

Student Cell Phones: Essential Questions Surrounding Use in BYOD Classrooms

By

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Abstract

Cell phones have dramatically influenced the way people communicate. Their presence in our daily lives has been transformative and cannot be ignored. The rise of the smartphone has repurposed the telephone to become a digital portal to people and information with a simple swipe. For this reason, disengaging from devices like smartphones can be a challenge for students in school. The literature shows that students and teachers perceive the purpose and importance of cellphones in schools differently. As smartphones appear in classes with more frequency, reconciling how to accommodate this technology has become a hot topic for educators. The following research study examined the perspectives of teachers dealing with student smartphone use in “Bring Your Own Device” (BYOD) classes. Four Alberta high school humanities teachers participated in individual semi-structured interviews using a phenomenological research methodology. The findings were based on the teacher’s impressions and personal experiences of working with teens in BYOD Social Studies classes. The data was interpreted and codified using Thematic Analysis. The most notable themes were categorized, and reflected the topics of relevance discovered within this investigation. The emerging themes of this study led to the design of five essential questions educators may wish to consider when working within a BYOD classroom. An examination of these questions highlighted the challenges of policy compliance, and expectation of smartphone use where a BYOD program is promoted by the governing school authority. This study may benefit researchers and educators looking at proactive technology approaches in schools by promoting professional development and dialogue on BYOD classrooms.

Introduction

1.1 Scope

The turn of the twenty first century ushered in mobile communication technologies that reshaped human interaction and behavior. Although there has been an abundance of communications options emerging in recent times, none have been as prolific as the cell phone. More specifically, smartphones have had an epidemic effect on society without discrimination of age, gender, and even social class. Mobile phones have enabled people to have immediate digital access to others across the planet. This has led to profound social change. Smartphone users appear to be evolving with an expectation of accessibility at the touch of a screen. Whether it is immediate access to information, or other people, digital capabilities are forcing users to engage in responses to technology in ways that were not previously anticipated. Smartphones have become a central part of our everyday lives. People have a dependency on this technology, ultimately blurring some of our social norms. This has re-established communication relationships, not just between people, but the relationships people have with their devices as well.

This phenomenon is profoundly evident in our youth, especially those born from 1996 onward, and categorized as Generation Z (Gen Z). The growing dependency on mobile devices has led to a global shift in the expectation of smartphone use ubiquitously by teens of Gen Z. In 2013 “Pew Research Center” published that an estimated 78% of teens in North America have a cell phone for personal use. It appears teen ownership most often was not out of basic necessity, but instead as an access point to the internet according to Madden, Lenhart, Duggan, Cortesi, & Gasser (2013). Mobile device use by teens has become so common in society it cannot be

ignored. Smartphones now frequently appear in school and campus classrooms. In 2005 it was reported that 68 percent of students regularly brought their cellphone to class (Obringer & Coffey, 2007). That amounted to over a 145 million U.S. students. Arguably, the increase of mobile phones in classrooms appears to have a number of parallels to social norms of use; specifically that there is no avoidance of their presence, or self-regulation, regardless of the environment.

This issue is further complicated by the rapid advancement in mobile device technology, paired with the declining costs of smartphones. As a result, parents of teens often place mobile devices in the hands of their children, with no restrictions about accessing them at school. This ‘digital leash’ referred to by Syed & Nurullah (2011) has exacerbated the number of phones entering classrooms. It has further reduced the argument of ‘whether’ mobile devices should be used in classes, and advanced the discussion on ‘how’ they can be of benefit.

1.2 Related Literature

There is growing and contentious discourse on this topic. Some argue the opportunities for technology in classrooms to promote learning is limitless, while others say it’s obstructive. The presence of student owned devices has compelled some educators to suspend the idea that devices should be prohibited, and instead recognize their benefit to advance learning. The power of mobile devices has placed the personal computer, mobile communications, and the World Wide Web in the palm of the user. Prensky (2005) states that even basic cell phones have more complex technology than the 1969 on-board computer that landed a spaceship on the moon. Arguably, today’s mobile devices are capable of “teaching” students, and even eliminating the need for a classroom environment all together.

Conversely, there is the possibility for teachers to feel tremendously disadvantaged by the same technology in their teaching practice. Mitigating these challenges with “terms of use”, and policy within schools has become necessary for administrators. Direction to simply “put phones away” or forbid them have been met with resistance. Even at schools that completely banned cell phones, 65% of cell phone-owning teens brought their phones to school every day (Lenhart, Ling, Campbell, & Purcell, 2010). Resultantly, smartphones have appeared to look more and more like an extension of the student themselves. And adding to this complexity, smartphones are now often seen as an appendage of the teacher as well.

In response to these challenges, teachers and administrators are commonly tasked with creating policy to support learning and minimize disruption while working with emerging technologies. As smartphone functionality grows, and student use accelerates, there is greater complexity in balancing classroom management and student desire to use their phone at will. Ultimately, this has made it difficult to target every digital issue classroom teachers encounter, and thus tailor the “rules” accordingly.

Student owned mobile devices in classes have presented substantial challenges in such a strongly regulated setting. As such, there is an abundance of literature on the concerns and consequences of senior high students using mobile devices in educational environments, and more importantly, the impact it has had on learning. To date, much of the research on mobile device use in classrooms has centrally focused on the pros; seen as a vital education tools (Robb & Shellenbarger, 2012), and cons; viewed as a potential threat to learning (Robinson, Brown, and Green, 2010).

In a proactive response to this dilemma, some educational authorities have shifted from mobile device prohibition to inclusion. This deviation has happened on both global and local levels of education. The technology model known as “Bring Your Own Device” (BYOD), has encouraged students to *bring* and *learn* with their own, familiar, portable technology, and has been reforming device use in education. Hower & Witford (2015) see the BYOD model as a strategy that balances the benefits of technology with the negative effects of disruption from off task activities. Notably, United Nations Educational, Scientific and Cultural Organization (UNESCO) (2013), Australia’s NSW Education and Communities (2013), and The Upper Canada District School Board in Southeastern Ontario (2015) are all participants. The province of Alberta also adopted this technology model. Aiming for more than a blanket solution to device populated classrooms, they took a pro-technology approach which encouraged students to balance device use with positive digital behavior. Alberta Education identified ethical and safe participatory digital culture and citizenship as critical to the success of the use of technology in schools (Alberta Education, 2012, p. 3). Although the model is practiced and not mandated, some schools within the Alberta jurisdiction have placed an emphasis on the integration of classroom technology, and are strong promoters of this model. Accordingly, this research is very pertinent for students and teachers under the jurisdiction of Alberta Education.

1.3 Purpose of the Study

The dynamic complexities Alberta teachers were faced with in BYOD schools, namely the alignment of a positive digital presence within educational policies, provided part of the motivation for this research. Additionally, as a Social Studies teacher in an Edmonton, Alberta high school, the managerial challenges of students using their smartphones in a BYOD model

classrooms were personally significant and meaningful to this researcher. Challenges with ambiguous policy, and off task behaviors due to smartphone use was observable while teaching. This porous structure was a prompt for questioning the BYOD model, and further inciting the need for this research.

It is important to note that the goal of this study was not to find solutions to problems arising from this issue, but instead to identify the most pertinent questions grounding teacher's concerns in BYOD model schools. This investigation was intended to mirror the broader BYOD model landscape. However, it was limited to one specific school site, consisting of four female humanities teachers. Therefore, this report can be considered a sample of the diverse experiences of this educational shift in practise.

1.4 Description of Methodology

The following research question was posed to participating teachers in this study:

- *“How has student owned device use during instructional time created managerial challenges in your social studies classroom under a BYOD administered model?”*

Using an inquiry based learning format (Friesen & Scott, 2013), the purpose of this phenomenological study was to explore concerns arising in senior high school BYOD model classes. Teachers participated in semi-structured personal interviews, each followed the same interview schedule, and each provided insight on their perception and experiences of student smartphone use in their class. The data collected from their responses was codified, with thematic similarities noted, and analyzed. As this investigation was phenomenological in nature, it was designed to understand the personal authentic experiences of the participants. All empirical research methods were rejected as the purpose of the study was not to test a

hypothesis, or attain a singular response. The culminating intention of this study was probative in nature, and intended to identify at least five essential questions (Wiggins & McTighe, 2004) with which to stimulate future professional dialogue on this controversial issue.

1.5 Summary

It is reasonable to say that generalized policies are not suitable to address the fluid nature of technology use in school classrooms; things are always changing. Seeking solutions to these challenges appear appropriate, but ineffective when the actual problems are loosely diagnosed. Inviting teachers to share their most authentic personal experiences in the form of challenges or opportunities of BYOD use in their classes has the potential to open up a lot of pedagogical dialogue. By using a qualitative personal interview approach to identify themes materializing from teacher's intrinsic experiences, this research attempted to calibrate the issues as they relate to establishing school technology policy.

This investigation may shift the educational and academic focus from being limited to discussions on the “pros” and “cons” of smartphone use in class - which is already well addressed in the literature. Instead, this research supports the opportunity to add to the literature on the emerging and progressive study of BYOD classrooms, and their advantages in the field of education.

The following chapters detail the process in which this study was conducted. It provides a meaningful review of the literature that describes student behavior toward their smartphone in class, teacher perceptions, policy challenges, and the advancement of BYOD models in schools. The Methods chapter will outline the research criteria used to conduct this qualitative investigation, supported by rationale for the methods selected to obtain data. The chapter on

Findings and Analysis will reveal the emerging themes discovered after processing the data, as well as describe how they are related and beneficial to this topic of study. The conclusion will discuss future implications for the BYOD practice in schools. It will also address how this research can be best directed to benefit the field of education, especially in the province of Alberta.

A philosophical shift toward the practice of BYOD in schools will require more research to support teacher development, and meaningful policy setting. The following literature review will highlight the need for further research in BYOD school settings, as the number of academic resources on this topic are still in its infancy.

2.0 CHAPTER II: Literature Review

2.1 Introduction

New forms of digital media have a permanent hold on users, especially where touchscreen smartphones are concerned. Coupled with the exponential growth of the internet since the 1990's, prolific participatory culture has resulted. People infrequently have their mobile device out of arm's reach, and more seldom out of sight. Today's smartphones are an appendage of the user. They are rarely prohibited (by rules or even etiquette) in spaces that were once a sanctuary for one's presence, such as churches and theatres. The lack of disengagement from their phones demonstrates that students have an expectation of accessibility to their device whenever and wherever they want; including in schools. It is not uncommon to see an absence of device courtesy in classrooms, reflecting inappropriate use, and misconduct with a disregard for

school based policy. As a result, schools must decide if they will align their technology practices with the conventions of device use happening outside of the classroom.

As mitigating factors of this behavior, continued advancements in cell phone technology, namely the exponential growth of smartphones, and apps that enhance learning are making a case for devices to be considered valuable educational tools. Conversely, the ambiguous use of cellphones in classrooms has posed challenges for some educators. They are now faced with regulating device activity; ultimately forcing them to discriminate between disruptive behaviors and educational engagement. As instructors and administrators assess the universality of devices in classes, they are tasked with prioritizing academic performance over social networking, which often results in actions that sideline student's accessibility to their phones. This may be creating a classroom crisis between students and teachers as many policies are not reflecting and responding to the inflated social value Gen Z users are placing on their cell phones.

Much of the literature on this topic (Ali & Smith, 2014; Engel & Green, 2011; Robb & Shellenbarger, 2012) commonly centers on the functionality or behavioral issues of using mobile devices in teaching; specifically, the efficacy of devices as a tool for learning, or a major distraction to learning. However, in effectively considering the appropriateness of classroom mobile device use, it becomes important to address not only the student, but the role of the instructor as well. From this perspective, this investigation considered how teachers managed device populated classrooms in a cultural climate where cell phone use is regarded as a personal expectation.

This literature review was conducted in the process of evaluating senior high school teachers concerned with classroom smartphone conduct, and responsible student digital

citizenship. These teachers were confronted with effectively moderating student's expectations of personal device use with school policy. The literature review of relevant sources identified four key themes that were purposeful in advancing this research:

- Assessment of teen values and attachment to their cell phones
- Social forces driving student cell phone use in class
- School Policies and student compliance
- Conduct, and appropriate digital citizenship in the classroom

Commonly, research focusing on school based policies for cell phone use in classrooms simply consider whether cell phones should be allowed in learning spaces. Probing further, investigations (Bruder, 2014; Charles, 2012; Jaschik, 2013) have revealed that like it or not, cell phones are present, and discuss the benefits and disadvantages of use. As mobile devices are unlikely 'school issued', there is a concern with the invitation to have "student owned devices" (SOD's) brought into classrooms, and the challenges off task digital activity poses to learning for the student and teacher. This is illustrated in a study done in the "Journal of Media Education", which reports that more than 90% of students surveyed admitted to using their personal device for non-class activities during class time (Jaschik, 2013).

It appears that educators are faced with the dilemma of embracing personal devices in class or imposing restrictive policies in school. Many school authorities have been settling on a middle ground in the form of BYOD programs. BYOD models promote students bringing a personally owned device to school for the purpose of learning, but there is no steadfast way to regulate how the device is used during lessons. This in turn creates a paradoxical dilemma for

educators, as student smartphones are likely present in their classes with or without consent, and arguably, with or without a meaningful purpose.

