An Exploration of the Relationship between Digital Technology Use and Student Engagement in a Grade 11 English Class: A Classroom Ethnography

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SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE

DEGREE OF DOCTOR OF PHILOSOPHY

NIPISSING UNIVERSITY

SCHULICH SCHOOL OF EDUCATION

NORTH BAY, ONTARIO

Certificate of Examination

SCHOOL OF GRADUATE STUDIES
MRP/THESIS/DISSERTATION CERTIFICATE OF EXAMINATION

Certificate of Examination

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entitled

An Exploration of the Relationship between Digital Technology Use and Student Engagement in a Grade 11 English Class: A Classroom Ethnography

is accepted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Education

June 7, 2018
Date

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Abstract

Digital technology is often viewed as a tool to enhance student engagement. With increased use of technology in the secondary-classroom environment (Hramiak & Boulton, 2013), it is important to understand what secondary students believe about the use of digital technology and how the use of digital technology in a secondary classroom engages and/or disengages them. This ethnographic research inquiry was informed by constructivist learning theories. Data were collected from classroom observations, individual conferences focus-group discussions, and reflective journaling. Using a system of coding to look for similarities and differences in content and patterns in keywords-in-context (Leech & Onwuegbuzie, 2007; Morgan, 1998; Strauss & Corbin, 1998), data analysis resulted in the emergence of three overarching themes: a) students ignore their personal technology when given the opportunity to engage in activities that allow for movement; b) students are engaged by technology when they are given the freedom to construct their own knowledge or to co-construct knowledge with their peers; and c) didactic teaching has a place in today's classroom. The results of this inquiry suggest that technology contributes to engagement when it allows students to construct or co-construct knowledge with their peers. While technology used for didactic teaching disengages students, students do benefit from didactic teaching in order to know when and how to use technology effectively. Didactic teaching also engages students when it allows students to make connections with previous learning, collaborate and discuss with their peers, or it allows them to construct their own ideas. When technology is used in didactic ways or as a means to disseminate information, students disengage. This debunks the assumption that digital technology inherently engages students. The results of this study suggest the need for educators to reconsider how they use technology in the classroom.

Keywords
student engagement, classroom technology, digital technology, classroom ethnography

Acknowledgments

This journey has been one filled with many twists and turns and peaks and valleys. I would like to take a moment to thank all of the people who were instrumental in getting me to this point in my destination.

To the participants in my research . . .
Although you remain unnamed, you are the most important people to acknowledge. You taught me the importance of observing, listening, and asking questions. Your willingness to help me understand your engagement with technology allowed me to fully explore my research question and draw conclusions. I got to know you in the semester we spent together. We laughed together telling jokes. We searched together to make sense of things. We shared common frustrations with connectivity issues. All of these shared experiences allowed me to see things in a way that I've never been able to see before—to see a high-school English classroom through the eyes of today's high-school student. I thank you for offering me this insight.

To W. G. C. . . .
You allowed me to join you in your classroom every day. Many teachers would feel exposed and insecure about being observed but you trusted me. You allowed me to ask questions when I was confused. You allowed me to make suggestions when I had an idea. You allowed me to teach, mentor and support your students when they needed it. You allowed me to be me. Thank you for valuing me.

To my family . . .
To my mom who pushed me many times to keep going when I was ready to give up; you made me wipe away my tears and persevere. To my dad who kept asking me "When are you going to be done?" You kept me from procrastination. I knew you were waiting to tell the world that your daughter had a PhD so I knew I had to get it done. To my husband, who supported my journey. When I was gone for weeks at a time for the summer residency, you took care of our home and our child. When I took time off work to engage in data collection, you took care of all the finances. You gave me the time I needed to pursue this dream. When I needed quiet time to get my work done, you left for a few hours so that I could work in the comfort of our home. To my daughter Vivika who would see me on my computer and persistently ask "How much longer?" You made me log off and tune in to you. You ensured that I found balance and that I didn't let this journey completely take over my life. When I was done, you gave me a Dr. Sharma parade with your stuffies; the pride you felt reinforced the value of education.

To Michelann, my dissertation supervisor . . .
You steadfastly guided me with your thorough reading and insightful responses. You were right there with me through every step along the way and you always made me feel supported. So often, this journey was isolating, but I always knew you were an email away. You always knew what my timelines were and you gently pushed me to achieve the deadlines I put upon myself. This journey was filled with obstacles we did not anticipate but you continued to collaborate with me and guide me. At times I lost my drive and, at those times, you took the driver's seat to show me how to get back on course. I am so lucky to have had you with me for the past several years.

To my advisory committee, Terry and David . . .
You have been there as readers, questioners, supporters, and mentors. Thank you for seeing the value of my research, for steering me into new areas to broaden my understanding, and for your thoughtful feedback. My research would not have the breadth and depth without each one of you.

