphones in the classroom can be a complex challenge. Outside influences have infiltrated the learning space like never before, and student access to resources and distractions multiplies daily. Students need support and guidance in learning how to effectively manage their devices as they face life in the age of technology. Likewise, teachers need support in creating and applying effective policies and strategies to manage these devices in the classroom. This research roadmap begins with an analysis of the problem of practice in Artifact I, followed by a research approach narrative in Artifact II and an exploration of the implementation of a solution in Artifact III.

These artifacts relate in that they stem from the same essential question and combine to provide a new perspective regarding the management of student smartphones in the classroom. Teachers are powerful models of lifelong learning, and this study shows how educators can investigate the body of knowledge that already exists to add to the discussion with new research. When teachers become researchers, they enhance opportunities for learning from one another. My professional life is driven by my desire to make a difference in the world of education, and I am earning my doctorate so that I can educate future teachers and coordinate research in the classroom. As I gain experience as a scholar, I recognize that teaching the educators of tomorrow requires bridging the gap that often exists between research and practice. Unfortunately, many practicing and pre-service teachers approach the idea of research with a negative mindset. Thankfully, leading research activists such as Dana (2014) and Badgett (2015) address this problem by making research more approachable. Badgett advocates for the

importance of collaboration, encouraging researchers to "build a network of relationships that extends into the work and institutions you hope to influence" (Badgett, 2015, p.13). I believe that greater collaboration will propel our profession forward because we have much to learn from one another. After exploring the problem of practice and reviewing relevant existing literature, this study adds to the body of research with a qualitative, participatory action research approach. The study concludes with a presentation for practicing and pre-service teachers regarding the management of smartphones in the classroom and highlights the importance of involving and motivating students in the process and recognizing that teachers need a variety of options for managing the use of smartphones in the classroom; a one-size-fits-all model will not suffice, and adaptability is crucial for success.

Background & Purpose of Study

This study took place in a ninth-grade English classroom at a secondary school in a Midwestern town on an Indigenous reservation. The methodology for this participatory action research study followed the Dana (2014) Inquiry Cycle, which consisted of developing a wondering (research question), collecting data, analyzing data, creating an action plan, and sharing the information with fellow educators via the implementation of a solution. Action research is a systematic, intentional study of one's professional practice. This "Inquiry Model of Action Research" is beneficial to scaffold powerful job-embedded learning for educators (Dana & Yendol-Hoppey, 2009). Data collected included field notes, student artifacts, and a reflective journal.

The targeted population for this study consisted of seventeen students in a freshman Language Arts class. Eleven of these students are male, and six are female. Each student is provided with a computer as part of the district's technology initiative. Class periods last approximately 45 minutes, and teachers teach 6 class periods a day. I currently teach ninth and eleventh grade English at this secondary school. This is my first year teaching in this school district, but I graduated from a high school in the area and consider this place to be my home since my family is located here. Previously, I taught in the Grand Forks Public School District for sixteen years. During my time in Grand Forks, I served as the English Department Chair for my building for several years and was involved in literacy-related professional development for the district thanks to my active role as a member of the district's English Language Arts Advisory Committee. At the state level, I was the secretary for the North Dakota Council for the Teachers of English. In moving home, my commitment to making a difference in the world of education has only strengthened.

Researcher Positionality Statement

As a teacher, I want students to look at the world with problem-solving eyes. I want to empower students to take ownership of their learning and to develop a lifelong love of learning. John Dewey wrote in *Experience and Education*, "The most important attitude that can be formed is that of a desire to go on learning" (1938, p.48). I hope to teach my students to become independent thinkers. Students need to be reflective, innovative problem solvers who realize that there is always more to learn. Teachers must model this philosophy, being avid learners themselves. The major goals of this study include equipping educators with knowledge of

existing research and a set of resources to help maximize the benefits and minimize the detriments of smartphone usage in the modern classroom. Teachers need various options for managing the use of smartphones in the classroom; a one-size-fits-all model will not suffice.

This need is the backbone of these proposed research questions:

Research Questions

- How can educators effectively manage the use of smartphones in the classroom?
- What potential benefits and challenges arise from student usage of smartphones in the classroom?
- Based on research, what are best practices for teachers to help students regarding smartphone use?

In Artifact I, we will investigate the problem of practice by reviewing relevant research and literature and common approaches to addressing the problem, including linking possible solutions to theoretical foundations.

ARTIFACT I

PROBLEM OF PRACTICE

Overview of Existing Problem & Rationale

Smartphones demand smart educators. Smartphones are more than simple cell phones. They are more like mini-computers, allowing students access to social media platforms, games, and many apps that go beyond simply sending and receiving phone calls and text messages. Teaching in the smartphone era requires educators to think about the classroom environment abstractly. Educators need to recognize that the social dynamic present in our schools is shaped by students interacting online. The social learning environment extends beyond the four walls of the physical space into cyberspace. Many educators can attest to the "struggle of retaining student interest and engagement while students remain connected to the outside world through their mobile devices" (Kuznekoff & Titsworth, 2015, p. 344). School districts take varying approaches to address this challenge, often instituting technology policies that seek to lessen disruption while embracing the educational opportunities provided by the prevalence of smartphones in schools. If educators are going to develop effective strategies for teaching students to manage their smartphones, they need to understand the role they play in the social dynamic and student behavior.

Literature Review

Introduction

This review first considers the potential positive and negative impacts of student usage of smartphones and then explores common approaches and possible solutions for smartphone utilization in the classroom as well as institutional policy deliberations. Finally, this review explores research that sheds light on the implications of smartphone use before investigating various options for managing and embracing the use of these devices in schools.

Benefits of Smartphone Usage in the Classroom

When faced with the challenges smartphones present in the modern classroom, it can be easy to forget the wealth of opportunity they can provide educators and learners. Access to technology is a necessity for most. As Ariel & Elishar-Malka (2019) note, "The nature of teaching in academic institutions requires that lecturers use technologies and the web in their dealings with students and the academic system" (p. 2330). Online grade books, learning platforms like Google Classroom, and access to tools like calculators and dictionaries are only a few of the educational options available to those who embrace the use of technology for educational purposes. Students and their families can connect with educators and access important information with ease. In the classroom, instructors can incorporate 21st-century learning skills to ready students for a future where the far-reaching impacts of technology are still only guessed at. Additionally, in a world where school shootings have become a reality, many students and parents feel an added sense of safety thanks to the promise of the ability to communicate during a crisis that smartphones provide. We know that we are preparing students

for an uncertain future, but it seems undeniable that technology will be a significant part of that enigmatic future. Today's educators are tasked with helping students find their way in a landscape that can offer many benefits as a result of incorporating technology, and therefore smartphones, in the classroom.

Offering students the ability to use their smartphones in the classroom can come with some immediate benefits. For instance, the general atmosphere in the classroom quickly becomes quieter when students are allowed to use their phones to listen to music of their choosing while working on independent tasks. In addition, socialization between students typically decreases markedly when they are given a chance to use their phones, which can reduce distractions that can arise in a noisy classroom. For students who struggle with attention issues, using a smartphone for repetitive, monotonous tasks can help them regain focus. Additionally, other students notice that classroom distractions decrease when their classmates are allowed to utilize their phones: "Some of the interviewees indicated that for students coping with attention deficit problems, focusing on monotonous activities on their smartphones during classes helped increase concentration. There were repeat testimonies of this phenomenon both as self-reports and as assessments of classmates' behaviours" (Ariel & Elishar-Malka, 2019, p. 2332). The research on the impact smartphones have on attention is somewhat limited and complicated by issues tied to the policies implemented in the studies, but it seems that benefits tied to focus are a possibility for consideration.

Abdelraheem & Ahmed (2018) suggest that students can feel an increased sense of belonging, of mattering, as a result of utilizing social media and smartphones for communicating

with others and fostering connections: "... [Mobile Social Network Applications] have positive influences in student's social lives, including the ability to communicate with more people across greater distances and to raise social awareness on the current events" (p. 12). Social media has truly become something of a phenomenon, and today's students use platforms such as Snapchat, Instagram, Facebook, and others to connect with classmates, friends, family members, and even relative strangers they've established cyber-relationships with through the use of such applications. It is no wonder then that parents, instructors, and school leaders are interested in the impact social media has on the lives of young people. As Abdelraheem & Ahmed (2018) note,

Given the significant role that social network applications are playing in people's lives, parents and instructors are understandably concerned whether these social network applications and communities have an impact on their social life in terms of social relations, family relations and social awareness" (p. 2).

These findings suggest that social network applications can have positive impacts on social connectedness and sense of belonging.

The issue of belonging, of mattering, has long been investigated by those interested in studying student behavior. For example, Schlossberg (1989) found that "Involvement creates connections between students, faculty, and staff that allow individuals to believe in their own personal worth" (p. 1). Schlossberg's (1989) research on "mattering," although dated, can be applied to the modern era when considering how smartphones and access to technology influence student connectedness and feelings of self-worth. It is intriguing to connect this

research with social networking in light of the desire students have to gain “likes” and followers via their social platforms. We know that social networking applications employ such features to motivate people to interact with their sites.

Schlossberg’s (1989) research bridges the gap between a sense of “mattering” and the motivation that results: “Mattering refers to our belief, whether right or wrong, that we matter to someone else. This belief acts as a motivator” (Schlossberg, 1989, p. 4). We even learn from this work that the sense of “mattering” students derive from their actions and choices do not always result in positive feedback, and “mattering does not necessarily mean approval” (Schlossberg, 1989, p. 4). Still, research suggests that interacting online can benefit students as they navigate the social dynamic present in our schools.