2.2 Search Methodology

An investigation of databases within the University of Alberta was conducted in early 2015. Articles related to senior high students mobile device activity (focusing on device use motivated by the expectation to operate devices regardless of the venue or circumstance) were gathered. Discovery Service for the University of Alberta (U of A) Library was used to retrieve articles using key phrases like “teen cell phone use”, “student cell phone use”, and “school cell phone policies”. These results yielded too broad of a scope of articles, many of which were discarded because of the age of the student, geographic relevance, or lack of relevance to school policy. Pertinent U of A databases included: EdITLib and SCOPUS producing results of 223, and 207 articles respectively. Search terms for journal articles included: “teaching and cell phone policies”, producing a broad, but relevant range of articles that were narrowed by refining the search through terms like: “cell phone conduct in class”, “cell phone etiquette in class”, “mobile devices and teacher communication”, and “mobile devices and school policies”. Literature providing useful articles on student etiquette and conduct, personal need to access phones, and school policy were used; specifically listing Colorado (2012), who was cited by other researchers on this topic talking about educational applications and challenges.

The reference lists of each source were also examined in detail to find additional articles. A report by the “Pew Research Centre”, (Lenhart, Ling, Campbell, & Purcell, 2010) often appeared as a reference for quantitative data, and Ohler (2010), was often referenced for his work on digital citizenship. Some of the articles used in this literature review had been

previously examined through this researcher's MACT course work. They included: Shields (2003), Fortunati (2007), Hillis (2009), Sadat Nurullah (2009), Gittleman (2011), Charles (2012), and Meschtscherjakov (2012), who provided a framework for investigating student device values, attachment, and possible applicable theories.

In assessing the literature, the four themes previously mentioned (assessing teen values and attachment to their cell phones, social forces driving student cell phone use in class, school policies and student compliance, and appropriate digital citizenship in the classroom) emerged as most relevant to cell phone research that considers motivating factors contributing to device conduct, and digital citizenship in senior high classrooms. However, a gap in the literature exists in understanding the expectation of indulgent device use by Gen Z teens in BYOD modelled schools. Even more questions are raised about what senior high school teachers are doing to mitigate student demand for constant digital connection in favor of device use for learning in BYOD classes.

2.3 Themes Based on the Literature

2.3.1 Literary Theme 1: Assessing Value, Theory, and Attachment of Teen Cell Phone Use

i. Value and priority of teen cell phones

Although this literature review focuses on the operation of mobile devices in classrooms, researchers should thoroughly consider motivating factors that contribute to the prolific use of smartphones in society, especially with teens. Research emphasizing the value Gen Z users place on their mobile devices can benefit the study of smartphone use by identifying factors that incite teens to operate them in schools. Studies have demonstrated that post millennials expect to use their phones because constant communication and virtual simulation have become a priority.

This appears to emphasize a global shift in cultural values straight across all sectors of society, resulting in a dependency on cell phones.

Hillis (2009) says the capabilities of smartphones go beyond the realm of auditory message conveyance. They have become so ubiquitous because of the value we place on communication, safety, and acceptance through the use of technology. They appear to be reshaping societal culture with an impact on our youth. Spencer (2013) referenced a study commissioned by Nokia that found that smartphone users check their phones an average of 150 times daily. Additional data on teen cell phone use shows that mobile phones are not only abundant, but seemingly indispensable by young people for ongoing social communication. According to a report by Lenhart et al., (2010) published by the “Pew Research Center”:

- 75% of Americans ages 12-17 own a cell phone
- 83% of older teens (17 and up) have a cell phone
- one in three teens sends more than a hundred text messages a day
- 15 to 18 year olds are reported to spend an average of 1 hour and 51 minutes each day sending text messages.

Shields (2003) writes that cell phones can stimulate a sense of presence and intimacy with others far away with their ability to go beyond basic telephone transmission, bringing the vast World Wide Web to the palm of the user (p. 46). These studies emphasize how cell phones are revolutionizing teen communication, and even more concerning, how young people appear to be connecting to the virtual in ways never seen before.

As teens of Gen Z prioritize using their phones frequently, research lends credibility to the idea that new behaviors are being established that can affect educational institutions. Sadat

Nurullah (2009) believes that cell phones have transformed the daily lives of individuals to such an extent that it can be thought of as an agent of social change. He believes that adolescents are those primarily affected by cell phones due to widespread use which has revolutionized society, and teen culture. Based on this sociocultural approach, he references Kendall (2004) in describing social change as the transformation of culture and social institutions, which is usually brought about by collective behavior. Kendall's study attributes current patterns of teen cell phone use to dramatic changes in their social behavior, highlighting how this technology is seeping into the everyday life of the teen user.

ii. Theoretical Approach

Studies from a sociocultural perspective can be useful in understanding the importance teens place on their cell phones. Research shows that many Gen Z users expect to remain digitally connected, and may find the result to be an emotional attachment to their smartphone. As such, teens may even develop an "addiction" to their device. One approach to understanding these values is through "Attachment Theory" developed by John Bowlby (1969). Fraley (2010) writes that Bowlby observed that separated infants would go to extraordinary lengths to prevent distance from their parents or to establish proximity to a missing parent.

Evolving from "Attachment Theory", Meschtscherjakov (2012) developed a "Mobile Attachment Theory"; a cognitive and emotional bond connecting a person's self to their mobile device. He theorizes the attachment system moves from a behavioral system, to a representational system. This reinforces the relationship of the user and the attachment object (in this case the mobile device), as it serves as a source of comfort and security. This theory can prove useful in understanding the relationship many teenagers appear to have with their mobile

devices. This is especially useful where the effects of separation from their device resemble Bowlby's model.

An additional theoretic approach by Shields (2003) also inferred that communication through new media technologies generates new forms of social interaction; creating a sense of presence and intimacy with others far away. Ultimately, the smartphone replaces the security of the child's caregiver. Going one step further, the smartphone replaces the safety of the physical gathering place; a middle ground that draws individuals to the group. Hillis (2009) perspective also works well with these theories by describing online settings as a surrogate for a gathering space. These sources arrived at similar conclusions: the shift from real to a virtual interactions appears to contribute to new forms of attachment. Resultantly, this may have a pivotal role in establishing the values Gen Z students have by expecting their cell phone present and accessible at all times.

iii. Attachment Response

In researching teen attachment to their smartphones, one may also choose to consider behavioral, cognitive and emotional responses. These are primarily separation distress and feelings of irreplaceability that Meschtscherjakov (2012) identifies. This attachment can be seen as potential indicators of smartphone addiction in teens. Gittleman (2011) provides a rationale for behavioral responses of mobile phone expectation and overuse becoming addictions. He indicates that cell phone use, like drugs and alcohol, may act on the reward centers of the brain which contain opiate receptors, and perceive reward. Based on this assumption, Gittleman theorizes that attachment theories reflect behaviors we are born with. Gittleman's (2011), and Meschtscherjakov's (2012) theories relate to the impact that smartphone

attachment and addiction can have on students as they navigate between the virtual and real world in their daily lives.

Siddiqui, Jabeen, & Mumtaz, (2014), also characterizes the anxiety and emotional stress of frequent mobile phone use by teens resulting in serious impacts on student's studies. Their study shows that behavior rooted in this types of attachment is inevitably difficult to break. It would also be far more demanding in environments such as schools where behavioral actions are regulated. In other words, the exaggerated values that Gen Z users are placing on their smartphones through attachment and addiction can in fact create a tension between the perceived "real" of the enclosed classroom, and the limitless of the "virtual" web. Therefore, it will impede opportunities to participate, and engage in meaningful learning. Challenges faced by educators in BYOD classes are directly within the scope of this conclusion, and ultimately a motivation for the writer's research study.

2.3.2 Literary Theme 2: Social Forces on Student Cell Phone Behavior in Class

i. The Duality of Social and Academic Device Use

Researchers concerned with teen engagement and conduct of cell phones in class, may find it important to understand the student perspective; why they seem to find their constant connectivity nothing out of the ordinary. This literature review considered multiple studies based on both qualitative and quantitative research. Conformation that students are dividing their focus in classrooms and trying to engage in both physical and digital space simultaneously is evident in Campbell (2006), Gilroy (2004), and Ali (2013). Studies show that student attention and focus appears to value social interaction over academics. "Pew Research Center" statistics conducted by Lenhart et al., (2010) identify:

- many teens who take their phones to school are keeping them on and using them during the school day, sometimes during instructional time
- nearly one third (31%) of teens who take their phones to school text in class several times a day

The regularity of students dividing their attention in class is also observed in a study by Garcia (2012) that contended that school time was fluidly social and academic. He refers to this new social order as the “always on” generation. Charles (2012) also conducted research on cell phone use in classrooms, and found that every student that participant in her study admitted to disconnecting from the real world and connecting to a virtual world by way of their phone. Ultimately, they disregarded the class rules for cell phone use altogether.

Shield's (2002) also reported that students have a clear understanding of how mobile phones should be used in school environments, yet often choose to ignore that expectation to engage with others virtually through their phone. Likewise, Fortunati (2007) talks about the stretching of attention by cell phone use. This makes it possible to speak and do various actions at the same time, resulting in an increase in one's level of stress, as “the mind gets used to spreading attention in various directions” (Fortunati, 2007, p. 517). This clearly articulates the paradox of some Gen Z users; their ability to remain academically focused while using their phone for social communication.

Altogether, these articles infer that student focus in one of these areas has to be suppressed. One can then contend that lesson objectives lose their priority in the mind of the student, and the goal of learning is compromised. However, some students disagree with these assessments. Tessier (2013) documented positive perceptions students have using their

personal device, including improved learning, and more enjoyment in class. The results show that the students found their phone to be of little distraction, and that the more access they had to them, the stronger their positive perception of device use was. This reinforces the importance of virtual connectedness as an academic tool.

Students with an expectation to maintain a presence in the digital and real environments can be so profoundly influenced by social forces around them, they may or may not have an awareness of their actions. For researchers studying this topic, it may be important to assess whether students are aware of these opposing classroom behaviors because of the impacts it has on learning. Ali & Smith (2014) reference Amario (2009), Kolb (2011), and Tindell & Bohlander (2012) who note that most students don't recognize that their cell phones create a distraction to others. Conversely, reports by Hammer, R., Ronen, M., Sharon, A., Lankry, T., Huberman, Y. & Zamtsov, V. (2010), and Cramer & Hayes (2010) established that most students perceive the use of mobile devices as disturbing to instructors and peers, but they still believe such usage is acceptable.

Data by Cramer & Hayes (2010) reveals that only 23% of instructors think using devices for lectures is legitimate, whereas 75% of their student respondents found legitimacy in device use during instruction. Jaschik (2013) shared findings published in the "Journal of Media Education", which found more than 90 % of the 777 students surveyed used their personal device non academically while in class.

Whether they are effective academic tools, and in conscious awareness of the student, research effectively shows that smartphones in classrooms are attention splitting due to a high value on social connectivity. This is likely to create challenges to educators.

ii. Family ties: Parent Accessibility

Virtual distractions present one type of challenge to Gen Z students in which to extricate themselves from their cell phones. However, there are tangible social forces as well. Future research on teen cell phone behaviors can be supported by addressing the role of parents, as they may intentionally promote the presence of cell phones in schools reinforcing the student belief that mobile use in class is acceptable. In some cases it may even be the will of the parent, and not the student to have a phone on hand.

Through this review it has been observed that parents often provide antecedent values of cell phone use. This can place their child in direct conflict of school policy by expecting students to have mobile access to communicate with them at all times. Expectations of access to their child at school has tethered students to their parents as well as their cell phone. Syed & Nurullah (2011) believes mobile phones create a leash between adolescents and parents, which allows parents to increase control over their kids.

Ferris (2007) references an argument made by Srivastava (2005) based on the influence of the cell phones changing the way families interact. Paradoxically, it was perceived that children became more autonomous from the family unit by using a cell phone as a private outlet for communicating with social networks. This resulted in more seclusion from the family unit. However, Syed & Nurullah (2011) report that many parents would still defend their child's right to a cell phone, petitioning that the investment is for safety, ease of communication, and reassurance to name a few.

Researchers may also take into consideration that these accessibility issues can create

distractions for the learner. Teachers may be forced to enact policies, which can create tension not only between the student and teacher, but the teacher and parents as well. Hornby (2011) describes the resulting dynamic in the clash in values between home and school environments. He writes that the discordant opinions between attitudes and beliefs may result in serious repercussions on a children's learning.

According to Maddox (2012), parent demands via cell phone access have included challenges at the judicial level in the U.S. especially surrounding retention policies for punishment. Although not yet seen in Canada, Maddox (2012) says these policies can potentially be contested by parents, as mobile devices can contain personal information, and withholding devices from their owners can violate constitutional privacy rights.

In consideration of the research compiled on this topic, it can be assumed that these social forces assist in understanding the motivating values, and noncompliant behaviors by students who choose to attend classes with devices such as smartphones. It can be further inferred that smartphones are not going to be leaving the immediate reach of the student in school classrooms anytime soon.

2.3.3 Literary Theme 3: School Rules - Contention, Compliance, and Communication

i. Policies

School policies are commonly addressed in research relating to cell phones in class. For the stakeholders: teachers, students, and administrators, it has been shown that it's difficult to find consensus. In the literature examined, researchers often address student behavior, but some articles also examine the role of the teacher when it comes to cell phone compliance in schools.

This is seen in Ali (2014) who discusses a structure for policy and rules, citing; Ali (2013), Bugeja (2006), and Gilroy (2004) who have researched rules and practices governing cell phones. According to Knorr (2011), 69% of schools have policies that don't permit cell phone use, but more than half of all kids ignore them. There are also articles, and statistics that reinforce the idea that students do not demonstrate respect for device policy when there is policy in place. Lenhart et al., (2010), reported that many teens who take their phones to school are keeping them on and using them during the school day, sometimes during instructional time. Thirty one percent of teens who take their phones to school text in class several times a day.

This level of distraction obviously poses challenges to effective learning, and not just for the user, but to those around them. Campbell (2006) addresses the teaching etiquette of instructors, and Obringer & Coffee (2007) note some teachers act with indifference to minimize conflict. Sturgess (2013) even notes that in higher levels of education there is no significant change when it comes to policy breaking. Regardless of whether classroom instructors prohibit devices from class, or require they be turned off, students reported they interacted with their phones in every class they attended. These examples highlight the challenges educators face even when they are using good and effective communication about positive device use.