The results of a study on female college students and their perceptions of inclusion tied to social media use suggest that the benefits can be powerful. Results showed that the use of social networking sites had a positive impact on the students' social wellbeing and their academic performance: "This research also reveals that engagement with a social network site is correlated with greater overall well-being" (Samad, Nilashi, & Ibrahim, 2019, p. 2089). Another study investigated teacher perceptions of cell phone usage in the classroom by surveying teachers for their thoughts and observations regarding the use of cell phones in the classroom: "The results of this study confirm that students who feel as though they matter to one another on the individual level experience higher levels of psychological sense of community" (Thomas, O'Bannon, & Bolton, 2013, p. 96). The majority of teachers surveyed supported the use of cell phones, citing

increased engagement and motivation as indicators, but they also found that disruptions and distractions were problematic.

While social media can add to the sense of belonging students experience, there is also a concern that feelings of loneliness can increase when students feel that they are missing out on things their classmates are doing. However, some researchers suggest that the connection between social media use and feelings of loneliness does not exist (Yavich, et al., 2019). They argue that the benefits outweigh the negatives: "Social networks provide numerous opportunities to share content, converse with others, design a private and public identity, develop and cultivate relationships, develop a reputation, create interactions with like-minded others, and identify available community resources" (Yavich, Davidovitch, & Frenkel, 2019, p. 11). Again, we can see that students can benefit from interacting online, but these benefits are coupled with some challenges.

The findings are mixed when reviewing literature investigating the positive and negative effects of social media on adolescents' perceived social connectedness. These findings suggest adolescents experience a combination of both positive and negative outcomes resulting from social media use. An article by Allen, et al., (2014) argues that social media use creates a "paradox for social connectedness." Although social media can make it easier for students to collaborate, they can also increase feelings of alienation and ostracism. Fear of missing out (FOMO) is a phrase often used to describe some of the challenging feelings that can result from participating in online interactions. It seems that when we consider the impacts of smartphones on students in the classroom, we often have to take the good with the bad.

Challenges of Smartphone Usage in the Classroom

While smartphone use in the classroom can have some benefits, serious challenges often accompany the advantages. Students can become distracted by the devices, exhibit addictive behaviors tied to the use of their smartphones for varying purposes, and react defiantly to the implementation of policies that restrict the use of their phones. Additionally, students' sleep patterns are negatively impacted by the overuse of smartphones, which affects their academic performance. Even mental health issues can arise, like symptoms of nomophobia, which is anxiety students feel when they are unable to use their smartphones. This anxiety is coupled with feelings of fear tied to missing out on important information and opportunities to connect with others online. Teachers and students often approach the issue differently, and students are often resistant to policies that limit their use of smartphones in the classroom. Today's students "[hold] negative attitudes toward cell phone policies in general" (Lancaster & Goodboy, 2015, p. 110). Creating policies that work for educators and learners alike is a complex challenge.

In the previous section, we saw how smartphones could allow students to connect online, offering opportunities to increase feelings of belonging. However, there is also research to support the opposite effect. When students are allowed to utilize smartphones in the classroom, their attention can be almost exclusively occupied by these devices, to the detriment of classroom socialization. Katz & Lambert (2016) conducted research in post-secondary classrooms that attests to this,

...indeed, face-to-face interaction among students appears to have diminished. For example students frequently are observed to be individually engrossed in their cell

phones before class, and that traditional time for talking with and getting to know classmates, a valuable part of the college experience, has been replaced by silence” (p. 340).

It seems as though educators and learners alike would benefit from considering how smartphone use can be managed in a way that increases the accompanying benefits while also limiting the problems that can arise.

In many ways, there seems to be a generational divide between teachers and students regarding perceptions tied to smartphones and their place in the classroom. Some researchers call for "...a change in attitudes in relation to technology, and indeed the creation of a new learning culture that enables and normalizes the integration of communication technologies in the academic learning environment, is a very important first step in closing the apparent digital divide" (Ariel & Elishar-Malka, 2019, p. 2333). In order to embrace the possibilities offered by the use of smartphones in the classroom, educators and learners need to have frank conversations about policies and expectations. Baker et al. (2012) conducted research that investigated the generational gap between teachers and students regarding the usefulness of cell phones in the classroom. The research supports the belief that perceptions regarding the use of cell phones and other devices in the classroom vary widely between faculty and students. A study by Baker, Lusk, & Neuhauser (2012) concludes with this challenge:

Therefore, it is incumbent on instructors, and designers of the classroom environment, to adapt to these technologies in so far as possible and to deliver courses in a way that

reflects these oftentimes conflicting views concerning the use and usefulness of these technologies” (p. 288).

As educators attempt to rise to this challenge, they are tasked with implementing smartphone policies that work for both teachers and students in the classroom. Such policies should seek to limit smartphone use in the classroom when it is unconstructive, but this can be a difficult goal to achieve. Research has examined student and teacher perspectives on using smartphones in the classroom, and questions of what "legitimate use" means were raised and found to vary significantly between the two groups. The implication is that teachers and students would benefit from a clear discussion about what legitimizes using a smartphone during class time. Additionally, research has attempted to analyze attitudinal gaps between the teacher and student groups. Again, it seems that communication is the key to success. Ariel & Elishar-Malka (2019) summarize that,

It seems reasonable to assume that the coordination of expectations between lecturers and students regarding the acceptable modes of smartphone use will lead to an improvement in the classroom atmosphere, making it easier to focus on the beneficial uses of the smartphone as a learning aid” (p. 2338).

Ensuring that educators and learners are operating from a place of common ground can be helpful, but it also can be difficult to achieve in light of the risks associated with smartphone use amongst students in today's classrooms. When student perceptions are clouded by addictive behaviors, mental health challenges, and sleep deprivation, it can become increasingly difficult to employ a policy that will work for everyone.

Internet-related addictions are on the rise, and they are constantly evolving to reflect the new technologies and resulting behaviors that are developing at a rapid rate. Educators need to be aware of such addictions because their impacts can have a direct impact on the learning environment. In fact, problematic behaviors stemming from smartphone-related addictions can manifest in the classroom during instructional time. Studies have shown that smartphone addiction is connected to other addictions, such as social media addiction. For example, Akbay (2019) found that "as adolescents' addiction to smartphones and their fear of missing out increases, their social media addiction increases. In addition, as their perceived social and academic competence decreases, their addiction to social media also increases" (p. 563). These addictions have direct effects on issues of academic performance and social perceptions. A study by Akbay also found that students were more likely to become addicted to social media if they first became addicted to their smartphones (p. 563).

Again, issues of belonging and connectedness come into play. Social media can offer benefits of this nature to students, but these benefits also come with challenges and risks. Students struggle with the fear of missing out (FOMO) and find themselves drawn to social media platforms as a solution to this problem. These feelings, when left unmanaged, can result in an increased risk of addiction: "Although it is a fairly new concept, the results of these studies showed that the fear of missing out among adolescents affect the use of problematic social media use" (Akbay, 2019, p. 563). With such an all-consuming temptation at their fingertips, many students find that they are unable to effectively manage their smartphone use. This struggle often results in a lack of sleep. Gezgin (2018) conducted a study to investigate the relationship

between smartphone addiction and sleep deprivation. The results found that "as smartphone dependency increases, it can be stated that there is a decrease in sleep duration" (Gezgin, 2018, p. 6). The findings indicated that as students experienced increased symptoms of smartphone addiction tied to the fear of missing out, the daily frequency of checking their social media accounts also increased while decreasing their nightly sleep duration. Lack of sleep has far-reaching consequences for students in the modern classroom, affecting not only their academic performance but also their behaviors and mental health.

Mental health concerns are another challenge presented by smartphone use. Student cell phone usage continues to rise and comes with implications for the classroom, often resulting in classroom policies that seek to limit the use of smartphones amongst students. Many students experience difficulties stemming from limitations placed on their desired cell phone use in conjunction with classroom policies for the management of these devices. Students exhibit symptoms of "nomophobia," or anxiety, stress, and poor decision-making tied to cell phone limitations.

Many students actively choose not to comply with classroom cell phone policies: "The reason they choose to be on the phone, despite knowing the consequences, is that there is an instant gratification to it" (Carels, 2019, p.10). Nomophobia results when students feel distressed due to an inability to access their internet-connected devices. A study on nomophobia by Carels (2019) advocates for shifting the mindsets of educators to embrace these devices as learning aides coupled with policies and expectations for management in the classroom.

The challenge is to construct policies that will work for both teachers and students and that are based upon research. This is no easy feat because negative student behaviors can increase when instructors attempt to institute these policies, or "...when instructors discourage cell phone use in the classroom, students may feel their freedom to choose is threatened" (Tatum, Olson, & Frey, 2018, p. 229). When students feel that their autonomy is at risk, they often react with opposition and frustration: "... students who engage in vengeful dissent (towards cell phone policies) are portraying some level of hostility toward the instructor" (Tatum, Olson, & Frey, 2018, p. 237). A psychological study by Tatum et al. (2018) delved into student perceptions regarding compliance, or noncompliance, tied to classroom cell phone policies. The study suggests that student reactions are tied to feelings of anger and threats to their perceptions of autonomy. The study's compelling results shed light on the *why* behind students and their negative reactions to cell phone management policies. More specifically, they found that the process of resistance and negative reactions were somewhat predictable and connected with other undesirable classroom behaviors. Although constructing effective phone-management policies is crucial, Tatum et al.'s study would suggest that banning them altogether can result in an increase in undesirable student behavior.

If the answer is to allow smartphones as learning aids, teachers and students need to understand the risks they pose for distraction from learning. Research shows that "...frequent messaging unrelated to class content interferes with student learning..." (Kuznekoff & Titsworth, 2015, p. 363). Even when students attempt to multi-task, focusing on the learning while also minding their phones, decreases in learning outcomes are evident. The sending and

receiving of messages during class make it difficult for students to engage in learning processes like listening and note-taking properly, resulting in decreased recall (Kuznekoff & Titsworth, 2015).

Knowing the risks for distraction, addiction, and more, educational leaders need to consider smartphone policies that do not put all of the managerial decisions under the learner's control. When students are left to manage their smartphones, their choices will not always reflect what is best for their learning. It seems that educators have an opportunity to help students learn about the benefits and challenges that accompany smartphones so they can better understand how to manage the use of their devices in the classroom and beyond.

Common Approaches and Possible Solutions

Students can come to embrace cell phone policies in the classroom when considering how limitations can result in positive outcomes. Katz & Lambert (2016) conducted a study where students were given a choice to earn extra credit for agreeing to remain off of their phones during class time. Many students wrote “about how the classroom atmosphere was changed dramatically, saying that there was more discussion in class, [they felt they were] getting to know their classmates more...” (p. 341). Additionally, these students reported feelings of peace and relief thanks to a forced break from their phones and the temptation to constantly check them. The study showed that “concentration was greatly improved; and that they learned more, enjoyed and understood classroom material better, and felt the classroom was a more engaging and inviting place” (Katz & Lambert, 2016, p. 341). Student perceptions are an important part of smartphone policy creation and implementation. If they can see the benefits to the imposed

limitations, they may be more likely to comply. Additionally, research shows that involving students in the process of constructing and implementing smartphone policies in the classroom can be helpful.

We know that “students are more dependent than ever on mobile devices inside and outside of the classroom, and scholars should continue to adapt instructional research to reflect the unique needs of this generation” (Tatum, Olson, & Frey, 2018, p. 240). Recognizing the role students play in the success of classroom smartphone policies, educators can consider the power of student involvement. When students feel that they are part of the process, defiant noncompliance typically decreases: “Increasing students’ role in establishing [cell phone policies] could similarly diminish the potential for reactance” (Tatum, Olson, & Frey, 2018, p. 240). Oppositional, hostile reactions to smartphone policies are often a result of perceived threats to autonomy. Therefore, research suggests that educators should “...decrease the amount of controlling language...emphasize the role of choice...” (Tatum, Olson, & Frey, 2018, p. 240).

Discussions about what kinds of limits will also be used must be coupled with decisions regarding consequences for noncompliance. Again, Tatum, Olson, & Frey (2018) suggest involving students: "If students collaborate with their instructors...their freedom would be threatened less, as students had a choice in deciding what freedoms should or should not be taken away" (p. 240). We also know that distinction must be made to delineate the difference between legitimate and illegitimate phone use during class time. All participants, educators and students alike, need to clearly understand the expectations. Incorporating smartphone use for learning purposes can help increase the effectiveness of classroom cell phone policies, and "...an

instructor may be able to lessen the reactance induced by their discouraging policy by simultaneously encouraging cell phone use for instructional purposes" (Tatum, Olson, & Frey, 2018, p. 239). Because smartphones come with both benefits and challenges in the classroom, educators construct policies that recognize the complexity of the issue. The fact is that "the challenge remains to find a classroom policy that discourages the nonacademic use of cell phones in class, and one that students will follow" (Lancaster & Goodboy, 2015, p. 111). If educators are to rise to the challenge, greater research must be done on the topic.

Much of the solution-centered research on suggested policies and management procedures is already outdated, partially due to the rapid pace of progress with devices and their increased prevalence in schools. Additionally, current research is largely limited to post-secondary classrooms. Post-secondary students have different motivations, and college classroom management strategies are not always applicable to K-12 learning environments. In a pilot program conducted in a high school precalculus classroom, researchers found that "there was an observable rise in class participation when cell phones were used in class" (Engel & Green, 2011, p. 44). However, older research like this threatens to misrepresent the issue. Allowing cell phones in the classroom occasionally is different from allowing students to access their smartphones constantly and without limitations. Research suggests that cell phones can serve as excellent motivators and can increase engagement, but disruptions and distractions are problematic. The distraction factor that comes with embracing the use of smartphones for learning can be a barrier for educators seeking solutions. While many classrooms have banned the use of cell phones altogether, educators are rethinking such policies and trying to find the

right balance when attempting to incorporate these devices for school-related tasks. Educators need access to research that will offer suggestions for creating quality policies that increase student compliance and decrease negative reactions for students in the classroom.

With the possibilities for so many negative consequences, smartphone use amongst students should concern educators, students, and their families. We know that the risks can be great. With threats of addiction and mental health challenges looming, educational professionals need to embrace this age of technology as a teachable moment in time. We need to recognize that we can do our part to bring awareness to internet-related addictions by promoting smartphone literacy. Researchers believe that "...it can be seen how prevention of social media addiction among adolescents can be carried out by smartphone usage explanation and social media literacy. In addition, studies aimed at increasing student perceptions of academic competence will be effective in preventing social media addiction" (Akbay, 2019, p. 564). We can also do our part to help students develop positive self-talk and perceptions of strength. Studies attest that students who see themselves as intelligent, strong students, do not face as great a risk for developing addictive behaviors: "...adolescents who perceived themselves as academically competent had less risk of developing social media addiction" (Akbay, 2019, p. 564).

The body of research should continue to grow so that everyone involved in the educational process is informed and prepared to face the challenges present in the age of the smartphone. For example, we know that there is evidence of differences in student perceptions of cell phones in the classroom based on gender. The current research shows that "male students

were more in favor of electronic device usage in the classroom than were female students” (Baker, Lusk, & Neuhauser, 2012, p. 286). However, we do not know enough about the *why* behind such factors. We still do not fully understand the problem, and therefore we struggle to come up with effective solutions. There is a need for more research on this topic in the K-12 setting, and teachers need assistance in learning to navigate this complex issue that will almost certainly be a component of their own classroom environments and management obligations.

Theoretical Foundations

This proposed research is guided by the integration of the inquiry process of action research with two theories: grounded theory and complexity theory. Maxwell (2013) suggests that “the simplest form of a theory consists of two concepts joined by a proposed relationship” (p. 42). My theory is that the decision-making process educators go through when trying to manage student usage of smartphones is complex and tied to perceived advantages and disadvantages in the classroom. The overall research design can be described as a qualitative, action research study that follows the inquiry process to inform practice. Inquiring professionals seek change by reflecting on their practice (Cochran-Smith & Lytle, 2009). This ‘Inquiry Model of Action Research’ is particularly useful to scaffold powerful job-embedded learning for educators (Dana & Yendol-Hoppey, 2009). Phelps & Hase (2002) attest that action research follows an emergent process that works well with complexity theory: “Action research has always, by very virtue of its approach, operationalised emergent processes and it hasn’t shied away from complexity” (p. 518). The data from this study will be tied to the context of my

classroom. However, the management of smartphones in the classroom is a complex issue, and it's also tied to the ever-changing landscape of technology and the educational environment.

My professional experience includes sixteen years of teaching, five of which have been spent at the high school level. As researchers, we need to be aware of bias, but we also need to be careful not to view our prior experiences as detrimental to the study. "Students' proposals sometimes seem to systematically ignore what their authors know from their own experience about the settings or issues they propose to study; this can seriously damage the proposal's credibility" (Maxwell, 2013, p. 38). Having some background knowledge can be a good thing, and I look forward to adding to what I know about the management of smartphones in the classroom. There is much to learn about students and their smartphones as we create informed management practices and implement classroom policies. Students need to learn how to evaluate their smartphone usage practices so that they can strive for balance and teachers need assistance in developing policies and strategies that will support this goal in the classroom and beyond. This research will include concepts of decision-making processes, policy construction and implementation, classroom management, and issues of compliance and noncompliance.

Conclusion

We face a teachable moment in time. Our young people need support and guidance in learning how to effectively manage the use of their devices as they face life in the age of technology, and teachers need support in designing and implementing smartphone management strategies that work in the classroom. Students need to learn how to accurately evaluate their own smartphone usage practices so that they can strive for balance and garner more benefits than

detriments as a result. Teachers need assistance in developing policies and strategies that will support these goals in the classroom and beyond. We will examine the research approach used for this study as well as the results of implementation in Artifact II.

ARTIFACT II

RESEARCH APPROACH NARRATIVE

The methodology for this study involved a qualitative, participatory action research study that followed the inquiry process to inform practice. Action research is a systematic, intentional study of one's professional practice. Inquiring professionals seek change by reflecting on their practice (Cochran-Smith & Lytle, 2009). This inquiry model of action research is particularly useful to scaffold powerful job-embedded learning for educators (Dana & Yendol-Hoppey, 2009). Participatory action research, or PAR, “starts with the assumption that knowledge is embedded in social relations and ‘is most powerful when produced collaboratively through action’” (Fine et al., 2003). Involving students throughout the process was a foundational methodological decision.

This inquiry model of participatory action research (Dana & Yendol-Hoppey, 2009) involved an eight-week inquiry process, during which several smartphone management interventions were applied and evaluated. Formative data were collected and analyzed throughout the process with the intent to use new understandings to make decisions about the next steps in the inquiry journey. Data collected included field notes, student artifacts, and a reflective journal. The targeted population for this study consisted of seventeen students. Eleven of these students are male, and six are female.

I engaged my students in the process by having them complete quick writes and participate in discussions about how smartphones help and hinder their learning in the classroom. My students completed a self-assessment tied to their own smartphone usage habits. We

investigated and tried out different classroom management strategies for the purpose of learning how to manage these devices effectively. Students completed short written reflections throughout the study.

Data analysis procedures for this study consisted of formative and summative data analysis. Formative data analysis took place throughout the inquiry study. As a teacher-researcher, I collected data throughout the study and sought to understand what those data meant. I used these understandings to make decisions about instruction and the next steps in the inquiry journey. Summative data were analyzed toward the end of the inquiry cycle and involved stepping back and taking a look at the entire data set. This analysis was done through a coding scheme that led to themes and final assertions. Emphasis was placed on articulating the thought behind the research process, including an in-depth look at methodological decisions.

As I began the data analysis process, I thought about how “‘data’ are not simply ‘given’; they are constructed by researchers” (Maxwell 2011 p. 478). Through my analysis, I hoped to construct meanings that accurately represented my experiences. I reminded myself of my former professor’s advice that findings “don’t need to be earth-shattering, just provable.” My initial coding involved writing fairly general phrases and symbols in the margins of my notebooks. Coding is a process of reading and re-reading combined with effective analytic strategies. Data must be analyzed and organized into manageable and meaningful chunks.