This series of investigations show that instructors and students can struggle to have a comprisable relationship of cell phone use because of power shifts. Schools appear to have power because of prevailing policy; yet the real power (by default) is with the students because policies may be so restricting it appears they are unenforceable.

ii. Mixed Messages

The following studies have shown the way in which policies are being delivered are as important as what is being said. Researchers exploring the student/teacher relationship in device populated classes identified that some barriers to establishing conducive digital citizenship in classrooms comes from inhospitable messages about device use. School boards, administrators, and teachers often enforce policies associated with “policing” student owned device use, as opposed to encouraging it.

Charles (2012) found the rules set by the schools in his study came as no surprise: “no cell phones during class time; generally no cell phones during the school day” (p. 6). Campbell (2006) expresses a similar concern in that he still does not know the extent to which policies are effective in reducing mobile phone intrusions during class. Further to this, student disregard for policy makes it even more difficult to understand if the teacher is not providing clear direction, or if students are exercising defiance.

Prensky (2010) provides a grounded counter argument as he believes policy should be a product of dialog among the relevant parties: administrators, parents, the school board, teachers, and students. Garrett (2010) also identifies effective strategies for policy setting. These conditions can directly affect a climate of positive student/teacher device courtesy and digital citizenship. Challenges can further upset the teacher/student relationship if disciplinary action is required, and can lend itself to an inhospitable environment for mobile devices in some classrooms. Effective communication and messaging (as seen in these studies) can therefore be considered essential to establishing a mutual agreement of use.

2.3.4 Literary Theme 4: Conduct and Digital Citizenship in Classrooms

i. Classroom Conduct: Potential for device use vs potency of device use

This literature review has found that the vast majority of research on the topic of teen cell phone use in schools is centered on the positive or negative aspects, the academic pros and cons, or are problems and solution oriented. Colorado (2012), Cramer & Hayes (2010) have written articles that are helpful in establishing both the classroom climate and foreground for a research study on teen device use as smartphones become more pervasive.

Another investigation addressed opportunities in the classrooms: Robb & Shellenbarger (2012) view cell phones as a vital educational tool that might enhance classes. Greenhow, Robelia, & Hughes (2009) think smartphones provide a great potential for inquiry and information gathering. Van de Bogart (2011) offers a series of open ended questions through both a quantitative and qualitative study, and found that students would like to be academically supported to use their cell phones since they are already using them both in and out of the classroom.

Conversely, challenges have also been identified by Robinson, Brown, and Green (2010) who view mobile devices as potential threats to learning. In much of the literature reviewed, the latter argument appears to dominate: Engel and Green (2011) describe that the increase in student owned devices ushers in an unwanted dilemma for schools. Other articles describe the undesirability of personal smartphones in educational settings; Ling (2008), and Leland (2005) do not consider classrooms to be an appropriate venue. The majority of this research appears to be student centric, and addresses how digital devices affect their learning experience.

ii. The Instructor: Core of Conduct and the Classroom Climate

An analysis of the related sources on this topic has identified room for growth in the literature. Resources that centralize on the role of the instructor in device populated classrooms are limited. From those articles examined, some researchers contend that the framing of device use is left to the teacher because they are responsible for establishing the learning climate.

Rosenberg (2013) conveys that it's the teacher who sets the conditions of use, writing that "School board policies appear to offer more latitude to teachers to determine classroom mobile device use policies than the school level policies indicate" (p. 17). Finn & Ledbetter (2014), and Schaffhauser (2014) also suggest that it is the instructor who determines whether students may use wireless communication devices in the classroom. By setting the expectations for wireless communication technology through the messaging of the teacher, students will know if they are permitted or forbidden from use. Resultantly, examining the role of the instructor is a critical component of this issue, since this topic often centers on policy *in* the classroom and not necessarily the entire school institution.

Relevant articles also focused on identifying 'how' instructors contribute to the climate in device populated classrooms, and not just 'whether' they should. These findings vary from the teacher's acceptance of use, to establishing conditions that appear to promote meaningful learning through their device. In sponsoring a climate of effective device operations in their classes Garcia (2012) created a student centered environment because students were establishing their own norms for device use.

Gilroy (2004) says some teachers have found alternate strategies. Turning ringers off, and having students purchase devices with low tech features out of respect for conduct and courtesy worked instead of banning or removing devices. And, going beyond basic issues of

tolerance in the classroom, efficacy of device use on learning is addressed by Ally, Grimus, & Ebner, (2014) who write that teachers choosing to model appropriate mobile use can have a profound impact in schools.

Purcell, Heaps, Buchanan, & Friedrich, (2013) ground their argument with function; technology needs to be driven by actual need and not just for the sake of using it. They found that instructors leading advanced academic programs encouraged device use. They also saw that very few problems arose because the need for technology was focused. McManus (2013) advocates that success is possible with teachers that encourage smartphones. They can use this strategy to build trust with the user as it shows good faith in the user's practice. Subsequently, according to Humble & Thaden (2011), some students also felt more comfortable using technology to respond. It offered another option rather than having to be present. This identifies another way digital communication can promote on task behavior in education.

iii. The Student/Teacher Relationship: The Divide on Digital Citizenship

Some researchers established a divide between the instructor and student where device courtesy is concerned. This led to questionable “digital citizenship” as labelled by Prensky (2001). Ribble (2009) characterized this as a student understanding of, “human, cultural, and social issues related to technology and practice and ethical behavior” (Ribble, 2009, p. 14).

Olher (2010) also provided a description of digital citizenship that features eight attributes, including the requirement for individual virtuous behavior, the balance of community wellbeing, and personal empowerment. In cases cited, students see their actions as appropriate digital citizenship, with absence of harm; teachers have otherwise contended that there is an absence of courtesy leading to disruption.

Research shows that students and teachers perceive the value and importance of device use differently according to Thomas & O'Bannon (2013). Their findings indicate that in almost every instance, faculty perceptions were not shared with student perceptions. And, with 83% of 13 to 17 year olds having cell phones, Knorr (2011) argues that it is difficult to regulate device use if values differ significantly. This is true especially where cell phones and the internet offer new opportunities for unethical behavior that younger generations are engaging in. According to Knorr (2011), educators felt that personal responsibility of youth devices is paramount. Teens need to acknowledge that their actions are as real in cyberspace as it is in the classroom.

The disconnection in perceptions and values between faculty and students does not appear isolated. Thomas & O'Bannon (2013) also wrote that students believed that device use was appropriate and not as disruptive as teachers found it to be. In their study, students appear to over value their mobile technologies because they perceive it is used both socially and educationally. The teachers in their study recognized there were benefits, but conversely, the distractions and other negative effects outweighed the good.

Ali & Smith (2014) also consider how student/teacher relationships are adversely impacted by addressing the distraction to the teacher as the "ultimate effect" that results in an impediment to teaching (p. 114). From this research it appears trust and respect need to be continually negotiated because of misuse. Research conducted by Charles (2012) shows that compromising will not solve all the problems, as abuses will still happen, however, rules are only as good as their enforcement; enforcement hinges primarily on relational trust.

This divisiveness makes a strong case for instructors to proactively align their technology

practices with the conventions of device use happening outside of the classroom. This is especially required in preparation for future employment according to Sturgess (2013), Burns & Lohenry (2013), and Fuller & Joynes (2015). Therefore, students developing a socially conscious understanding of smartphone use in class need to be respectful of their learning environment over their own personal interests by engaging in appropriate device conduct.

2.4 Conclusion

Research on Gen Z teens, instructors, and administrators navigating the challenges of twenty first century technology in classrooms remains a dynamic area of study as smartphone use seems to evolve with advancements in technology, and the applicable way it is used in schools. The effects and impacts of cell phones in classes will remain an ongoing issue as consensus on classroom device conduct and citizenship is far from being reached.

This literature review serves as more than a catalogue of information for those investigating mobile device behaviors and expectations in schools. It reflects the contemporary and influential challenges mobile phone use is presenting across education. It has further demonstrated that there are opportunities for research to be conducted to assess whether senior high school teachers concerned with smartphone use, and behavioral compliance in classrooms, are aligning current school based policy with their student's expectations.

As this issue evolves in education, studies are surfacing on the BYOD practice. Some school institutions are now commonly using cell phones at school, and not only encouraging, but expecting mobile technologies in classrooms. Literature based on classroom BYOD models have been presented by Bruder (2014), Deputy (2015), and Hower & Witford (2015), who primarily

provide strategies that support this approach. More broadly, BYOD models are changing the education landscape in school districts nationally and globally. Examples previously mentioned include Alberta Education (2012), The Upper Canada District School Board in Southeastern Ontario (2015), Australia's NSW Education and Communities (2013), and even the United Nations Educational, Scientific and Cultural Organization (UNESCO) (2013). They have promoted BYOD models that appear to be steering the direction of wireless device use within their jurisdictions. The challenge is that they present a 'top down' approach where policies appear to be established in administration offices, and not at the classroom level. This is a contradictory approach than Bruder (2014), Deputy (2015), and Hower & Witford (2015).

This presented an opportunity to investigate the contradiction noted in the BYOD practice, as examinations of policy for appropriate digital use and citizenship for these models have not been well documented. The academic community would benefit from additional studies processing how teachers in BYOD populated classes regulate student device use when 'mandated' by their institution to follow this model.

As such, a study was conducted by this researcher prompted by the absence of meaningful literature that responded to teacher experiences in BYOD classes. The following research question was posed to participants in this study:

- *“How has student owned device use during instructional time created managerial challenges or advantages in high school social studies classrooms under a BYOD administered model?”*

The following chapter will provide a description of the method design used to collect data for this BYOD study. A detailed description of subject selection, setting, and the techniques by

which data was gathered and analyzed will be presented. It will further explain why the research approach was considered appropriate for the exploration of this study.

3.0 CHAPTER III: Methods

3.1 Introduction

3.2 Background

With smartphones and tablets being so ubiquitous, they have fused our social behavior with technology. Resultantly, human dependencies on mobile technologies reflect people's desire for connection with others, and to be digitally connected to their device as well. Digital accessibility is commonly replacing face to face interactions with "facetime" interactions. This shift in our social patterns of behavior and interaction with one another is noted by Arminen (2007), who wrote "Mobile communications may be part of the development of an online society in which everyone is expected to be available all the time and everywhere" (Arminen, 2007, p. 433). As stated in the previous chapters, a vulnerable sector of society that has contributed to this phenomenon are teens categorized as Gen Z. They are incessantly digitally connected, and increasingly socially disconnected. A notable area of social impact is in education. Students and teachers appear challenged to find a mutually acceptable understanding of appropriate, and reasonable smartphone use in class.

3.3 Problem Statement

Gen Z teens have adopted social behaviors around their mobile devices that cannot not be easily accommodated by most school based policies. Teen students with a dependency to their mobile devices appear to have a substantial attachment, and even challenges with appropriate use. This behavior reflects that the digital portal for on demand access to others has sidelined the

priority of real ‘presence’ in classes. Resultantly, student dependency and attachment toward their smartphone continues to be progressively demanding, and requiring societal change. Schools may be the first to experience this due to the age of those in Generation Z. Educational institutions will require an alignment of pre-millennial antiquated policy with the demands of post millennial device use.

As such, classroom teachers have been the first responders of technology change in education. They must be cooperative agents in any proposed restructured policy to establish trust with their students. Teacher resistance in supporting advanced use of technology for learning can have a dampening effect on student/teacher relations. This division is seen in the Thomas & O’Bannon (2013) study where students and teachers perceived the value and importance of mobile device use differently. Students actively using their smartphones saw their actions as appropriate digital citizenship. Conversely, their teachers found smartphone use a distraction to learning that outweighed the positive digital benefits. This restricted progress in reconciling device use at school is not limited to students. It impacts progressive educators as well. Therefore, prohibitive school policies toward mobile device use in classes have proven counter-productive to both students and teachers that comfortably engaged in technology outside of school.

As rapidly trending as mobile technologies have become, so too have solutions to the problems that have arisen from them. BYOD models have been employed to bridge student expectations of device use, and school based digital technology policies. It reflects a convergent approach with positive student outcomes described by Bruder (2014), and Deputy (2015).

The BYOD model in Alberta appears to recognize that there is a divide between the social evolution of cell phones as a human necessity, and static institutional rules. As such, it allows students to bring a personally owned device to school for the purpose of learning. Therefore, aligning the social challenges of student owned devices in schools with learning opportunities.

Although some current literature reflected the student experience, little was presented on the experiences of educators instructing in technology rich BYOD model schools. It is fair to say that some teachers choose to adopt the strategy of student owned devices as tool. A small section of research has portrayed their findings. However, in high school environments where incorporation of technology is an expectation, theoretical approaches, and solid pedagogy for teachers implementing BYOD designs are lacking. Resultantly, a concern for teachers has been student conduct and compliance on their smartphones. This is especially noticeable in instances where teachers were competing for student attention against digital temptations outside the class that were made accessible by the BYOD platform in the class. Consequently, teachers in BYOD schools are forced to address concerns over policy, and student engagement. This has raised questions about teacher's views of BYOD classes.

3.4 The Purpose of the Study

The intent of this study was to examine the concerns and impressions of four senior high educators working in an affluent central Alberta school that has a high student compliance toward the BYOD model. The teachers involved in this fluid technology design provided their insights on the challenges, and advantages in their BYOD classroom. Adding to the complexity is that mobile devices use for learning is *strongly* promoted at their school. Central to this

enquiry is also student compliance of appropriate device use, conflicting school policy, and student engagement and attention. Data was collected using individual interviews with each participant within a qualitative study using phenomenological methodology, and an inquiry based learning format (Friesen & Scott, 2013) driven by Socratic questioning.