As the teacher, I hold a position of authority in the classroom. The qualitative research approach demands that researchers look at themselves critically as they evaluate the impact they have on their own work. As an action researcher, I have to recognize that my own biases and

assumptions have the potential to shape the study. I created a research journal for keeping track of the methodological decisions I made throughout the process. A field note journal for my observations was another helpful component. I attempted to frame questions and activities in a way that allowed students to offer their insights and perspectives freely. Throughout the process, I followed the same expectations for the management of my own smartphone as the students and this added validity to the overall approach. The experiential learning that resulted from my own experiences assisted me in relating to my students as we worked together to form conclusions.

Data Sources

Field notes. Field notes were taken during class sessions. These notes were taken by the teacher and were utilized as a way of observing and making note of student comments and behaviors relevant to the exploration of smartphone management in the classroom. I created a field notes journal that contained detailed observations and jottings. In this journal, I tried to create “full” field notes, as suggested by Emerson, Fretz, & Shaw (2011). I included rich, detailed descriptions of people and places, examples of dialogue, and my own commentary and “jottings” (Emerson, Fretz, & Shaw, 2011). Jottings assisted me in the reflective process, helping me to identify my personal impressions and reactions as I began to focus my observations and determine the significance of my experiences. I was surprised by how often the jottings I made in the margins helped me in the research process. For example, in my field notes journal I made jottings in the margins next to many pieces of dialogue I observed between students. These jottings helped me to recognize that student perceptions were crucial, and I utilized these observations to guide the next steps in the participatory action research process.

Reflective journal. A reflective journal was kept during the implementation phase of the inquiry process. This journal contained many of my reflections and thoughts regarding process and assisted me in keeping track of the methodological decisions I was making. I wrote a weekly reflective journal starting September 10th and ending on October 29th. These journals were composed at the end of every school week and included teacher wonderings, student observations, and general reflective comments. I was intentional about focusing the reflective comments on the topic of smartphone management in the classroom. Eight reflective journals were kept during the implementation of the interventions, and three were kept during the initial inquiry phase as I contemplated wonderings and constructed the inquiry plan.

I made several jottings in the margins of my journal regarding things I was wondering while observing. I found myself wondering about the reasons behind student decisions tied to smartphone use. I wondered about how students would feel if they had to go without their phones. I also wondered more about how students perceived their own smartphone usage habits.

Student artifacts. These artifacts were utilized throughout the inquiry. Specifically, the following student artifacts were collected for analysis: student self-assessments of smartphone usage and management in the classroom, Google Form responses tied to questions about smartphone usage and management, and responses to short journaling activities regarding the topic of smartphones in the classroom. For validity measures, I used the following recommendation as a guideline, “Unquestionably, procedures such as triangulating among different data sources (assuming that the investigator collects more than one), [and] writing with detailed and thick description [are recommended]” (Creswell, 2007, p. 209). In light of this, I

gathered data from multiple student artifacts and wrote observational notes with “thick” descriptions. I also considered my role in the process and its potential impact on the results. Maxwell (2011) warned that “assumptions ... influence research designs, research questions, conceptual frameworks, methods, and validity concerns” (p. 477). The qualitative research approach demands that we look at ourselves critically as we evaluate the impact we have on our own work.

Smartphone management activities/experiments. The students took part in many smartphone management activities, and these often served as a foundation for the interventions used. In particular, students frequently completed short writing tasks that were connected to smartphone management interventions. The prompts were generated as part of the formative analysis process as the teacher observed and documented findings.

Throughout this study, collaboration was emphasized, interventions were applied, and formative data was analyzed. I analyzed formative data as part of a larger plan by examining student responses and highlighting emerging themes. In addition, summative analysis procedures produced three assertions that formed the backbone of the findings.

I found that being an avid reader and writer helped when conducting this qualitative study, but I also found that the way I had to go about reading, writing, and organizing my thoughts had to change a bit. I think about Thorne’s (2008) warning that “...the challenge is to take the closely familiar and render it strange” (p.12). I found myself thinking about how research skills, like many things in life, are built through experience. It has to be okay that I don’t have all the answers and there are no clear-cut steps. Glesne (2011) expresses this idea,

“The open, emergent nature of qualitative inquiry means a lack of standardization; there are no clear criteria to package into neat research steps” (p. 27). In many ways, embracing the participatory approach to conducting action research assisted me in grappling with the unknown course of the study. I knew that the steps would become clear through engagement with the process and collaboration with my students.

Concept Map

The concept map shown in Figure 1 highlights key ideas and interventions from this study.

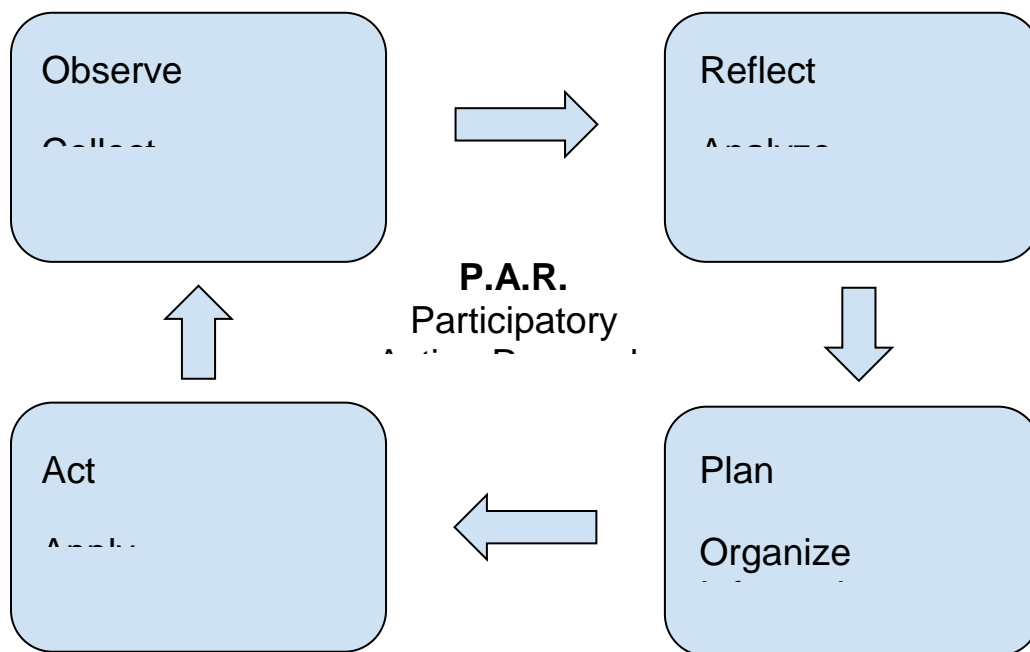


Figure 1 Concept Map

FINDINGS/DISCUSSION

The purpose behind this inquiry was to help educators and students succeed in managing the use of smartphones in the classroom. To effectively incorporate smartphones in the classroom, educators must change their perspectives, not simply their activities. Teachers must be models of lifelong learning and embrace a shift in mindset as one of the components of effective smartphone management. As a result of this study, learning between teacher and student was a reciprocal process.

Throughout my career, I have encountered behavioral issues that stem from student frustration with classroom policies and procedures. However, the animosity I have experienced from students when they have made choices that have resulted in the loss of their smartphones has been unique. In many situations, a student's outburst can be attributed to a multitude of factors, ranging from having a bad day to experiencing something particularly challenging at the moment. Several times, I have watched a smiling student instantly become enraged when confronted with the loss of their smartphone. In addition, when sharing such experiences with colleagues, I have found that I am not alone. Many educators feel frustrated and confused about how to best manage student usage of smartphones in the classroom.

In attempting to address this problem, I decided that my students could be my greatest resource. In constructing my initial wondering for this participatory action research, I had a candid conversation with my students. I shared with them that many teachers felt lost regarding how to manage smartphones in the classroom, but that rather than give up, I believed we could come to a solution if we worked together. I informed them that their input would be gathered

frequently and that we would collaborate with the goal of sharing our learning with our larger school community.

Introducing the Process

To begin the process, I asked my students to complete a self-assessment of their smartphone usage and management in the classroom. From there, we came up with several different “experiments” for managing the use of our devices during class time. I made the commitment to participate in the same management strategies as the students, recognizing that students would be evaluating my own behavior throughout the study. The following chart outlines the different experimental phases and their accompanying procedures.

Experimental Phase	Procedure
Experimental Phase One	Collecting Smartphones in Bucket
Experimental Phase Two	Smartphones on Shelf with Spaces for Phones
Experimental Phase Three	Smartphones on Corners of Student Desks (Upside Down)
Experimental Phase Four	Smartphones in Pouches Hanging from Sides of Student Desks
Experimental Phase Five	Summative Data Analysis
Experimental Phase Six	Constructing a Policy

Figure 2: Experimental Phases & Procedures

Initially, I discovered much about what was happening in other classrooms in the building by reading the student responses to the first question of the self-assessment: "As a student in several different classroom environments, have you witnessed any strategies for the management of smartphones that you have felt worked particularly well? Please describe."

Students provided great detail in response to this question, and I let them know that this was invaluable to me. I shared with them that they were the experts in the schoolwide experience because they moved from one classroom environment to the next throughout the day. I expressed my gratitude for their insights, explaining that my own perspective is limited to my own classroom.

Student responses were anonymized, but I shared general conclusions with the class after reading their answers. I let them know that students discussed various phone collection methods, ranging from pouches to baskets and even to those teachers that allowed students to keep their phones during class. I shared that the issues of respect and trust were mentioned repeatedly. For example, one student wrote that *“Teacher A allows us to have them and everyone respects him and it works very well for him.”* Another student commented on this same teacher’s strategy, *“Teacher A’s room when you are done with your work you can go on your phone.”* I proposed a round of “experiments” for testing different strategies. Students agreed to offer feedback along the way, and I decided to begin our experimental rounds with the strategy preferred by the school administration.

Teachers are expected to collect smartphones in a basket or bucket as students enter the classroom. Students are told to put their phones in silent mode, and teachers are encouraged to remain off of their own phones during instructional time. At the end of the class period, teachers are to return phones to students before they leave the classroom. In reviewing student responses to the first question on the self-assessment questionnaire, I gathered that not all teachers were

following this policy. My students agreed that beginning with this strategy made sense, and we implemented this plan for the first week of school.

Experimental Phase One: Collecting Smartphones in Bucket

This study took place during the worldwide Covid-19 pandemic, and its ramifications were apparent right from the start. One initial complaint from students regarding this first "experiment" of collecting phones in a bucket as they entered the room centered on issues of safety. One student wrote that using buckets was "*not very Covid safe*" and another gave more detail, sharing, "*I don't mind when they take phones but sometimes when your phone is in a basket then everyone is touching everyone's phones and now that Covid has been here for me it is unsanitary.*" Another student expressed concerns that the phones were "*in a bucket with everyone elses. I don't think I like that because thats so many germs that you're picking up.*" Additionally, issues of privacy arose during this experimental phase. For example, one student happened to have a phone that looked much like my own. One day, when I was attempting to redistribute the phones at the end of the class period, the student grabbed my phone, and I ended up with his. As I touched his phone, his notifications and messages popped up on the screen. I immediately recognized that I had the wrong phone and remedied the problem, but the experience was still unsettling.

One management issue that I discovered was that redistributing the phones was problematic. I learned that it took time to get the phones back to the students at the end of the period, and I tried a few different methods for addressing this issue. At first, I held up each phone and delivered it to the owner one by one. Then, I had students rummage through the

bucket one by one, but this again took time and students expressed frustration that some students had their phones earlier in the process and therefore benefited by having time to use their phones before others. Ultimately, I started turning the phone upside down and spreading them out on a shelf near the door. I would then dismiss students by rows to grab their phones. No matter what, some students ended up with an additional minute or two of phone usage than others. It became apparent to me that adaptability would be crucial for the success of this process.

This made me think about an intervention that I described as a “brain break.” I explained that I would build a two-minute break into the middle of the class period as an incentive for following the expected guidelines for each experimental strategy. I also added that this privilege would be revoked if a student went against the determined policy. During this “brain break,” students would be allowed to use their phones if they had earned the privilege. If students did not follow the management strategy, they would still get a mental break, but they would forgo the privilege of being allowed to utilize their phones during this time. In essence, this made it so that students placing their phones in the bucket would be the only students allowed to use their phones during class time. Students who refused to place their phones in the bucket for whatever reason, whether they left their phone at home or chose to leave it in their backpack, knew that if they had their phone out during class, it would be taken by the teacher for the remainder of the class period. I explained that giving up two minutes of my class time each day seemed worth it if it meant that students would not be distracted by their phones.

Distribution of the phones was still an issue with the inclusion of a brain break, however. In fact, it made it more challenging. With the break, students had to grab and return their phones

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in the middle of the period in addition to at the end of the class. In some ways, this additional movement was helpful because it forced students to get out of their desks and move halfway through the period. For my morning classes, in particular, I found this to be an added perk. Student responses to the brain breaks were so favorable that I began thinking about the importance of motivating students to comply with the expectations of our smartphone management policy.

During this phase, I found myself wanting more information from my students about *why* it's hard to be separated from their phones. I decided to pose the following question for a quick journaling response: "What if you had to go without your phone?" I analyzed the results for emerging themes and constructed the following formative data analysis chart:

Formative Data Analysis: *What if you had to go without your phone?*

Mental Health Concerns	Perceived Benefits	Social Implications	Family Concerns
<p>"I would go crazy."</p> <p>"If I was without my phone...I would be able to focus but also I would get anxious about my phone and I would get worried if someone checks my phone and sees what is on my phone."</p> <p>"I would feel lost...outta place, it helps me a lot when I'm feeling some sort of way"</p> <p>"i will be very very depressed and not have fun and miss my</p>	<p>"nothing. I don't like my phone"</p> <p>"I wouldn't Like to go without my phone I think I could do it ive done it before while camping. I would probably spend time outside with my dog and cats I could go see my cows and go Talk to my family. I would probably Go on my computer if possible but if that wasn't available I would work on doing more productive things like art or homework Maybe even cleaning my room."</p> <p>"I have gone without my phone for a month a few times. When I don't have my phone I tend to write more whether it's journaling or writing my own music lyrics. Also when I don't have my phone I like to workout."</p>	<p>"if i didn't have my phone...i would miss out on so much stuff."</p> <p>"I feel like I would be less connected with my friends when not talking to them"</p> <p>"Without it I wound have friendships and all of that"</p> <p>"I couldnt do it i need it to get ahold of my friends and make plans"</p> <p>"It would be soooo boring, i would lose my snap streaks"</p>	<p>"I live away from my family so it would be hard for me to not talk to them"</p> <p>"what if someone get me hurt on the farm and they couldn't get help"</p>

friends”	<p>“I think it would bother me but in the end I think it would be better for me in the end”</p> <p>“I think i would get a little bored but it would honestly help me.”</p>		
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Figure 3: Formative Data Analysis Chart: What if you had to go without your phone?

Reflection - Experimental Phase One Formative Data Analysis

Key themes that emerged during the analysis stage included student concerns regarding mental health-related issues, perceived benefits, social implications, and family concerns. In particular several students used words like “depression” and “anxiety” when expressing their feelings about being without their phones. Students also wrote about how being forced to go without their phones could benefit them by encouraging them to spend their time in different, and perhaps more productive, ways. A lack of social-connectedness was a recurring theme in several student responses, and it appears that access to smartphones is tied to the maintenance of friendships and family relationships for many.

Experimental Phase Two: Smartphones on Shelf with Spaces for Phones

For our second experiment, we decided to utilize a shelf with spaces for each student’s phone. Students shared that some classrooms have a hanging pocket system with assigned numbers for each student’s phone, and we recognized that this was a rather common strategy, and therefore, worthy of our analysis. Again, we decided to incorporate a “brain break” as part of this experiment since students were overwhelmingly in favor of that adaptation during our first round with the bucket method. We had a discussion about the importance of reducing variables during experiments and chose to incorporate a “brain break” for each of the varying

smartphone management methods we tried. For this second experimental phase, students were expected to place their phones on the shelf before the bell rang to begin the class period.

Halfway through the period, I allowed students to grab their phones for the two-minute break.

Students who did not place their phones on the shelf still got a mental break, but they were not permitted to use their phones. Again, the power of an adaptive approach was evident.

During this phase, I was uncomfortable when I noticed a student taking a picture with their phone during their break. I decided at that point to clarify expectations for phone usage during class time. I shared an expectation that students could take pictures of themselves but not others. The students were accepting of this policy adaptation. In gathering student feedback regarding this second experimental method, I noticed that student comments largely fell into two categories: those that preferred having their phones away from them to reduce temptations and distractions and those that expressed feelings of increased anxiety tied to having their phones out of reach and in a communal space. One student wrote, *"I like putting my phone on the shelf so once im working i dont go on it."* Another student wrote, *"I like having my phone by me because knowing that people aren't taking it or something."* I recognized that students were becoming more self-reflective about their habits as a result of their involvement in the process.

Students also started sharing more alternative plans when asked to comment on this phase. Some students wrote about wanting longer brain breaks, others wrote about letting students keep their phones all the time, and some advocated for adding a phone usage privilege for students once their work was completed. As I gathered their feedback, I shared the ideas with them during our brief discussions and asked follow-up questions for clarification. Students

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saw that their voices were being heard, and their comfort with sharing their thoughts seemed to increase. I explained that one challenge tied to allowing students to use their phones once they had completed their work was a management issue. For one thing, did this include any missing work or only the assignment from that given day? Also, I would be unable to tell in a timely fashion if the work was done hastily or with quality in mind. I wouldn't want students to rush through their work simply so that they could use their phones. Again, it seemed that they understood my concerns, and I suggested that we try this adaptation on a limited basis.

During one class period spent on a largely independent writing task, students asked if they could use their phones to listen to music while working. I shared my concerns regarding this idea, including the challenge of monitoring what students would be using their phones for if they were given this privilege. Additionally, I shared that some students might end up distracted by their music selections. Still, I wanted to show that I would be willing to test their suggestions. I agreed to allow them to listen to music while working on the writing assignment the following day. My observations were mixed. The overall classroom atmosphere was quieter because students were listening to music through their headphones. However, two students seemed to spend the majority of their time changing their chosen songs and playlists rather than writing. Part of the challenge in creating a management strategy that works for an entire class is recognizing that because the individual needs of students vary, a one-size-fits-all approach is problematic. Yet, for the sake of consistency and policy, the goal is to come up with a plan that works well for most of the students most of the time. As we wrapped up our second experiment, I asked students for their input regarding ways in which smartphone use benefits and challenges

their learning in the classroom. I analyzed the results for emerging themes and constructed the following formative data analysis chart:

Formative Data Analysis: *What are some of the benefits and challenges of smartphone usage in the classroom?*

Benefits	Challenges	Social Media Implications	Anxiety & Mental Health Concerns
<p>“I only use 3 apps on my phone for school...google classroom, gmail, and myhomework. Myhomework app traks my homework so I know when its due”</p> <p>“can be a way to exscape the real world/have like ways to be happier?”</p> <p>“[without my phone] i wouldn’t be able to tell time (joking, but not really)”</p> <p>“read my manga”</p>	<p>“Bad luck. Cheating potential”</p> <p>“my eye’s are bloodshot”</p> <p>“People are missing out on the real world”</p> <p>“So much screen time might mess with your head”</p> <p>“if your out with family or friends don’t go on it the whole time”</p> <p>“Gaming: when you get less than 5 hours of sleep”</p> <p>“Pay attention more to their phone then their own needs”</p>	<p>“I try to limit myself on social media when it hurts me because I dont get stuff done or because social media hate.”</p> <p>“Social media mainly tiktok causes me to overthink too much and I don’t think it’s good for my head. I haven’t been on tiktok the past week.”</p> <p>“Social media helps me stay up to date on what’s happening in someone’s life.”</p>	<p>“I go on my phone a lot and look at it cause I have to know where my bf is I overthink too much and I never know what could happen”</p> <p>“it makes me very anxious if my phone isnt near me.”</p> <p>“During school I text my brother and he helps me out when I start to get anxious”</p>

Figure 4: Formative Data Analysis Chart: What are some of the benefits and challenges of smartphone usage in the classroom?