The outcome of this study was to identify at least five essential questions (Wiggins & McTighe, 2004) to advance professional dialogue for educators on this topic. With limited research available on teacher perceptions and experiences of BYOD classrooms, this study serves to aid in the development of leadership and advancement of pedagogical understandings.

3.5 Research Question

In an attempt to explore the topic of teacher's perceptions of a BYOD model in high school classes, an open ended question inviting a phenomenological response was used. The following research question was used as a prompt to stimulate discussion with participating teachers in this study:

- *“How has student owned device use during instructional time created managerial challenges or advantages in high school social studies classrooms under a BYOD administered model?”*

3.6 Chapter Contents

The contents of this chapter outline the research methodology of this study. The selection of the participant pool and research setting are detailed. It takes into account how and why high school social studies teachers in an affluent, technology rich high school in Edmonton were a favorable cohort for this study. The methodology also describes why a quantitative

phenomenological study using one to one interviews was selected to collect data of teacher perceptions and experiences of BYOD classrooms. This chapter further identifies considerations and limitations of the chosen methodology for this investigation.

3.7 Design

3.7.1 Research Method

Qualitative phenomenological research, based on individual interviews was selected as the design for this study. This design appropriately met the data collection requirements from participants by examining their personal experiences on the topic of BYOD models in schools. According to Howsen (2010), qualitative research generally seeks to gain access to subjectively lived experiences by talking with, listening to, and watching people in their everyday contexts. The phenomenological method involves “understanding personal lived experience and thus with exploring persons’ relatedness to, or involvement in, a particular event or process” (Smith, Flowers, & Larkin, 2009, p. 40). Phenomenological research approaches emphasize the subjectivity of the individual. The participant’s perspective and interpretation are relative to their actions which motivates their behavior. As such, a phenomenological design was used, which looked at recorded and transcribed data in order to identify how people view and understand their experiences (Howsen, 2010).

Emerging themes, concerns, and questions were established from the context of personal interviews with the participants of the study. The participant sample was “chosen because they can offer fertile examples of the theme under study” (Sousa, 2014, p. 4). Qualitative research and phenomenology acted as complementary tools in this research study to contextualize the meaning of events and actions occurring within student/teacher interactions.

3.7.2 Research Challenges

It should be a consideration that this approach as a research method can create challenges. It may be difficult to replicate this study because the variables associated with lived experiences (Howsen, 2010) are so dynamic. Notwithstanding, this study was intended to reflect authentic, fluid experiences derived from the teachers selected.

Alternative tools such as surveys, and Likert scales would have allowed greater participant involvement, however, at a cost of diluting personal experiences related to this topic. Wienclaw (2015) writes that real-world situations tend to be very complex in quantitative research designs. As well, the participant's reaction during the experiment may have many variables that may create problems for researchers to articulate (Wienclaw, 2015).

Data gathered on this topic required participants to intrinsically engage in their experiences. In addressing variables that provide external validity, a "thick description" as described by Lincoln and Guba (1985) supported the qualitative interviewing methods used in this study. Data was then evaluated in a broader scope to provide a better understanding of the nuanced challenges of managing BYOD programs. Reliance on this validity method alone can be challenged as it is vulnerable to the subjective perception of the researcher.

3.8 Participants

3.8.1 Sample of Research Participants

Participants were selected by purposive sampling. Collingridge & Gantt (2008) state that participant selection should have a clear rationale with a specific purpose related to the research question, which is why qualitative methods are commonly described as 'purposive'.

Using this premise, a participant pool was initially identified through a Google survey, not related to this research. The survey was distributed as a work based professional development project. It informally focused on the challenges of device use in classrooms at a southwest Edmonton high school. The survey was administered by this researcher to the teaching staff in early 2015. It yielded a limited number of responses; with a teaching staff of 57, there were 22 respondents. Considerations for non-participation in the survey were subsequently described as:

- Not making time to complete the survey
- Lack of obligation to have to complete the survey
- Teacher discomfort using technology
- Lack of concern for off task device use in their teaching area (notably Physical Education, Dance, Construction, Foods, Photography, Math, and Science)

3.8.2 Selection of Research Participants

Core respondents were humanities instructors, primarily teaching Social Studies and English. Of the 22 respondents 17 were women. The only department in which all female teachers responded was Social Studies, which yielded five women. Based on this outcome, female teachers within the discipline of Social Studies were identified as a homogenous cohort, and invited to be interviewed as subjects in this research study.

Establishing boundaries of participation in this study was based on responses and interest from the previously administered survey. The targeted selection, and subsequent elimination of participants was reflective of phenomenology. This supported the ability to narrow the broad list

of participants as it relied only on those who “had experiences relating to the phenomenon being researched” (Kruger, 1988 p. 150).

The small number of participants provided a select group of subjects, which was also supported by distinct homogenous characteristics (identified in the list below). The participant group was chosen because they specifically met the purpose of the research; understanding the personal experiences of teachers in BYOD mandated schools. Sample sizes in qualitative studies can only be set by reference to the specific aims and the methods of study according to Luborsky and Rubinstein (1995). Their research also describe that rules of thumb can exist, and that some phenomenological models believe 12 to 26 participants are a good sample size. However, for this study, the broader sample population was already limited, and additional participants bearing loosely connected characteristics would have only served to unnecessarily saturate the homogeneous cohort selected.

Participants used for this research study shared the following characteristics:

- Social Studies/Humanities Teacher
- Female staff under age 50
- At least two years of teaching experience at the site school
- Technology user within lessons
- Active user of personal mobile device

Participants in this study were all certified teachers. No minors or students were involved in the research study. Teachers were made aware the study was independent of their professional obligations, and they had a right to opt out if they wished with no consequence. They were also assured the findings would in no way impact their role as a teacher at this site or, their teaching

assignment. They were informed by letter, and again prior to the onset of the interview, of potential and perceived risks associated with their participation.

3.9 Setting

3.9.1 Description of Research Environment

The setting for this research study was a high school located in southwest Edmonton, Alberta. The school had a population of approximately 1140 students, with 57 classroom teachers. This researcher was employed as a full time social studies teacher at this school. This provided an upfront view to the research problem, and established a motivation to address this situation as a topic of research.

3.9.2 Background

As this is a relatively new high school in Edmonton, a lot of investment has been put into advancing teaching and learning practises that promote technology. There is a concern that inconsistent teacher communication surrounding the policy of appropriate use of mobile devices in classrooms has resulted in tensions and strained student /teacher relationships with the potential to impact student learning and engagement. Although there have been many studies and reports pertaining to cell phone use and policy in schools, this research site is distinctive because one of the school's foundational pillars is 'advancement in education through the use of technology'. Mobile devices; smartphones, tablets, laptops, Chromebooks, mp3 players are all considered student owned devices that are viewed as learning tools promoted for use in the classroom, and contribute to the school culture of a progressive twenty first century intelligence network. The school has promoted the BYOD model as it aligns its values with those of Alberta Education in relation to technology in classes

3.9.3 Rationale for the Research Setting

The overall affluent economic demographic of the school population also supported this investigation at this location, as student owned devices appear to be owned by the majority of students, and appearing in classrooms. According to Lenhart, Ling, Campbell, & Purcell (2010) 87% of teens living in household earning more than \$75 thousand/year have cell phones. According to 2009 City of Edmonton documents, one of the moderate neighboring communities that students reside in, had a median household income of \$92 492 compared to a city average of \$57 085.

Another reason this site is beneficial to this research study is based on contradictory district policy in light of a progressive technology practice. School based policy that contradicts the BYOD model is evident in the “Student Behavior and Conduct Policy” (2010) put forward by the governing school board, which states “Grounds for disciplinary action that could lead to suspension or expulsion exist where a student has demonstrated unacceptable behaviour such as use of technology...cell phones, and other digital equipment for purposes that are illegal, unethical, immoral, or inappropriate” (p. 3). Resultantly, there is ambiguity and subjectivity as to what “inappropriate” means.

The conditions present in this school community related directly to the proposed research on BYOD device use, and teacher experiences. A broader approach, such as a random sample of teachers across the school district would most definitely have had numerous and diverse variables unlike those present here. However, in this environment the setting is controlled; the same student population, and policy considerations are present which will aid in conceptualizing common themes emerging from the participants responses.

3.4 Instruments

3.4.1 Research Participants

This research used a phenomenological approach with a single research question in a one to one interview format to stimulate open ended discussion with each participant. This format appeared to work well because it was relatively fast, and easy to coordinate with a population size this small. It also allowed participants the opportunity to answer truthfully, and without judgment from other teachers. One to one interaction also facilitated discussions that may not have naturally unfolded if the participant were guided through a series of questions prompting responses, such as a survey.

3.4.2 Research Limitations

A limitation for researchers is that the quality and length of an interview is dependent on variables such as the mood of the respondent, and their willingness to elaborate on their response in order to open up new topics. These limitations were considered by this researcher, but the personal nature of the topic of research for the participants appeared to be motivation enough for deeper discussion.

Focus groups were also a considered to collect data, however, coordinating groups of teachers can pose challenges because of their rigorous schedules. Focus group responses can also be difficult to record with multiple participants simultaneously in the same setting. As well, “hot topics” like device use can often lead to sidebar conversations, and personal anecdotes can shift the focus of the topic.

3.4.3 Research Interviewer

As such, Rudestam and Newton (2007) state that the “instrument” of choice for the qualitative researcher is the human observer” (p. 109). A consideration in using an interviewer is their ability to allow to subject to speak without interference. They also must be skilled at recognizing when a participant has concluded a thought, and require a prompt for further feedback. And even more challenging, is the interviewer’s ability to maintain the integrity of the responses, and not steer the discussion in a bias way. This point is identified by Rudestam and Newton (2007), who say “through the conceptual framework that the purpose of the study is to uncover and describe the participants’ perspectives on events.” (p.102). Accordingly, this researcher possessed a competent background as a teacher, and employed skills to navigate the interpersonal nuances of the interview, and conduct the research according to the proposed design.

Data was then collected within a structure based on high fidelity, and little structure (Rudestam & Newton, 2007). This is sufficient for the phenomenological research approach previously mentioned. Participant responses were observed, and written down during the interview, but digital recorders were also used to ensure all data was comprehensively collected. This allowed the researcher to effectively triangulate comments during coding of the interview.

3.5 Procedures

3.5.1 Participant Preparation

The participant pool was narrowed in advance of this research study being conducted. As previously mentioned, an informal Google survey was offered to all teachers at this school site wishing to answer questions about their interaction with technology and teaching (Appendix

A). This survey was not part of the research design as it took place over a year in advance of this study, and before the criteria for this investigation was determined. However, it proved useful in screening which teachers would be most suitable to consider interviewing. It also identified what subject areas would not derive as much benefit from this type of research. For example teachers in classes where devices such as calculators are actively used, or Phys Ed where phones are not permitted may have limited interference from smartphones.

The questions in the survey (Appendix A) did not influence the design of the research question. However, the survey acted as a platform to highlight participant interest in technology in the classroom which prompted this research study.

Hermeneutic phenomenology is a method used to describe, interpret, and understand lived experience in an effort to discover meaning rather than to explain and predict (Morse, 1991). Because phenomenology examines the meaning that lived experiences have in people's lives, it is a valuable research method in education. As this study is based on the phenomenological experience of technology of the participants, only teachers participating in the Google survey were considered.

Subsequent to participants completing the survey, a letter of invitation was given to the proposed research cohort (Appendix D). This letter explained the purpose of the study and any inherent risks that may arise from their participation. After confirming their participation, the teachers involved in the study were asked to complete a short bio-demographic (Appendix B) in order to gain a clearer understanding of 'who they are' in relation to their perceptions and experiences. It was also an aid to discard extenuating and unforeseen factors which may not

have been previously considered. These steps also served as a measure of external validity for the study (Rudestam & Newton, 2007).

3.5.2 Interviewer Preparation

In preparation for the one to one interview sessions additional readings were done by this researcher. Interview techniques and strategies focusing on conducting open-ended interviews (Magnusson, & Marecek, 2015), (Rudestam & Newton, 2007) were specifically addressed. These steps were taken to ensure internal validity of the study in order to maintain credibility of truth value from the findings (Rudestam & Newton, 2007).

3.5.3 Interview Considerations

Selecting a comfortable and acoustic area to record the interview was achieved by meeting with participants in their classrooms when classes were not in session. It served to not only minimize distractions, but acted as a prompt for the teacher since they could more easily recall personal experiences related to this topic in the environment in which it occurred. Participants were asked to place their own mobile device in a place they would not be distracted, and to respond to the research question when they were comfortable. Dialogue was carried out in a conversational style. No concluding time was introduced by this researcher, allowing participants enough time to be comfortable with the process, however 45 minutes to an hour was the projected time. This was done to aid the cohort in sharing their most authentic experiences around BYOD use in their classes.

3.5.4 Method of Questioning

Socratic questioning was used to encourage participants to think metacognitively about their perceptions and experiences of student device use in their classes in order to provide a

richer construct of their feelings and experiences within this study. This approach added to Rudestam and Newton's (2007) requirement that findings are based on critical investigation. Wortel and Verweij state (2008) "Socratic Dialogue as a method for empirical research can be used to focus on relevant questions for the 'Other' in order to create a theoretically vibrant and rigorous research agenda. The term 'Other' refers to a person other than oneself." (Wortel & Verweij, 2008, p. 53).

This researcher believes that the procedures outlined in this section can support the reliability of a similar study on BYOD classrooms if endeavored upon.

3.6 Analysis

3.6.1 Research Analysis Challenges

In a qualitative research design, analyzing data is a challenge. By using an interview with a single prompt, it is hard to predict the participant's responses. Rudestam and Newton (2007) address this by saying that researchers considering qualitative research methods like interviews will find that little can be processed as it relates to data analysis in advance of the study.

3.6.2 Research Analysis Approach

Sousa (2014) provided a reliable approach for data collection. He cited Morrow (2005) and Polkinghorne (2005) in describing how to maintain the integrity of the data gathered using interviews, stating that the adequacy of the data has to do with the quality and thoroughness of the grounds upon which the conclusions are based. He continues that the central aim of data gathering is to determine evidence on the experiences that are being researched, so the

researcher, in analysing the data, may define general descriptions from them of those same experiences (Sousa, 2014). This prompt supported data analysis for this study, ensuring that comments are coded based on emerging themes from the interview in order to maintain the trustworthiness of the design process.

Interpretive Phenomenological Analysis (IPA) described by Smith & Osborn (2008), and Thematic Analysis (Braun & Clarke, 2006) were used to process the data from the interviews. According to Smith (1995) IPA can be used to develop in-depth descriptions of human experience, and develop theories and explanations that help us understand the human experience better.

Thematic Analysis was then used to identify, analyze, and report patterns (themes) within the personal data of the respondent (Braun & Clarke, 2006). Braun & Clarke (2006) believe that thematic analysis should be seen as a foundational method for qualitative analysis. More specifically, they see it as the first qualitative method of analysis that researchers should learn. As a novice researcher, this format worked well to process the data obtained without constraint. Another reason Thematic Analysis was selected is that the design of this study was reliant on themes emerging through the personal interview process. This made this framework a solid approach to coding data for this study.

Braun & Clarke (2006) also state that approaches like IPA are relatively limited in variability in how the method is applied. Therefore, multiple approaches allowed for both structure and flexibility to support the process of inductive reasoning.

3.6.3 Research, Reliability and Validity

Establishing validity in a qualitative research design can have challenges. Ensuring the goals and objectives of the study are truthful is essential. For this study, a “thick description” described by Lincoln and Guba (1985) was used. This form of validity is open to criticism though. Holloway (1997) finds this method confusing as it is difficult to assess what it actually represents, and therefore validate. Although the results are not measureable as would be the case in a quantitative study, a thick description meets the objectives for this qualitative study. Thick descriptions in qualitative research can substantiate that the voices, feelings, actions, and meanings of interacting individuals are heard (Denzin, 1989). By applying this method of validity, the researcher is tasked with describing and interpreting observed behavior of the participants. Ponterotto (2006) describes a thick description in capturing the thoughts and feelings of participants as well as the often complex web of relationships among them. This supports the intentions of this study which is grounded on the feelings, and experiences of the participants. Therefore, this form of validity works appropriately with the research design of this investigation.

3.7 Summary

This research was concerned with exploring teacher’s perceptions, and impressions within BYOD classes in a school that strongly encouraged the practice of students having their personal device on hand. Teacher participants in this Southwest Edmonton high school supported this study by sharing their metacognitive experiences during personal one to one interviews. The data collected revealed the complexities teachers are facing in BYOD model schools, which have been strongly encouraged in the province of Alberta. The BYOD technology practice moves away from traditional school codes that are structured around

retaining policing style policies. Antiquated cell phone bans are facing cultural resistance by students simply because *everyone* has a phone. Navigating policy to provide meaningful and appropriate use of personal mobile devices in schools has been a challenge over the last decade. However, this challenge remains one worth embracing for educators. Redefining the mobile phone as more than a social communication device within BYOD schools is empowering to the student. Off task behaviors arising from this model presents dilemma for educators though. The issue for teachers working in this setting is stated in the following research question:

- *“How has student owned device use during instructional time created managerial challenges or advantages in high school social studies classrooms under a BYOD administered model?”*

The findings and discussion presented in the next chapter of this study supported the aim of establishing at least five “essential questions” educators can consider as they create strategies to work within the BYOD model at school. As progressive educators assume leadership, and seek to find creative approaches to working with BYOD models in schools, it may lead to fewer issues of student device misconduct. That can support positive results from students.

It is further intended that the findings from this investigation will benefit future researchers in examining how pervasive social behaviors and expectations of device use appear to permeate one of our most intimate actions; the act of learning.

4.0 CHAPTER IV: Findings and Analysis

4.1 Introduction

4.1.1 Scope of the Problem

Smartphones seemingly have leverage over our daily social interactions as expectations and demands for use have increased. Today's high schools illuminate this phenomenon as Gen Z teens regularly bring and use their mobile phones during class. Smartphones have become as much a staple as pencils and notebooks on campuses and in schools. This is challenging the role, even authority the teacher has over their class. Student attachment or addiction to their personal smartphones can be characterized by Bowlby's (1969) 'Attachment Theory'. His research showed that subjects would go to extraordinary lengths to prevent distance from the object they were emotionally connected to. The perspective of Shields (2003), and Hillis (2009) support the idea that the shift from real to a virtual interaction appears to contribute to new forms of attachment. This places tremendous pressure within educational institutions, especially teachers, as they compete with the allure of the virtual in spaces where student presence of mind is fundamental.

4.1.2 Purpose of the Study

The purpose of this study was to attempt to distinguish tangible concerns and impressions of four senior high educators working in a technology rich, and affluent central Alberta school. In this high school the BYOD climate is promoted, with high student compliance of personal smartphones. BYOD's are most commonly seen as Wi-Fi enabled smartphones with broad communication access, including the internet, and other forms of social networking. Alberta Education has proactively moved in the direction of incorporating technology in the classroom. This has encouraged their school districts to promote BYOD programs in their schools.

The BYOD model can be seen as a technology bridge in schools that recognizes people's social dependency on smartphones with static institutional rules. As teachers in BYOD schools shift their practice from a front of the room focus to learning in the palm of a hand, concerns surrounding policy and student attention are central.

4.1.3 Methodology

The dynamic complexities Alberta teachers were faced with in BYOD schools was the catalyst for this research. It investigated the digital presence in high school Social Studies classrooms where technology policies fluctuated because of BYOD use. To this end, a qualitative research method was used as it allowed this study to pursue an understanding of latent, underlying, or non-obvious issues (Miles & Huberman, 1994). This was accomplished by examining the impact of personal smartphone technology through the lens of a teacher's phenomenological experiences.

Using in-depth interviews based on phenomenological methodology, four senior high Social Studies teachers were consulted regarding classroom mobile phone use by students, and their perceptions of the advantages and challenges of the BYOD practice in their school. An interview schedule based on semi-structured open ended questions (Smith & Osborn, 2008) was constructed after a careful review of the literature concerning BYOD in education (Hower & Witford 2015). An inquiry based learning format (Friesen & Scott, 2013) driven by Socratic questioning was used during the interviews. Data was then processed from the individual interviews within the qualitative study using IPA Smith & Osborn (2008), and Thematic Analysis as outlined by Braun & Clarke (2006).

4.1.4 Research Question

Motivated by previous research (Thomas & O’Bannon, 2013; Bruder, 2014; Deputy 2015), this investigation addressed topics identified as challenges that teachers faced from student compliance of device use. Further considerations included conflicting school policy, and student engagement and attention. The following research question was used as a prompt to stimulate authentic, experiential responses for discussion with the participating teachers in this study:

- *“How has student owned device use during instructional time created managerial challenges or advantages in high school social studies classrooms under a BYOD administered model?”*

The intention of this study was not based on deductive reasoning, nor was it “solution oriented”, therefore intending to seek a final outcome. Instead the purpose of this study was to establish and analyze a number of essential questions (Wiggins & McTighe, 2004) that arose from the BYOD practice.

4.1.5 Preview of Findings and Analysis

This report presented its data through text, tables, and diagrams in the section titled “Findings”. Features of the sample cohort as well as the research setting were previously identified within the “Methodology” section of this report. An explanation of coding features was provided under the heading of “Data Analysis”. Finally, an analysis of emerging themes on this research topic from the respondent interviews was detailed in the “Discussion” section.

4.1.6 Chapter Contents

The contents of the following chapter present the findings and analysis of this study by detailing the advantages and challenges of a small group of humanities teachers in a high school

in Edmonton. The participant responses from this qualitative phenomenological study using one to one interviews reflected their views of BYOD classrooms during their tenure at this school site. The methodology, validity, and limitations for this research study have also been identified. In addressing the research question:

“How has student owned device use during instructional time created managerial challenges or advantages in high school social studies classrooms under a BYOD administered model?”

six additional sub questions (Appendix C) were posed as baseline questions to assist in establishing the respondent’s perspectives. An analysis of the teacher responses were presented, and examined in the “Discussion” section of this chapter.

4.2 Sample

4.2.1 The Setting

The school site used for this research project was located in an economically prosperous area of southwest Edmonton. As mentioned previously, the mean household income for this community is \$92 492 according to a 2009 City of Edmonton report. This was significant as Lenhart, et al., (2010) identify 87% of teens living in household earning more than \$75 thousand/year have cell phones. It qualified students of this school community as highly likely to have a high student population in retention of their own mobile phones.

This school had a population of approximately 1140 students, with 57 classroom teachers. This school site was undergoing an expansion that will further increase the student population and faculty within the next year. As a foundational educational pillar, this high school focused on increasing capacity for technology. As such, the school had invested in

additional infrastructure to support technology use in classes, which would align with a productive BYOD culture of mobile device use. This researcher is currently employed as a full time Social Studies teacher at this school. This provided an upfront view of the situation, and established a cause to address this as a topic of research. This high school was selected because it bears a number of attributes that made it a meaningful site for this study. They are identified as:

- Affluence of the community
- High number of personal devices brought to school
- Technology rich teaching/learning environment
- BYOD practicing school

4.2.2 The Participants

The four participants (female teachers) in this qualitative study engaged in a phenomenological research approach using personal interviews to solicit their authentic lived experiences of the challenges and advantages in a BYOD classroom setting. The females emerged as a homogenous group based on their responses to a previous survey (not related to this study). Therefore, participants were selected following purposive qualitative methods described by Collingridge & Gantt (2008), which state that participant selection should have a clear rationale with a specific purpose related to the research question.

As previously stated, each of the participants completed a survey a year earlier based on technology use at the same school site administered by this researcher. Core respondents were female humanities instructors, primarily teaching Social Studies and English. The pool narrowed as the Social Studies department was identified as being the only to have all of the females in the

department complete the survey. This was supported by Luborsky and Rubinstein (1995), who state that sample sizes in qualitative studies can only be set by reference to the specific aims and the methods of study. Although the previous survey was not relevant to this research study, the respondent pool still provided an opportunity to identify and develop a cluster of four female Social Studies teachers that could be used to examine this research topic. Therefore, a cohort comprised of females teaching Social Studies distinctively emerged. These features provided reasonable boundaries in which to build a meaningful cohort for this investigation. Since all four were chosen with characteristics relevant to the study, it maintained the criteria required for purposive sampling Collingridge & Gantt (2008).

Names and distinguishable characteristics have been altered in this report to comply with the request of anonymity on behalf of the participants. Each participant was assigned an alphabetic pseudonym based on the order they were interviewed: the first participant received a name beginning with the letter A, the second with a name starting with the letter B, and so on. All of the teachers in this study volunteered their time and insights without compensation.

At the start of each interview, the researcher shared the purpose of the study, and explicitly confirmed the teacher's willingness to participate. The process for the interview was explained, which included asking the participants to speak freely about their most authentic experiences surrounding the research question on BYOD's. The interview schedule of questions remained the same for all teachers so that their responses could reflect patterns, themes, or distinctive anomalies they had experienced with the BYOD phenomenon. The focus of a phenomenological study according to Patton (1990) lies in the descriptions of what people experience and how it is that they experience it. Therefore, each interview was conducted in the

responding teacher's classroom in order to support their ability to reflect on intrinsic experiences that took place in their teaching environment. This setting also supported the internal validity of the study as it acted as an instrument to ensure authentic response could be measured from the participants. At the conclusion of each interview, all of the respondents signed a post interview consent (Appendix F) form which expressed the degree to which they wished their identity be distinguished or concealed within the study.

4.3 Data Analysis

4.3.1 Coding

The research approach used for this study (and detailed in the "Methods" chapter of this report) was a phenomenological in nature. The data was interpreted by using Interpretive Phenomenological Analysis (IPA) described by Smith & Osborn (2008), as well as Thematic Analysis Braun & Clarke (2006). The combination of coding approaches allowed for both structure and flexibility to support the process of inductive reasoning. This researcher independently coded all of the transcripts of this BYOD study.

IPA emphasizes that there is an active role for the researcher within the analysis. Smith & Osborn (2008) state that a two-stage interpretation process, or a double hermeneutic, is involved, where the participants are trying to make sense of their world; the researcher is trying to make sense of the participants trying to make sense of their world. As IPA studies are conducted on small sample sizes; indicative of purposive sampling, Smith & Osborn (2008) explain that it provides a detailed case-by-case analysis of individual transcripts. The aim of the study is to say something in detail about the perceptions and understandings of the group rather than prematurely make more general claims (Smith & Osborn, 2008, p. 55).

IPA assisted in data collection, and participant selection for this project, as well as identifying individual meaning. Thematic Analysis was then used to identify, analyze, and report patterns (themes) within the personal data of the respondent (Braun & Clarke, 2006), and across the entire section of the participant pool. Thematic Analysis was additionally selected as it is a process of coding the data without trying to fit it into a pre-existing coding frame, or the researcher's analytic preconceptions (Braun & Clarke, 2006).

To ensure thorough coding, initially the IPA process of data analysis was followed using the steps identified by Smith et al. (2009). The steps involved having the individual transcripts read and re-read by this researcher, followed by initial notes being made on each respondent, with emerging themes then identified. At the conclusion of each interview links to BYOD themes were conceptualized. The assessment of the next teacher interview was done following the same steps. Outstanding patterns or anomalies were then recorded about their phenomenological experience. Patterns include repetitious words or similar statements. Anomalies were considered responses that noticeably deviated from the statements of other participants, or comments that visually appeared to even surprise the participant upon saying.