Reflection - Experimental Phase Two Formative Data Analysis

Again, the analysis procedure resulted in key themes regarding perceived benefits and challenges of smartphone usage in the classroom. Similarly to the first formative analysis thematic coding process that resulted from experimental phase one, students again referenced concerns tied to mental health, using words like “anxiety” repeatedly. Other concerns, or challenges, included lack of sleep, eye strain, and the ability to cheat. Social media was

referenced as both a positive and negative aspect of smartphone use. Additionally, students pointed out specific academic benefits to smartphone use, like reading manga online, accessing homework organization applications, and even needing access to their phones for the purpose of telling time.

Experimental Phase Three: Smartphones on Corners of Student Desks (Upside Down)

Our third experiment came about after a brief discussion about concerns some students had about having their phones in a location far away from their desks. I recognized that this concern was another opportunity to adapt. We decided to try keeping phones upside down on the corners of desks. Again, the brain break was incorporated as an incentive. With this strategy, collection and retrieval of phones were not an issue since students did not have to leave their desks. Yet, several students articulated frustration with this strategy during the first day of implementation. One student bemoaned that “having my phone on the corner of my desk like this is going to be way too tempting for me.” In response, two other students agreed with this sentiment. Observationally, I noticed that students seemed more likely to attempt to sneak a quick peek when notifications popped up during the class time. A positive of this method was that it was easy for me to tell with a glance if students were in compliance or not. With the shelf, students were given assigned spots, but I had to look up the locations with the corresponding students.

During this phase, I found myself wanting more information from my students about how they perceived their own smartphone usage habits. In particular, I wondered if they thought they used their phones an appropriate and healthy amount. I first posed the following question for a

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quick journaling response: “Should the adults in your life be worried about how much you are on your phone?” I analyzed the results for emerging themes and constructed the following formative data analysis chart:

Formative Data Analysis: *Should the adults in your life be worried about how much you are on your phone?*

Adults on Phones	Problematic Phone Usage	Positive Phone Usage
<p>“in my experience they [adults] are on their phone just as much as I am.”</p> <p>“no, my mom is on her phone just as much as me”</p> <p>“As a teenager I should have my own responsibility of my phone just like adults.”</p> <p>“My parents are on the phone alot”</p> <p>“Some teachers are on the phone all the time in class”</p>	<p>“yes because it interrupts my sleep and work”</p> <p>“I find myself being on my phone when I have homework to do or when I should be doing laundry or staying up late on my phone because im accatced [addicted] to it.”</p>	<p>“Most of the time I’m ‘on’ my phone it’s just on in the background while I’m doing something else”</p> <p>“I like music or a podcast/video to work with”</p>

Figure 5: Formative Data Analysis Chart: Should the adults in your life be worried about how much you are on your phone?

As a companion to the question posed above, I found an online smartphone compulsion test. I linked the resource to our Google Classroom page and encouraged students to take the assessment and reflect on their experience. I analyzed the results for emerging themes and constructed the following formative data analysis chart:

Formative Data Analysis: *Smartphone Compulsion Test Reflection*

Agreement with Results	Disagreement with Results	Surprised by Results
<p>The test tells me that is likley that I may have a problematic or compulsive smart phoe use pattern. Which I believe is</p>	<p>“I think it is a little outdated. Some of the question were a little silly like if your phone is by your bed when you</p>	<p>“That is honestly a better score then what I would have got before school.”</p>

<p>true, but I'm trying to fix it because it hurts me. for instance nothing gets done and less sleep.”</p> <p>“I may have some problematic use but over the past year im doing better than I used to be.”</p> <p>“It says I have problematic. I 100% agree with my results”</p>	<p>sleep, like where else am i supposed to put it”</p> <p>“I really don't think that is accurate. I really just use my phone/keep it by me for anxiety reasons. like if someone texts me, i need to look to make sure it is nothing important”</p>	<p>“Surprised. I didn't think I was on it that much”</p>
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Figure 6: Formative Data Analysis Chart: Smartphone Compulsion Test Reflection

Reflection - Experimental Phase Three Formative Data Analysis

During the analysis of this experimental phase, several key themes arose that yielded interesting implications for the next steps in the participatory action research journey. In particular, students were adamant that problematic smartphone usage involves adults as well as young people. Teachers and parents were identified as using their phones frequently, and even during inappropriate times. Throughout the research process, I made sure to follow the same expectations as my students, and it seemed that this was a critical component. The participatory nature of this study requires collaboration, and students were able to see that I was participating in the study alongside them. I made notes in my research journal about this issue holding potential for future research tied to adult usage of smartphones in school settings and beyond.

This phase also resulted in emerging themes tied to student perceptions of healthy versus unhealthy smartphone usage habits. Students mentioned lack of sleep and distraction from schoolwork as problematic, but they also identified positive behaviors such as listening to podcasts or music to assist them with their work. Lastly, when reflecting on their results from the smartphone compulsion test they took online, students varied in their perceived levels of

agreement with the results. Some students wrote about recognizing that they exhibit problematic smartphone usage habits, while others were more skeptical.

Experimental Phase Four: Smartphones in Pouches Hanging from Sides of Student Desks

For our final experiment, I purchased clear plastic pouches with velcro closures and expandable bases. I attached a pouch to the side of each desk using duct tape. Students were expected to place their phones in the pouches before the bell, and the brain break was again utilized as a reward for students complying with the use of the pouch. One benefit that I noticed immediately was that I could easily see which students were in compliance and which were not. Additionally, the Velcro alerted me to any attempts to sneak their phones from their pouches. The phones were hanging from the sides of the students' desks, which meant that they could access them quickly and easily during the break, but they also weren't seeing notifications and facing the temptation of having their phones sitting directly on their desks. In addition, students were able to utilize their smartphones for approved purposes with ease. With this method, I did not have to build in additional time for collecting and distributing phones. Plus, the phones were kept in the physical space allotted to each student, minimizing exposure to germs and reducing the risk of others invading their privacy or handling their property. Students were vocal about how much they liked this particular strategy. Observationally, I was able to predict within the first two days of this experiment that this would be the preferred method in the end simply by listening to their comments and watching their behavior.

Experimental Phase Five: Summative Data Analysis

At the end of our experimental phase of utilizing the pouches, I asked the students for their feedback. Although it seemed easy to predict that students would select the pouches as their preferred method for managing smartphones in the classroom, I still wanted to gather their insights. I posed the question, "Considering all we've discussed and tried so far, how do you think we should handle phones in the classroom this year? Be sure to include your preferred method as well as consequences and incentives/rewards." After experimenting with different smartphone management methods, we would need to construct an overall policy. I introduced this challenge to the students by explaining that teachers cannot simply create rules and expectations for behavior but instead must create policies that include both incentives and consequences. I analyzed the results for emerging themes and constructed the following summative data analysis chart:

Summative Data Analysis: *Considering all we've discussed and tried so far, how do you think we should handle phones in the classroom this year? Be sure to include your preferred method as well as consequences and incentives/rewards.*

Brain Break	Pouch Method	Desk Method	Consequences	Incentives	Other
<p>"I think that brain breaks are a must as it's great to have a break during class but we should add a minute for more time."</p> <p>"I like the brain breaks. If we could add like 30</p>	<p>"clear pouches worked the best for phone holding"</p> <p>"I feel like all the methods have worked but the one I mostly like is the pouches on the desk because if a student tried to</p>	<p>"I think having the phones face down on the desk works best."</p> <p>"i like the phones in a bag or upside down on the desk"</p> <p>"I personally like the on the desk method and the</p>	<p>"individual no brain break, on teachers desk for class period, then parent contacted."</p> <p>"a couple warning and if they don't comply they get their phone taken</p>	<p>"I feel like a award be a little more time for a brain break"</p> <p>"i think after the brain break or midpoint of class time people should be able to listen to music on their phone as</p>	<p>"it honestly doesnt matter to me what wo do I'll go along with whatever my classmates pick"</p> <p>"i like the desk pouch because phones are within arms reach which can be a pro and con for people</p>

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seconds to a minute longer that would be good.”	take their phone out, the teacher would hear the pouch move and you would hear the velcro rip apart.” “I like the pouches, they are easy to access if needed but also hard enough to get if you're trying to sneak it.	brain break I would add a minute that’s all!:)”	away.” “people should only get one warning before phone gets taken.” “I think if you are sneaking your phone or not listening your brain break should be taken away.”	long as they followed the rules for the first half of class” “if you are done with everything you should be able to use your phone.”	including the teacher.”
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Figure 7: Summative Data Analysis Chart: Considering all we've discussed and tried so far, how do you think we should handle phones in the classroom this year? Be sure to include your preferred method as well as consequences and incentives/rewards.

Reflection - Experimental Phase Five Summative Data Analysis

During this phase, it was important to assist students in looking back at the research process. Students provided insight regarding the different experimental phases, and also commented on many of the adaptations that arose during the inquiry journey. In particular, students shared thoughts regarding the importance of brain breaks as well as the perceived strengths of the different methods we tried in the classroom. Before moving to the final phase, constructing a policy, we would need to identify crucial components for success, including potential incentives and consequences.

Experimental Phase Six: Constructing a Policy

One of the first discussions that arose during this phase focused on examples of how students might break the rules. For example, one of the clearest rule infractions involved students sneaking their phones from the pouch without permission. However, students also

mentioned that some students might break the rule by using their phone during the brain break without having placed it in the pouch. Along these lines, students could also remove their phones from the pouches during the brain break and then put them in their pocket or backpack instead of back into the pouch at the end of the break. Students were in agreement that all of these examples would warrant consequences, but there was debate about what these consequences should be. One student also mentioned the importance of offering warnings, and the class agreed that our policy would need to include at least one warning before consequences would be given.

During the final two rounds of experimentation, phones were easily accessible to students. This became an opportunity to discuss what would qualify as a “legitimate” use of smartphones in the classroom. We revisited our discussion about how smartphones can benefit learning and brainstormed reasons that would warrant allowing a student to use their phone during class with permission. Nine of the students wrote that they enjoyed listening to music while working and felt that it was helpful to their learning. This discussion then led to a conversation about using a phone versus using the school-assigned Chromebooks for these designated purposes. One issue that arose frequently was that students would attend class without their Chromebooks. When our learning activity required access to digital tools, the lack of a device became problematic. Ideally, a few extra Chromebooks per classroom in the building would be a solution, but this is not a possibility at the moment. In these instances, student smartphones can offer an alternative. However, this can have a negative motivational result if students know that coming unprepared results in being allowed to use their phones.

I decided to build an incentive for students to come with their Chromebooks charged and ready each day. If students came to class prepared, they would have the option of listening to music while working on independent tasks. This helped, but there were still times when a student needed to use their smartphone to complete an assigned task. In those instances, having access to a smartphone helped keep the student from falling behind in their work, but I had to monitor their activity more closely to ensure that they were using their device for the approved purpose. Although it can be a management issue, this is still a powerful example of how smartphones can be used for academic purposes. One of my goals throughout this study has been to recognize both the benefits and challenges of smartphones in the classroom. As a teacher, it can be easy to focus on the negatives associated with these devices, but there are certainly instances where they are positive additions to the learning environment.

In the first three days of using our chosen pouch method, I began to notice a perceived loophole in our policy. I realized that some students were leaving the classroom for the bathroom, library, or some other purpose and taking their phones with them. Because placing the phone in the pouch was an option, not a requirement, it was particularly challenging for students choosing to forgo the brain break and keep their phones out of sight for the entire period. Students with phones in the pouches could simply be reminded to leave their phones in the pouch as they left the classroom, but students not utilizing the pouch posed a greater management problem. I decided to require all students, even those not utilizing the pouch, to leave their phones behind in order to leave the classroom. Otherwise, I feared that students would choose not to use the pouch and then find reasons to leave the classroom to provide their

own unearned brain break. The problem with this idea was that some students were adamant that they simply did not have their phones with them. I did not feel right about denying students use of the bathroom because they had their phones taken by their parents that morning, or whatever other reason they might be without a phone on that given day. Additionally, I feared that some students' financial situations might factor into their fluctuating smartphone possession.

Ultimately, this challenge persisted throughout the study, and I'm not certain that I solved this particular problem. In the end, I told students that they would need to leave their phones in the pouches before they could leave the classroom, but I also explained that I would be reasonable and make exceptions on a case-by-case basis. I also added that students with repeated requests along these lines could lose the privilege of leaving the classroom. Similarly, I added that I understood that family emergencies might also warrant exceptions to our typical policy. For instance, one student had a sick family member in the hospital. This student asked if they could step out into the hallway to use their phone if they received communication from the hospital during class. I agreed that this was a special circumstance and explained to the class that I would offer exceptions when needed. This provided me with an opportunity to explain that I valued and appreciated their willingness to communicate their needs with me openly. The entire process seemed to assist in building an environment of trust and respect in my classroom.

Summative Data Analysis: Assertions

In analyzing the data, three assertions emerged. I discovered that effective smartphone management policies include involving and motivating students in the process and recognizing

that teachers need a variety of options for managing the use of smartphones in the classroom; a one-size-fits-all model will not suffice and adaptability is crucial for success.

Assertion: Motivating Students with Incentives

Getting students to participate in a classroom policy that limits their smartphone usage can be a challenge. Throughout this study, I discovered that incentivizing following the rules was critical. Knowing that students desired time on their phones helped me to come up with the idea of utilizing a brain break halfway through the period so that students in compliance could benefit by having approved time for using their devices. Students agreed with this adaptation and even argued for its effectiveness in comparison to other classroom policies:

...a break during the middle of the class period which gives student's two minutes to talk, play on there phone, or chillax. I find this A good strategies for smartphone usage because in other classes when this doesn't occur since students can be on there phones they tend to keep it 2 be on it anyways, with this method no ones interupting her class and everyone has a chance to check there phones later on."

In my observations, I noticed that some students chose not to utilize the experimental method at first, but after they realized that complying resulted in allowable phone usage, several of them changed their minds by the second day and followed the expected strategy so that they could use their phones during the break. In essence, the students who chose to keep their phones in their pockets or backpacks ended up being the only students *not* on their phones during class. Additionally, including incentives also provides opportunities for consequences because the

incentives can be taken away. In the policy-creation phase, students advocated for the loss of brain breaks as a consequence of students going against the expectations.

Brain breaks had many added benefits beyond simply motivating students to comply with the policy. One student wrote, "*I like the brain breaks I think it helps to take a little stress off and just time to relax and recollect your thoughts.*" Along this line, I observed that some students would opt out of using the brain break for phone time and would instead just embrace a mental break of sorts. One student even commented that they liked the break but didn't like using it for being on their phone because it was too tempting to only use it for two minutes. I also observed that students were truly without their phones on some days, and not because they were keeping them in their pockets. It made sense that these students should earn a privilege for not utilizing their phones during class, and a mental break served this purpose. It was also less stigmatizing for a student who may not have a phone for whatever reason. Every student got a break, as long as they weren't sneaking their phones during class. These observations solidified my belief in the importance of embracing an adaptive approach in creating an effective smartphone management policy.

Assertion: Adaptive Approach to Policy Formation

In the education profession, I believe that there can be a tendency to seek concrete answers to challenges we face. The problem often is that a simple solution does not exist. In analyzing the data acquired in this study, I discovered evidence for approaching policy formation with an adaptive mindset. Throughout the experimental phases of the study, participants were evaluating the process and coming up with adaptations as a result. Students advocated for things

like additional brain break minutes, *“I think we should have more time for a brain break because only 2 minutes doesn't really give us enough time to check all messages or snaps so that makes kids to stay on their phones longer after the break so that's why I think we should have a few extra minutes.”* They even asked for privileges like being allowed to listen to music while working. One challenge that students mentioned, anxiety caused by being physically distant from their phones, helped in the development of the strategy that worked the best in our classroom, the pouch method. As a teacher, I had to be ready to adapt when issues like family emergencies arose. The time period of this study coinciding with the pandemic also made an adaptive approach a necessity. In many ways, these adaptations would not have been possible without the involvement of students in the process.

Assertion: Student Involvement & Increased Self-Reflective Practice

Learning from our students can be one of the great joys of teaching. Throughout this study, I was impressed by the insights students provided. I observed that their involvement in the process assisted them in evaluating the different experimental methods. One student wrote about the phone pouch strategy, commenting on specifics about why the pouch worked well, *“I think the phones in the bag is better because you can hear it when it opens and closes, people don't see their phone but they have it by them so they don't have the urge to pick it up and use it, the phones on the desk may distract people from doing their work.”* Yet another student evaluated this method favorably while also commenting on the feelings that arise in students when they are separated from their phones:

I think it would be good to keep on going the pouches on the desk. The phone on the corner was a good idea but people kept on checking them. In my opinion i think we should keep handling phones and put them in the pouches on the desk because people would know that their phones are by them and they wont panic when its far away. So yea i think the pones in the pouches are a good idea!!!!”

The students were included in the process, and because it was an issue that they cared about, I witnessed evidence of increased self-reflective and self-evaluative practices.

One student exhibited self-reflection in writing, “*my phone probably knows more about me than my parents/adults. My phone is my getaway sometimes. I think I should plan on not being on my phone a lot more.*” Another student wrote, “*I try to limit myself on social media when it hurts me because I dont get stuff done or because social media hate.*” It pleased me to see that students were taking these issues to heart, making the learning process personal.

The participatory component of this study yielded many benefits, including enhanced reflective practices, increased collaboration in the classroom, and improved communication between teacher and students. Throughout the journey, I had to take the time to listen and attend closely to the concerns and issues that were brought to my attention for the purpose of informing the next steps in the action research cycle. I also had to make this process as transparent as possible so that my students understood what we were learning and where we were going next. Students were able to help me adapt as we encountered different challenges along the way. Ultimately, the involvement of the students in the research process was foundational for the

success of the study. In moving forward, sharing this process with other educators would need to emphasize the importance of the collaborative approach.

We will examine the implementation of solution in Artifact III.

ARTIFACT III

IMPLEMENTATION OF SOLUTION

Link to Presentation: <https://watch.screencastify.com/v/UHZ1SYB2NjGBZbhbNHlq>

When choosing my topic for this dissertation, I knew that I wanted to focus on something that would help others. Sharing my results with fellow educators has always been the plan. During my career, I have been fortunate to serve as a professional development facilitator on several occasions. I've found that people respond to genuine passion, and my love for my job radiates, especially when given a chance to share this excitement with others. In concluding this study, I wanted to create a presentation that could be utilized in a variety of ways. At a minimum, I plan on sharing this work with my building-level colleagues. However, I believe that this topic is of concern in almost every building, and I would love to eventually reach a larger audience with this work. One of the silver linings of the pandemic has been an increased ability to reach a wider audience with virtual platforms. The slideshow that I've created synthesizes the problem of practice explored in this study as well as the results and implications for practice.