In order to then systemize this data, Thematic Analysis at the latent level as described by Braun & Clarke (2006) was used. According to Braun & Clarke (2006) this involved examining the underlying ideas, assumptions, and conceptualisations – and ideologies - that are theorised as shaping or informing the semantic content of the data (Braun & Clarke, 2006, p. 13). It included a thorough review of the transcripts of the participants as well. In the margins remarks were made to note features of the transcript that stood out as meaningful. The first set of codes were

introduced to begin to label emerging and significant topics from each teacher. The introduction of themes followed. This moved the data beyond individual topics by combining relevant pieces together that shared a motif. Themes were then refined by using axial coding, by combining original codes into major categories. Subcategories and their relationships to the major topics reflected ideas emerging as the essence of this study. These themes were then identified and labeled to assist in establishing the core of this research study. Each individual theme was considered in relation to the broader BYOD topic, and then measured to each other.

4.3.2 Validity and Reliability

Lincoln and Guba (1985) believe that sustaining the trustworthiness of a research report depends on the issues discussed as validity and reliability. Although methods of triangulation are often used to ensure validity, the design of this study was based on the intrinsic experiences of the participants. The aim in qualitative research is to engage in research that probes for deeper understanding rather than examining surface features according to Johnson (1995). For this reason, a thick description was used for validity. Denzin (1989) states this model does more than record what a person is doing, going beyond surface appearances. It presents detail, context, emotion, and the webs of social relationships that joins individuals to each other. This interpretive method allowed participant experiences and perceptions to be viewed as valid without empirical measures.

It must be considered that this method leaves room for criticism. It can be argued that the data analysis is based only on the researcher's subjective interpretation. This consideration was taken into account within this research design. However, as thick descriptions evokes

emotionality and self-feelings it provided the appropriate rationale for the validity of the responses of the participants in this study.

4.3.3 Delimitations

As this study was qualitative in design, considerations were made for processing the respondent data. An open ended interview question yielded an abundance of data. In contrast a Likert scale, would have provided prescribed choices to select from, and resultantly increase the number of research participants. This could have afforded a broader scope of the phenomenon to be studied. However, this design is often restricted to the questions on the survey, and allows little opportunity for participants to clarify what they mean or reveal their motivations.

Another limitation is that there were no predetermined categories in which to label, classify, or index the remarks made by the participants. Therefore, the responses provided as data for the study were subject to multiple meanings and broad interpretation by the researcher. This resulted in a subjective analysis of this research topic which may be vulnerable to misconceptions, or misunderstandings.

4.4 Data Presentation

4.4.1 Investigation

A series of six open-ended baseline questions (Appendix B) were posed to each respondent at the start of their one to one interview to provide an individual profile, and establish their understanding and relationship with the BYOD topic. These questions also provided analytical characteristics of the cohort that were useful in identifying and categorizing themes from their responses. Along with the six semi-structured baseline questions, a number of prompts

were used to invite participants further elaborate on their remarks. This provided additional clarification on comments, and allowed the respondent to continue to engage in the experiential phenomenological process. The following semi-structured baseline questions were posed to each participant of this study:

Table 1

<i>Semi-structured Baseline Interview Questions</i>	
1.	How many years have you taught at this school site?
2.	What are your humanities teaching assignments at this school?
3.	What are the circumstances in which you allow students to use their mobile device in your class?
4.	What are the circumstances in which students observe you using your device in class?
5.	What is your understanding of the school's BYOD policy?
6.	How did you become aware of the school's BYOD policy?

4.4.2 Discovery

The research and baseline questions used to guide this investigation generated responses consistent with authentic experiences and impressions of the faculty members. They were then looked at, recorded, and had their data transcribed in order to identify how people view and understand their experiences (Howsen, 2010). Teacher perspectives established advantages to BYOD use by students in their classes, as well as what they considered disadvantages to the

open platform technology use. The findings from the baseline questions identified in Table 1 were categorized and reflected in the charts and diagrams detailed throughout this section.

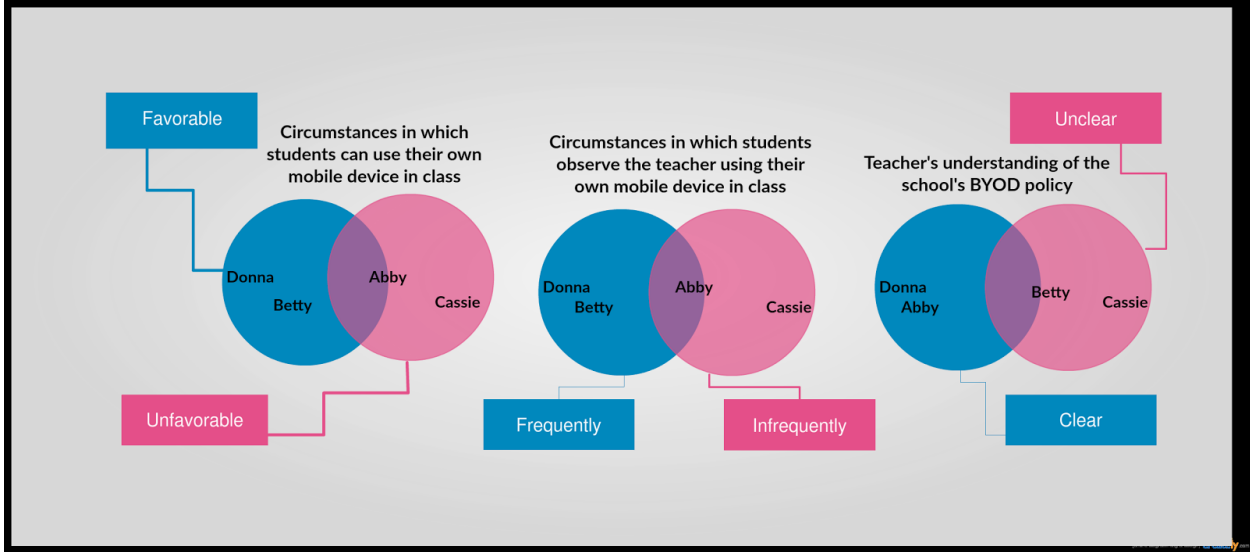
The table below profiles demographic characteristics of the participant cohort for this study based on questions one and two from Table 1 used to establish semi-structured baseline questions which were used to ease the respondent into the interview:

Table 2

Order of Participant Interviews	Participant code: (Assigned Name for the research study)	Gender	Humanities teaching assignment at the research school site	Years taught at the research school site	Demographic of participant age
1	Abby (p1)	Female	Social Studies	6 years	Under 35
2	Betty (p2)	Female	Social Studies and English	5 years	Under 35
3	Cassie (p3)	Female	Social Studies and English	3 years	Under 30
4	Donna (p4)	Female	Social Studies	4 years	Under 35

The following diagram provides a visual orientation of the participant’s responses to baseline questions three through five.

Table 3



In response to baseline question number six, the respondent’s perspectives were recoded as:

Table 4

How did you become aware of the school’s BYOD policy?

Abby (p1)	“Through trial and error. Students viewed it as an inherent expectation.”
Betty (p2)	“Conversation with other teachers early in the school year in my first year.”
Cassie (p3)	“Not sure. There was an impression from the school I adopted.”
Donna (p4)	“From the previous lead technology teacher”

The baseline questions assisted in establishing a context for the participants to respond to the research question. These questions prompted the teachers to focus on, and recall their behaviors and interactions connected to BYOD use in their classes. This promoted generous responses to the research question central to this study:

- *“How has student owned device use during instructional time created managerial challenges or advantages in high school social studies classrooms under a BYOD administered model?”*

Based on the literature reviewed for this investigation, a number of assumptions about the role and function of BYOD’s in classrooms were noted by this researcher. This provided a loose framework in which participants responses could be referenced for coding (Smith & Osborn, 2008).

The following chart details scholarly assumptions that were recognized by this researcher. It is paired with a number of discoveries that reflect the experiences of this cohort throughout the teacher interviews:

Table 5

<i>Presuppositions and Discoveries:</i>	
<i>Research Presuppositions</i>	<i>Post Interview Discoveries</i>
BYOD policy is clearly implemented (Rosenberg, 2013)	BYOD policy confusion was evident (p1), (p2), (p3)
Students have an expectation of device use (Jaschik, 2013)	Students had an expectation of device use (p1), (p2), (p3), (p4)
BYOD classrooms engage teachers to do more to broaden their teaching (Garcia, 2012)	BYOD classes eliminated teacher having to know everything (p1), (p2)
BYOD integration leads to more student collaboration (McManus, 2013)	Students were centered on individual device use for personal communication (p1), P2), (p3), (p4)

Valuable educational tool for students i.e.: apps, organizers, social media platforms (Robb & Shellenbarger, 2012)	Valuable educational tool for students when used for classroom tasks (p1), (p2), (p3), (p4)
BYOD promotes student self-driven learning opportunities (Greenhow et al., 2009)	BYOD promoted student self-driven learning opportunities (p1), (p2), (p3), (p4)
BYOD open use can be distracting for teachers (Ali & Smith, 2014) (Thomas & O'Bannon, 2013)	BYOD use lead to uneasiness/discomfort with student use in classroom (p1), (p3)
Student device use is constant during class (Charles, 2012) (Campbell, 2006) (Jaschik, 2013)	Student use was constant during class (p1), (p2), (p4)
Social media platforms are welcome in the classroom through own device (Jaschik, 2013)	Concerned about negative content about the teacher/class being shared online using student owned or anonymous accounts (p1), (p4)
BYOD promotes access to virtual classroom and teacher is positive (Cramer & Hayes, 2010)	Expectation of unlimited access encroaching on teacher privacy/nonworking hours (p1), (p4)
Off task behavior non-discriminant; universal of all students Lenhart et al., (2010)	Students from better homes, used their devices with greater responsibility in class (p3)
Modelling positive BYOD use promotes positive student device use (Grimus, & Ebner, 2014)	Modelling positive BYOD use promoted positive student device use (p4)

Smith, Flowers, and Larkin (2009) write that it is important to become familiar with the perspectives of those who experienced it. Each of the participants presented their phenomenological experiences with BYOD's in their classes, and in doing so provided an eclectic view filled with both challenges and advantages of student use. Their diverse comments were essential in understanding the scope of this phenomenon, as it established a variety of considerations to address when looking at the effect of BYOD use in high school classes.

Abby (p1) stressed the conflict of engaging students through a BYOD platform with effective teaching while recognizing the impact of proper student self-monitoring of smartphone use. She regularly brought her phone to class and could occasionally be seen checking communications on it. Throughout her interview she discussed how she invited positive opportunities to advance the technology in her class, but frequently lamented on frustrations due to off task behavior, and poor student management of their phones. Abby stated that:

“We use devices daily in class because the benefits outweigh the disadvantages. But students expect to use their phones whenever they want. They get immediate gratification from their texts. For that reason the cell phones are not a valuable tool. The cell phones are more of a distraction than a help. Because we can’t see the screens - it’s a major problem. It’s difficult to monitor what else they’re doing on their device. It becomes impossible to police kids and teach at the same time. Self-monitoring is based on student strength”.

Betty also recognized that BYOD use provided valuable opportunities for learning as long as respectful accessibility was present. Betty had her phone with her during class. It was primarily used to check the time. She said she rarely used it for communications during class. Throughout Betty’s interview she expressed proactive use, by her students as well as herself. She described a number of positive applications of BYOD use in her classes, however, other notable comments centered on her confusion of policy and expectation of use at the school. Betty commented on the phenomenon by saying:

“I see the potential for enrichment, because kids have to look things up for themselves. It’s less for you to do. It feels good for the teacher and the student to have to investigate to get the answer. It increases the expectation for the student. It seems to lead to more collaboration, and more conversation...I like it because we teach ourselves instead of someone teaching us”.

Betty further described her confusion about the BYOD policy when she stated:

“I think we send mixed messages about the phones. I’m not entirely sure. Do students have the right to have them on them whenever? There are expectations, but not a whole lot of clarity”.

Cassie addressed cell phone use in class with great limitations. She prefers not to have them in her class at all. Cassie said she never brought her cell phone into her classes. She values the organizational tools that accompany smartphones when they were in her classes, but had greater apprehension about student productivity when she taught. Cassie remarked:

“I use cell phones as an agenda - no more excuses for not having a planner - I like that. They can take out their phone and figure it out as a tool. Students get immediate feedback on some assignments - I love that. They know where they are right away. I’m open to trying new things, but sometimes the phones lead to defiance. I have to shift from the phone to a behavioral issue because there is a refusal by the student to give it up”

Cassie also expressed many concerns about the negative impact of smartphones not only toward her students, but she mentioned concern for herself, especially noted here:

“...when the kids are off task with the technology, and it’s not being used appropriately, I have to threaten them with removal of their phone. I don’t know how to deal with it - how to teach the importance of using it appropriately and effectively. I’m insecure because I don’t know how to deal with the reliance of the technology. It’s more anxiety for me, it’s another layer”.

Donna had a strong sense of empowering students to use their own devices all the time. She believed she enabled this behavior by modelling her device use. Donna brought her phone to class all the time, and was frequently seen using it for communications by her students. She valued the freedoms, and motivation technology brought to her students. Donna noted that BYOD classes provided students more opportunities to use their devices, and an opportunity to promote positive use in her classes. Donna said:

“Students in my class are free to use their phones, but they can’t use them for major assessments. I like using social media or anything at your fingertips...I need to be reachable all the time (for my teaching assignment), so I have my phone with me all the time...Students can bring their device anytime. They understand how to use it - it’s at the discretion of the teacher. I’m one hundred percent hands on. I think like the student because of my own use...I want to teach them how to use their device appropriately... (for) students to emulate how I use it.”