One important component of the presentation stems from my assertion that effective smartphone management strategies must be adaptive. Educators deserve the recognition that they are the experts when it comes to their individual environments. I want to provide educators with options and allow them to learn from my experiences, but I want them to think about how

they can best adapt the information for their own purposes. What works best in one classroom might not work as well in another classroom. That being said, there are some core components of an effective smartphone management policy that I want to illustrate. In addition to the importance of an adaptive approach, students must be motivated and involved in the process for optimum results.

We will conclude this exploration by synthesizing the three artifacts that serve as its foundation while also reflecting on the process and suggesting future lines of inquiry.

CONCLUSION

Teaching and learning and the desire to make a difference have shaped the course of my life. It is my belief that greater collaboration would benefit our professional community, and this has been one of my goals throughout this study. At the beginning of this journey, I knew that I wanted to address a problem that I faced in my own classroom, but I also wanted my work to be applicable to others. The effective management of smartphones in the classroom has been a challenge for me, but it has also been a difficulty for many of my colleagues. I decided to conduct an action research study. I believe in this approach because it allows teachers to develop their research skills in an accessible way.

I utilized the Dana (2014) "Inquiry Cycle" methodology for this qualitative, action research study. Action research is a systematic, intentional study of one's professional practice. This "Inquiry Model of Action Research" is particularly useful for scaffolding powerful job-embedded learning for educators (Dana & Yendol-Hoppey, 2009). Nancy Dana spoke at an event hosted by the University of North Dakota a few years ago, and she talked about how she attempts to reduce the negative stigma associated with the word research. She wants educators to see that inquiry is "less about what one does, and more about who one is." Many teachers view their careers as being a sort of "calling" and consider their jobs as teachers to be an integral part of who they are as people. Dana makes a seamless connection to this reality, motivating teachers to see themselves as inquirers and lifelong learners as well. Perhaps by making the research process more approachable, research-aversion amongst practicing and pre-service educators can be reduced.

Another appealing facet of an inquiry-based approach is that it emphasizes the importance of taking the current body of research and building upon it. Artifact I, the problem of practice, and accompanying literature review help shed light on the current issue. In reviewing the literature, we learn that there are gaps, and this forms the basis of the action research study explored in Artifact II. Artifact III, the implementation of solution, seeks to synthesize the learnings gained from this work in a way that can assist other educators as they strive to effectively manage smartphones in the classroom.

Selecting a research approach involves a certain amount of risk. As I've gained experience in education, I've become more comfortable with taking risks. I think of the quote by Tomlinson, "It's not so important to be 'right' as to be open; it's not so important to have all the answers as to be hungry for them." Earlier in my career, I feared giving too much control to the students. Now, I have come to view enhanced student engagement as one of the most important things that I can incorporate in my teaching. I believe that focusing my work on the context of my classroom was the right choice. The qualitative, participatory action research approach used assisted me in delving deeply into an issue that I had previously taken at surface value.

Smartphone usage in the classroom is complicated, and I learned much from my students about how to effectively manage the use of these devices in the classroom. Still, there is much more work that can be done in this area. Studies in different classrooms and at different grade levels could add to what we know. It would also be interesting to investigate adult usage of smartphones in classroom settings, as mentioned previously in this study. Additionally, schoolwide approaches would be interesting to study. Furthermore, entire districts could launch

exploratory investigations into this topic. Lastly, with technology, things move at such a pace as to necessitate a frequent review of our educational practices. For instance, with the development of new technologies such as smartwatches, challenges may arise in the classroom that will require further study. It seems as though the opportunities are endless.

References

- Abdelraheem, A. Y., & Ahmed, A. M. (2018). The impact of using Mobile Social Network Applications on Students' Social-Life. *International Journal of Instruction*, 11(2), 1-14. doi:10.12973/iji.2018.1121a
- Akbay, S. E. (2019). Smartphone Addiction, Fear of Missing Out, and Perceived Competence as Predictors of Social Media Addiction of Adolescents. *European Journal of Educational Research*, 8(2), 559-566. doi:10.12973/eu-jer.8.2.559
- Allen, K. A., Ryan, T., Gray, D. L., Mcinerney, D. M., & Waters, L. (2014). Social Media Use and Social Connectedness in Adolescents: The Positives and the Potential Pitfalls. *The Australian Educational and Developmental Psychologist*, 31(1), 18-31. doi:10.1017/edp.2014.2
- Ariel, Y., & Elishar-Malka, V. (2019). Learning in the smartphone era: Viewpoints and perceptions on both sides of the lectern. *Education and Information Technologies*, 24(4), 2329-2340. doi:10.1007/s10639-019-09871-w
- Badgett, M. V. (2015). *The public professor: How to use your research to change the world*. New York: New York University Press.
- Baker, W. M., Lusk, E. J., & Neuhauser, K. L. (2012). On the Use of Cell Phones and Other Electronic Devices in the Classroom: Evidence From a Survey of Faculty and Students. *Journal of Education for Business*, 87(5), 275-289. doi:10.1080/08832323.2011.622814
- Carels, B. (2019). Changing our mindset in regard to cellphones in the classroom. *BU Journal of Graduate Studies in Education*, 11(2) pp.9-12.

- Cochran-Smith, M., & Lytle, S. L. (2009). *Inquiry as stance: Practitioner research for the next generation*. Teachers College.
- Creswell, J. W., Hanson, W. E., Clark Plano, V. L., & Morales, A. (2007). Qualitative Research Designs: Selection and Implementation. *The Counseling Psychologist*, 35(2), 236–264. <https://doi.org/10.1177/0011000006287390>
- Dana, N. F., Yendol-Hoppey, D., & Dana, N. F. (2014). *Facilitator's guide: The reflective educator's guide to classroom research: Learning to teach and teaching to learn through practitioner inquiry*. Thousand Oaks, CA: Corwin Press
- Emerson, R.M., Fretz, R.I., & Shaw, L.L. (1995). *Writing ethnographic fieldnotes*. Chicago: The University of Chicago Press.
- Engel, G., & Green, T. (2011). Cell Phones in the Classroom: Are we Dialing up Disaster?. *TechTrends*, 55(2), 39-45. doi:10.1007/s11528-011-0482-z
- Fine, M., Torre, M. E., Boudin, K., Bowen, I., Clark, J., Hylton, D. et al. (2003). Participatory action research from within and beyond prison bars. In P. M. Camic, J. E. Rhodes, & L. Yardley (Eds.), *Qualitative research in psychology: Expanding perspectives in methodology and design*. Washington, DC: American Psychological Association.
- Frey, B. (2018). *The SAGE encyclopedia of educational research, measurement, and evaluation* (Vols. 1-4). Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781506326139
- Gezgin, D. M. (2018). Relationship among smartphone addiction, age, lack of sleep, fear of missing out and social networking sites use among high school students. *Cypriot Journal of Educational Sciences*, 13(2), 409-421. doi:10.18844/cjes.v13i2.2938
- Glaser, B. G., & Strauss, A. (1967). *The Discovery of grounded theory: Strategies for qualitative*

research. Aldine Publishing.

Glesne, C. (2011). *Becoming qualitative researchers*. Boston: Pearson Education.

Katz, L., & Lambert, W. (2016). A Happy and Engaged Class Without Cell Phones? It's Easier Than You Think. *Teaching of Psychology*, 43(4), 340-345.

doi:10.1177/0098628316662767

Kuznekoff, J. H., Munz, S., & Titsworth, S. (2015). Mobile Phones in the Classroom: Examining the Effects of Texting, Twitter, and Message Content on Student Learning.

Communication Education, 64(3), 344-365. doi:10.1080/03634523.2015.1038727

Lancaster, A., & Goodboy, A. (2015). An Experimental Examination of Students' Attitudes

Toward Classroom Cell Phone Policies. *Communication Research Reports*, 32(1), 107-

111

Maxwell, J. A. (2010). Using Numbers in Qualitative Research. *Qualitative Inquiry*, 16(6), 475-

482. doi:10.1177/1077800410364740

Maxwell, J.A. (2013). *Qualitative research design: An interactive approach* (3rd ed.). Thousand

Oaks, CA: Sage. ISBN 9781412981194

Pastore, S. (2017). Research Designs and Methods in Self-assessment Studies: A Content

Analysis. *International Journal of Evaluation and Research in Education (IJERE)*, 6(4),

257. doi:10.11591/ijere.v6i4.8921

Phelps, R., & Hase, S. (2002). Complexity and action research: Exploring the theoretical and methodological connections. *Educational Action Research*, 10(3), 507-524.

doi:10.1080/09650790200200198

Samad, S., Nilashi, M., & Ibrahim, O. (2019). The impact of social networking sites on students'

- social wellbeing and academic performance. *Education and Information Technologies*, 24(3), 2081-2094. doi:10.1007/s10639-019-09867-6
- Schlossberg, N. K. (1989). Marginality and mattering: Key issues in building community. *New Directions for Student Services*, 1989(48), 5-15. doi:10.1002/ss.37119894803
- Tatum, N. T., Olson, M. K., & Frey, T. K. (2018). Noncompliance and dissent with cell phone policies: A psychological reactance theoretical perspective. *Communication Education*, 67(2), 226-244. doi:10.1080/03634523.2017.1417615
- Thomas, K. M., O'Bannon, B. W., & Bolton, N. (2013). Cell Phones in the Classroom: Teachers' Perspectives of Inclusion, Benefits, and Barriers. *Computers in the Schools*, 30(4), 295-308. doi:10.1080/07380569.2013.844637
- Thorne, B. (2008). *Gender play. Boys and girls in school*. New Brunswick: Rutgers University Press.
- Tomlinson, C. A. (2014). *The Differentiated Classroom: Responding to the Needs of All Learners*, 2nd Edition. ASCD.
- Yavich, R., Davidovitch, N., & Frenkel, Z. (2019). Social Media and Loneliness - Forever connected? *Higher Education Studies*, 9(2), 10. doi:10.5539/hes.v9n2p10