Donna further talked about the drawbacks to unlimited BYOD engagement from her students, and the impact of her own dependency toward her device:

“I’m very attached to my phone. I have daily contacts from kids. Over three hundred. Its hard teaching kids to respect my private time. Do I respond? No - I can’t respond all of the time. It’s my own learning experience to ask myself ‘when do I respond’. I’m focused on leading by example”.

4.4.3 Findings

Based on the analytic approaches following IPA (Smith & Osborn, 2008), and Thematic Analysis (Braun & Clarke, 2006) the teacher responses led this researcher to establish five core themes that emerged as “essential questions” that school authorities may wish to consider as they work with BYOD platforms. BYOD strategies are a newer pedagogical approach to learning. As such, research, and data can prove extremely beneficial to schools considering and using this technology format.

The themes were identified by coding the comments made by the respondents based on the questions asked during their interviews, and then processing their similarities or anomalies. These themes emerged naturally, and were not expectant results. Therefore, at the onset it was unknown what themes would emerge through the investigative process. The following five categories were developed based on frequency or thematic grouping of comments.

4.5 Themes

1. Academic engagement of student smartphones for classes
2. Understanding of the constitution of the school’s BYOD policy
3. Reasonable boundaries of out of class accessibility for students and teachers
4. Modelling behavior of device use

5. Feelings of safety and vulnerability of device use in class

Evidence of repetition and emerging themes by the participants are observed in the tables and statements to follow. They indicate which participants spoke about the topic, and their comments during their interview that assisted in establishing each theme.

Table 6.1

Participant Responses to Emerging Themes on BYOD use in Classes	
Thematic Topic	Participant Commenting on Theme
1. Academic engagement of student smartphones for classes	(p1), (p2), (p3), (p4)

(p1) Abby said: “It transforms the way students can access the classroom in the traditional sense. Using their own phones allowed students to find more and more ways of doing things online in class, like searching for information, collaborating, and using alternate programs to present information”.

(p2) Betty said: “It was good for looking up words, especially for English Language Learners that used them as translators. It enabled them to have a conversation in English”.

(p3) Cassie said: “I can use it as a resource to navigate text, or I do review games. I have them take it out and figure it out”.

(p4) Donna said: “We use Google classroom even at night. I can post a question, and get 32 or even 38 students on a class forum at nine at night”.

Table 6.2

Thematic Topic	Participant Commenting on Theme
2. Understanding of the constitution of the school's BYOD policy	(p1), (p2), (p3), (p4)

(p1) Abby said: “Students can bring their devices as needed, with each teacher having their own classroom policy”.

(p2) Betty said: “When I started (at this school) it was a year of expansion. I’m still unsure what the cell phone policy is. My policy is mentioned at the start of the year - the rule is respect all things within reason. There’s lots of freedoms within respect for phones, so bring them. But there are particular moments when they’re put away”.

(p3) Cassie said: “I don’t promote the use of cell phones. My understanding is that it’s based on teacher discretion - that’s my impression...It would be nice to have an explicit expectation for phones across the board”.

(p4) Donna said: “Students are free to use devices, but they can’t use them for major assessments”.

Table 6.3

Thematic Topic	Participant Commenting on Theme
3. Reasonable boundaries of out of class accessibility for students and teachers	(p1), (p4)

(p1) Abby said: “For one thing, there’s twenty four/seven access to the class all the time. It’s good because it leads to no more excuses for coming unprepared to class. But, there’s

a privacy issue when they bring their own cell phones. Video clips can be sliced and diced, making it a potential threat to a teacher if a video or audio recording of the teacher is posted on social media”.

(p4) Donna said: “When do you turn off or disconnect your phone from students? I’m teaching myself how to respect my private time. Sometimes I feel like I have no private life. For the kids there’s an instant gratification, but I’m learning there’s boundaries as well as balance”.

Table 6.4

Thematic Topic	Participant Commenting on Theme
4. Modelling behavior of device use	(p1), (p2), (p4)

(p1) Abby said: “Students need to participate in self-monitoring their behavior on their phone - way more...For us as teachers, modelling behavior that’s appropriate is really important. There just can’t be a double standard...But you’re staying off your phone doesn’t seem to encourage kids to stay off theirs though”.

(p2) Betty said: “I don’t text or use my phone as a phone in class”.

(p4) Donna said: “It’s a good professional opportunity to lead (BYOD use) by example. I want to promote this within our community...it makes us not afraid to fail..it broadens our teaching practice, and this is passed from the teacher to the student”.

Table 6.5

Thematic Topic	Participant Commenting on Theme
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<p>5. Feelings of empowerment and vulnerability of device use in class</p>	<p>(p1), (p2), (p3), (p4)</p>
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(p1) Abby said: “Kids bringing their cell phones to class empowers them”.

(p2) Betty said: “It stops me from having to know more about everything”.

(p3) Cassie said: “When kids are off task with the technology, and it’s not being used appropriately... I don’t know how to deal with it. We’re not doing it well. I’m turning into the bad guy...It leads to more anxiety for me”.

(p4) Donna said: “We need to provide opportunities to use the technology more. It limits the student’s vulnerability and nervousness. The technology creates a safe place for them (students)”.

4.5.1 Analytic Outcome

Although other consistencies and anomalies emerged from each participant response, it is the five categorical themes in this report that are of particular interest to this research as they represent opportunities for professional discourse on the growing topic of BYOD’s in schools. These topics will be further explored in the “Discussion” section of this report.

4.6 Discussion

The results of this study confirm that there are more questions than answers about the challenges and advantages high school teachers face in relation to student BYOD use in their classes. This investigation was intended to promote conversation about BYOD’s in schools by establishing five provocative questions any educator can use to challenge their ideas of this

model being implemented in their teaching space. Themes discovered within the data led to the design of the following “Five Essential Questions” that were at the heart of this discussion:

- *With an absence of a common academic application for smartphone use, what are the student owned devices used for in class?*
- *What are the challenges to understanding the school wide policy for the BYOD model?*
- *How do educators address issues of reasonable accessibility and boundaries for personal devices for both the student and teacher?*
- *Is any particular perspective of modelling positive behavior of device use in class considered more valuable?*
- *How do educators address the feelings of safety and vulnerability of device use in class for both teachers and students?*

It is important to note that the sample size of the cohort investigated represented a small perspective of the school community, and teachers within this school district on the whole. This report presents the experiences and perceptions of a homogeneous group of teachers in a specific school setting. As this researcher is a professional colleague of the respondents, the possibility of bias must be considered. However, this investigation provides ample opportunities to enquire about the experiences of other teaching professionals in a much broader scope on the topic of BYOD in classrooms. It is intended the “Five Essential Questions” about BYOD classroom use will contribute to the decisions educators make using this technology model.

4.6.1 Questions and Considerations

Question 1: With an absence of a common academic application for smartphone use, what are the student owned devices used for in class?

Respondents in this study demonstrated they had a variety of applications for BYOD use. However, it was evident, that no definitive common task for all students was present. Use of their personal device in classrooms was reported as situational, and therefore varied by all four teachers. The most common application mentioned was the use of Google Apps, and Google Classroom, however, this was not specifically referenced by all respondents in which a common practice of use could be established. As a result teachers reported off task behaviors, and challenges with knowing how students were accessing their personal devices for learning.

The Social Construct of Technology (SCOT) theory by Pinch and Bijker (1984) describes how technologies and innovations like computers, shape and organize the world and our lives. The first component in Pinch and Bijker's (1984) framework: interpretive flexibility, considers that technological artifacts are similarly the product of intergroup negotiations. Based on that, individuals decide what parts of the technology are useful, profitable, or comfortable. This theory meaningfully applies to the Theme 1 of this study. With an absence of a group instructed task, or direction from the teacher, students have found alternate options in which to use their smartphones during their class. Therefore, the educator may wish to consider how they want to align their practice to structure direction for common activities contributing to BYOD use in their classroom.

Question 2: What are the challenges to understanding the school wide policy for the BYOD model?

The data from this investigation demonstrated that the teachers interviewed had a variety of perspectives of the school's BYOD policy. This inconsistency created many challenges as teachers attempted to communicate a common, and enforceable message for BYOD use in

classes. In a study from Weston and Bain (2010), implementation of programs such as BYOD require that the school stakeholders including school leaders, teachers, students, and parents have an explicit set of simple rules that defines their collective beliefs about teaching and learning. They further state that “All members at all levels of the school community are fully engaged with creating, adapting, and sustaining the embedded design of the school” (Weston & Bain, 2010, p. 12) in order to realize the benefits of cognitive tools like cell phones for learning.

Educators addressing this topic may wish to also look at the idea of policy over practice. Bell & Stevenson (2006) reference Harman (1984) in saying “that it is important to recognize that policy is systematic rather than random. It is goal-oriented and it is complex – it is the co-ordination of several courses of action, and not one discrete activity” (Bell & Stevenson, 2006, p. 14). It is evident the multiple approaches described by the respondents differ from a structured policy. Conversely, Weston and Bain (2010) reference Marshall (1995) in describing a “practice” as the interplay of rules, design, collaboration, and feedback that make it possible for the school community to develop an explicit schema that defines interactions for the community members in their pursuit of learning. This delineation matters especially when addressing issues of BYOD behavioral compliance, and therefore is important to distinguish.

Question 3: How do educators address issues of reasonable accessibility and boundaries for personal devices for both the student and teacher?

Findings from this study show that the BYOD model is not just the invitation to bring personal devices into the classroom, but the extension of those devices to reach teachers or students outside of class as well. Through the participant responses, there is evidence of the

challenges this digital tether introduced. Teachers and students engaged in communications and applications beyond those taking place in the classroom. A 2013 Pew Research Center survey reveals the degree to which the internet and digital technologies, particularly mobile phones, suffuse teaching activities. According to Purcell, Heaps, Buchanan, & Friedrich (2013), teachers say the internet and other digital tools have added new demands to their lives, agreeing with the statement that these tools have a “major impact” by requiring more work on their part to be an effective teacher.

This type of extension can also be related to the modified SCOT theory; the Technological Frame by Bijker (1995). Since all members of a certain social group share the same set of meanings, attached to a specific artifact, it shapes the interpretation of the technology shared by members of a relevant social group. In this case the artefact is our smartphones, shaped by a societal reliance that is evident through our need to be constantly digitally connected. Although BYOD classes can increase the plains of learning, they can also stifle the boundaries of the home by extending outside of classroom walls. As students and teachers engage in school activities off campus via their smartphone, they seemingly increase the acceptance of being accessible all of the time. This in turn creates further dependency on smartphones for use at school. It also converges the social acceptability of the smartphone with education. Educators will have to strategize what liberties, and limitations of device use look like in schools promoting the BYOD model.

- *Question 4: Is any particular perspective of modelling positive behavior of device use in class considered more valuable?*

There is no one more influential than the teacher in the classroom. Undoubtedly, their actions, perceptions, and attitudes have a significant impact on their students, and ultimately the management of their BYOD classroom. This study revealed a variety of approaches to modelling the use of a personal device by the teacher. This investigation did not track the effectiveness of any particular strategy, instead it was observed that no common practice was in play at this school site. Absence of teacher personal devices, did not appear to present a shift in on task behavior, or provide more attention on the teacher. Nor did visibility of teacher personal device promote increased student responsibility of use on their cell phone.

The second component of SCOT theory (Pinch & Bijker, 1984) also conceptualizes that technology has design flexibility until all groups come to a consensus. This means that people often apply different purposes of a working technology when there is no group influence. In this case, teachers may have a different function, or no use at all for their phone during class. For some, this may be considered an act of modelling positive behavior. It represents classroom compliance and non-disruption. Conversely, when the function of the phone is shared (as in a common group task or lesson objective), student participation may increase as the class comes to a consensus. Teachers may wish to consider that simply modelling etiquette by putting their phones away seems to have little influence based on the findings of this study. However, their influence may be more impactful if they use their phone to lead a class activity. Either way, teachers will need to decide which action can best support their classroom needs.

Question 5: How do educators address the feelings of safety and vulnerability of device use in class for both teachers and students?

The evidence presented by some of the teachers in this study described a spectrum of feelings that they associate with technology use in their classes. They range from valuable for the student to intimidating for the teacher. In this report they emerged as feelings of safety to feelings of vulnerability. To assist in understanding this phenomenon, John Bowlby's (1969) "Attachment Theory" was adapted by Meschtscherjakov (2012) who developed a "Mobile Attachment Theory" that was described as a cognitive and emotional bond connecting a person's self and mobile device. Mobile Attachment Theory described by Meschtscherjakov (2012) is that the attachment changes from a behavioral system over time, to a representational system. Ultimately, it reinforces the relationship between the user and the attachment object (the smartphone), because it serves as a source of comfort and security. Some teachers in this study described the positive impacts the security of a personal cell phone brought to them, as well as a perception that it did so for their students as well. Conversely, other teachers recognized this phenomenon as intimidating, and leaving them feeling vulnerable to technology adaptation in their classrooms. In this case it can be inferred that the attachment shift from a real person to an object of perception could bring about feelings of vulnerability as the teacher may be unfamiliar with how to respond to the object as well as the student.

4.7 Conclusion

With continued advancement in technology, and the blurring of boundaries for personal devices, investigations on technology use in schools will continue to be needed. This study captured some of the intrinsic concerns and insights of four high school teachers concerned with BYOD use in their classes. The research presented did not intend to solve issues presented by BYOD classes, instead broaden the discourse and professional dialogue on the topic. Essential

questions such as the five presented in this research study will be useful in supporting the direction of technology in schools at all levels, and across all socio demographics. Regardless of the outcomes of research, the integration of technology in schools is advancing. BYOD models in schools will most likely continue to grow in the education system, as the technology is certainly here to stay.

The concluding chapter of this research will identify how educators, and policy makers may find some advantage in studying the insights brought forward in this investigation to stimulate quality discussion about BYOD's, and in turn develop pedagogy that appropriately fits the needs of advancing technology in schools.

5.0 CHAPTER V: Conclusion

5.1 Introduction

Research on Gen Z users, instructors, and administrators navigating the challenges of twenty first century technology in classrooms remains a dynamic area of study. Smartphone use for learning seems to evolve with advancements in technology, and its application in schools. The effects and impacts of smartphones in classes will remain an ongoing issue as consensus on classroom device conduct and citizenship is far from being reached.

Students and teachers bringing their cell phones to class is inherent of the new normal. BYOD classes are not a passing trend, instead, establishing itself to be a regulated practice. The question at the core of this research reflects a shift in social values and boundaries of personal device use in school. It has made it relevant - actually necessary to identify the

perceptions and feelings teachers are experiencing in BYOD classrooms so they can effectively manage their classes. The research question posed for this study:

“How has student owned device use during instructional time created managerial challenges in your social studies classroom under a BYOD administered model?”

established personal insights from participating teachers that may benefit others in the field of education.

5.2 Summary of Findings

Data gathered from participant responses to the research question introduced themes surrounding teacher experience and perceptions in school based BYOD settings. From these themes, five “Essential Questions” captured the most prevalent, and provocative topics that emerged from the teacher interviews:

- *With an absence of a common academic application for smartphone use, what are the student owned devices used for in class?*
- *What are the challenges to understanding the school wide policy for this design model?*
- *How do educators address issues of reasonable accessibility and boundaries of personal devices for both the student and teacher?*
- *Is any particular perspective of modelling positive behavior of device use in class considered more valuable?*
- *How do educators address the feelings of safety and vulnerability of device use in class for both teachers and students?*

These themes were not hypothesized at the onset of the study, but instead genuinely surfaced through the qualitative interview process, and thematic analysis. They demonstrated

that there were a broad range of understandings, applications, and challenges faced by the teachers in this study. These findings further illustrated that there was a need for more metacognitive research and discourse on this topic as personal experiences varied.

5.3 Context

This study will add to the modest, but emerging literature designed to develop a broader understanding of teacher perceptions in “Bring Your Own Device” learning settings. Although research on BYOD models are not uncommon, focus on teacher impressions, views, and perception under a BYOD directive is limited. Arguably, the behaviors of smartphone users have been impacted by pervasive societal influence with demands for constant access. This research may assist educators in recognizing ongoing challenges, and effective opportunities of having personal smartphones in class. These findings may effectively identify common patterns or articulate shared experiences. As a result, this may promote tangible strategies, and professional development opportunities for teachers that wish to advance their engagement in a BYOD class.

Further, BYOD campaigns in schools have modeled those in workplace settings as described by Norris & Soloway (2011), and therefore is an indicator of the necessary grooming that students will encounter as they proceed into the workforce. By exploring the personal experiences, and perceptions of teachers working to prepare students for the unlimited scope of opportunities of the twenty first century, this study highlights significant themes based on the challenges and advantages that arrive to class along with personal student cell phones through the lens of their teachers.

5.4 Future Perspectives

As previously stated in the introduction of this report, this study was conducted following a qualitative design based on a small and specific sample of a heavily populated, and diverse teaching pool in Alberta. Future researchers may wish to address this limitation by using alternate methodological approaches which may yield a broader variety of responses.

However, the opportunity to move forward with the findings from this report has merit as it reflects aptitudes that teachers and students must soon command. According to a press announcement by the Government of Alberta in June 2016, new curriculum in all subject areas will be developed for K-12 students across the province within a six year span. The announcement titled “Alberta updating curriculum to better prepare students for future success”, states that the new content will include an explicit focus that reinforces twenty first century learning competencies. In their 2011 report, “Framework for student learning: Competencies for engaged thinkers and ethical citizens with an entrepreneurial spirit”, Alberta Education identified “Digital and technological fluency” under the category of competencies. Twenty first century learning competencies are described as: student awareness of emerging information and communication technologies, with the ability to understand and manipulate digital information creatively and effectively for learning, communication and sharing, in an ethically responsible manner (Alberta Education, 2011, p. 5).

The Alberta Education curriculum redesign demonstrates that this school jurisdiction has recognized the need to align the social norms for digital accessibility with traditional learning spaces by using a variety of technology resources. This further illustrates the convergence of the

societal expectation for devices like smartphones to be present in a space that were considered static and heavily regulated.

The Alberta Government has further stated that it will engage in the process for curriculum restructuring by including input from public stakeholders. As such, the findings and recommendations of this study, and subsequent research derived from this report, could advance proactive technology strategies and policies founded on the BYOD educational design. As no other reports specific to the BYOD technology model based in Alberta were identified in a review of the literature, insights from this investigation can immediately support strategies for implementing future curriculum technology models, and teacher professional development. This speaks to the relevancy of this study, as it presents a valuable opportunity to support *how* the next generation of Alberta learners frames their knowledge.

5.5 Conclusion

The commonness of smartphones will continue to make it impossible to limit our personal use, and keep them out of school classrooms. However, strategies that engage students in positive smartphone use may promote a generation of healthy digital citizens. In this regard, the province of Alberta appears committed to promoting learning through modern technology strategies, as seen in their curriculum design plan. This supports the progress they have already made by encouraging schools in the province to adopt BYOD classrooms.

As a result, the necessity to bridge the divide that encourages BYOD tools to work effectively with school policies requires prompt attention. The research question at the heart of this study considers the challenges and opportunities teachers in an Alberta high school encountered in BYOD encouraged classes. The five essential questions seeded from their

perceptions and experiences provide a starting point for administrators that wish to understand some of the authentic feelings teachers are sharing about the BYOD design, and the impact on their teaching. Structuring policy and “terms of use” in consideration of teacher dialogue on this controversial topic may provide effective approaches that honor both the culture of smartphone users, and their personal engagement in learning.

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7.0 Appendices

(Appendix A):

Survey Questions:

1. Do you think student owned devices - especially cell phones, have a valid use or purpose in your lesson or classroom?
2. Do you invite your students to use their cell phones in your classroom?
3. Do you use your cell phone in front of your students
4. Do you have a clear understanding of the school's cell phone policy?
5. Do you feel confident enforcing the policy?
6. How do you communicate the cell phone policy to your students?
7. Is non-compliance of the cell phone policy an issue in your classes?
8. What action do you take when a student is in violation of the cell phone policy in your class?
9. What improvements can be made surrounding the use of cellphones in your lessons or classroom?
10. Rate your level of comfort (on a scale of 1 - 4; one ranking lowest, four ranking highest) in use of technology in your teaching practice.

(Appendix B):

Bio-Demographic of Research Participants:

Name:
Gender:
Age:
Primary Subject Area Taught:
Years of Teaching Experience:
Number of Years at this School:

(Appendix C):

Semi-structured Baseline Interview Questions

1.	How many years have you taught at this school site?
2.	What are your humanities teaching assignments at this school?
3.	What are the circumstances in which you allow students to use their mobile device in your class?
4.	What are the circumstances in which students observe you using your device in class?
5.	What is your understanding of the school's BYOD policy?
6.	How did you become aware of the school's BYOD policy?

(Appendix D)

Letter of Invitation to Participate in the Research Study:

Letter of Invitation to Participate in Study

Research Study: Student Cell Phones: Essential Questions Surrounding Use in Bring Your Own Device Classrooms

Dear [Name],

I am writing to tell you about a study I am conducting at the University of Alberta based on teacher perceptions of cell phone use in class: Student Cell Phones: Essential Questions Surrounding Use in Bring Your Own Device Classrooms.

As both a teacher, and researcher, I recognize that teachers seem to face a difficult dilemma around cell phones in the classroom; placate incessant student mobile device use, or enforce policies with limitations for learning. Accordingly, I am studying teacher experiences of student disengagement in their studies, or positive learning outcomes within a school adopting the technology inclusive strategy known as "Bring your own device" (BYOD).

This letter is an invitation to participate in the study, which will take place at Lillian Osborne High School. It is important to know that this letter is not intended to tell you to join this study. Your participation is optional and voluntary. Whether or not you participate in this study will have no effect on your relationship with myself as your colleague, Lillian Osborne High School, or the Edmonton Public School Board.

You do not have to respond if you are not interested in this study. If you are interested in participating, or learning more about this study, please email me at wilsonsk@ualberta.ca

Thank you for your consideration.

Sincerely,

Gail-Ann Wilson B.Ed.

(Appendix E)

Letter of Consent to Participate in the Research Study:

Letter of Consent to Participate in Research Study

Research Study: Student Cell Phones: Essential Questions Surrounding Use in Bring Your Own Device Classrooms

February 16, 2016

Dear Participant:

I am a students from the University of Alberta working on a Master of Arts in Communication and Technology (MACT). I am researching teacher experiences and perceptions regarding student device use in Bring Your Own Device (BYOD) encouraged classrooms. The title of my study is “Student Cell Phones: Essential Questions Surrounding Use in Bring Your Own Device Classrooms”. Your participation in this study stems from a ten question survey you completed in 2015 at your school site. You have been asked to take part in this research because your responses to the survey established characteristics and traits deemed valuable to this research. By agreeing to participate in a one to one interview with me, you may assist in further study on this topic. The results will be analyzed, with findings presented in a capping project which is a requirement for my graduation from this program.

Although we are colleagues at this school site, your participation is completely voluntary. I retain no position of power over you, and if you decline participation, I pose no threat to your position or role as a teacher. Additionally, you will not receive any reward or compensation for accepting to be in the study. This research is intended to be anonymous unless you provide consent in writing stating otherwise. Your identity, and personal characteristics will be concealed as rigorously as possible. As well, individual responses may be described in the final research report, however all possible precautions will be taken to disguise your

contributions so that readers of the report will be unable to link you to the study (unless otherwise consented).

This study is intended for a targeted academic audience, and will not be widely disseminated. During the interview you may be at risk for emotional distress. If anything of a concerning nature arises during the interview, you may immediately cease participation in the study. Under those circumstances, all contributions to this study that you provided during the interview will be destroyed immediately following your withdrawal.

You can also modify your participation, or withdraw at a later date, even if you had agreed at first to participate. You may even withdraw upon reviewing the *initial* draft of the final report. At that point, all contributions to the research you provided will be destroyed. If you choose to withdraw your contributions after reviewing the *final* draft, by request, the report will be modified to conceal your identity and comments to the best of my ability without compromising the research results. However, you maintain the option to have all of your contributions retroactively removed at any point of the research study until it is submitted for final grading to the MACT program.

The plan for this study has been reviewed for its adherence to ethical guidelines by a Research Ethics Board at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615. Additionally, the Principal of the school Janet Hancock, has granted permission for this research to be conducted at this site.

This study consists of participating in a single interview, and will take approximately fifteen to forty five minutes to complete depending on your level of engagement. With your permission, I would like to video record the interview. The recording will be used in writing up the interview to ensure thoroughness, and accuracy. I alone will have exclusive access to the recordings. The recordings will be password protected on my personal device during the study and thereafter, until they are able to be destroyed. Refusing the recording does not mean you cannot participate in the study.

If you agree to participate, you will need to sign this consent form, and return it to me in person within one week. Please retain a copy for your records. If you are not satisfied with the manner in which this study is being conducted, you may report your complaints to the supervisor of this project, and the MACT Graduate Program Director, Dr. Gordon Gow at (780) 492-6111 or by email at gordon.gow@ualberta.ca.

Thank you for taking the time to consider your participation in this study. If you require additional information about these questions or the study, please contact me at the email listed below.

Sincerely,

Gail-Ann Wilson B.Ed.
wilsonsk@ualberta.ca

Confirmation of Participation in this Study

This letter has provided the participant with a detailed explanation regarding the nature and purpose of this research, including the procedures and the risks involved in participating in this study.

Sign: _____

Investigator: Gail-Ann Wilson

Date

I have been apprised of this study, and understand the requirements of my participation in it. I consent to participate in this research, and understand that I have the right to withdraw my contributions from the study within the referenced timeline.

Sign: _____ Date: _____

Participant Name: Print: _____

I agree to have the interview video-recorded _____ Yes _____ No

(Appendix F):

Post Interview Confidentiality Form

Research Study: Student Cell Phones: Essential Questions Surrounding Use in Bring Your Own Device Classrooms

Post-interview Confidentiality Form

It is my goal and responsibility to use the information that you have shared responsibly. Now that you have completed the interview, you have the opportunity to provide me with additional feedback on how you prefer to have your data handled. Please check ONE of the following statements:

___ You may share the information just as I provided it. No details need to be changed, and you may use my real name when using my data in publications or presentations.

___ You may share the information just as I provided it; however, please do not use my real name. I realize that others might identify me based on the data, even though my name will not be used.

___ You may share the information I provided; however, please do not use my real name and please change details that might make me identifiable to others. In particular, it is my wish that

the following specific pieces of my data not be shared without first altering the data so as to make me unidentifiable (describe this data in the spaces below):

___ You may contact me if you have any questions about sharing my data with others. The best way to reach me is (provide phone number or email): _____

Please be aware that if you choose to limit or withdraw your contributions to this study, it may have an impact on the research findings. However, you maintain the option to determine how much of the information you have provided is used prior to submitting to the MACT program for grading.

Respondent's signature _____ Date _____

Investigator's signature _____ Date _____

Thank you for taking the time to consider how your contributions to this study will be used. If you require additional information about these questions or the study, please contact me at the email listed below.

Sincerely,

Gail-Ann Wilson B.Ed.
wilsonsk@ualberta.ca