To my examiners, Callie and Marianne…
You read my research and offered insightful feedback that challenged me to improve my final piece. I would not have admitted it then, but now that I can reflect back, your comments made my final piece better, more refined, and more sound. I thank you for helping me push my final piece to be better.

To Teri-Ann, my editor…
You went through every word, piece of punctuation, and table with a fine-tooth comb to ensure that my thoughts and ideas were articulated fluently. You showed me the importance of having someone solely read my work for editing purposes. I have always thought of myself as someone with exemplary spelling and grammar skills, but you showed me that everyone needs an editor. Thank you for catching all the things that I overlooked.

To everyone who I met at the high school where I collected data . . .
You made me feel like I belonged. I even had my own desk space and chair in a workroom in a school where space is limited. You got to know me, and I had the pleasure of getting to know all of you. Your enthusiasm about my research was contagious and always reignited my passion. Thank you for making me feel like one of the gang.

To those who I have missed . . .
I am deeply sorry if you are left out. A journey like this has allowed me to interact with and meet so many different people, and each one of these encounters changed the way I watched, listened to, and looked at my research. I thank you for making me see things differently.

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Chapter 1

Setting the Stage for Research

> *I feel queasy and sweaty . . . like it's my first day at a new school. . . . Will they listen to me, when I'm talking? Will they talk to me. . . . Now, thirty minutes later, the smiles and hustle and bustle coupled with the laughter and chit-chat make me relax and feel like I'm in my element. I'm an experienced teacher who's good at what I do. Just do what I do best—connect with students and support them in their learning. (Field note, February 6, 2017)*

This chapter sets the stage for my ethnographic research inquiry. I begin by providing a research context, articulating my stance on digital technology, and outlining the origins of this inquiry. The overall research question and micro-questions that guided the inquiry are identified, a brief description of the inquiry is provided, and key terms are defined. I conclude with a chapter-by-chapter overview of the dissertation.

Rationale for the Inquiry

The growth of information technology in the 1980s and the development of the Internet in the 1990s have revolutionized the role of the technology in education (Bonk, 2009). Technology has become not only a way to manipulate information but also a tool used to communicate information. It has changed the way we think and learn (Gareau & Gou, 2009). The use of technology by today's students is as prevalent in their academic world as in their personal lives (Anderson & Rainie, 2012). Technology permeates classrooms, influencing the way teachers teach, and the way students engage, learn, and achieve. A great deal of research documents how the use of technology in a classroom can change teaching (e.g., Glassman, 2010; Herrington, Hodgson, & Moran, 2009) and improve student learning (e.g., Cheung & Slavin, 2012; Fleischer, 2012; Silvernail, Pinkham, Wintle, Walker, & Bartlett, 2011; Tamim, Bernard,

Borokhovski, Abrami, & Schmid, 2011). When asked, students cite a link between the use of technologies in school and their own personal engagement (Spires, Lee, Turner, & Johnson, 2008).

Substantive research discusses student engagement and the use of technology in the learning environment (e.g., Jacobsen & Friesen, 2011; Kuh, 2001, 2003; Willms, Friesen & Milton, 2009). Research by Jacobsen and Friesen (2011) suggests that if we want our children to face the challenges of the future with skill and confidence, we need to use participatory digital technologies; technologies that allow them to learn, assess, socialize, and collaborate. Kuh (2003) suggests that technology is a tool to engage today's learners. Willms, Friesen, and Milton's (2009) research highlights a need to change the way we teach in order to engage students socially, academically and intellectually; and technology may very well be a tool to support this.

Although research looks at student engagement and digital technology, much of it represents the perspectives of educators (e.g., Callow & Orlando, 2015; Deveci, Dalton, Hassan, Amer & Cubero, 2018). Instructors often say that technology allows them to have more conversation with students regarding course work and because students are able to attain immediate feedback, they are motivated to produce more work (Deveci et al., 2018). Teachers often say that "when used appropriately, technology can enhance the cognitive, affective and operative aspects of classroom learning" (Callow & Orlando, 2015, p. 367). Student teacher candidates often feel that technology results in lessons being "more entertaining" and it allows students to be "engaged, curious, and ready to discuss" (Liu, 2016, p. 94).

Research that unveils student perspectives is more representative of elementary students (e.g., Dietrich & Bali, 2014; Godzicki, Godzicki, Krofel, & Michaels, 2013) or post-secondary

students (e.g., Bradford, Mowder, & Bohte, 2016; Deschaine & Whale, 2017; Sawang, O'Connor, & Ali, 2017).

Research by Godzicki et al. (2013) found that elementary students said that they were more motivated and engaged in a technology-supported environment. Dietrich and Bali (2014) interviewed fifth-grade students and concluded that "students were engaged in classroom learning when using technology, particularly when they had control of the technology" (p. 21). Also notable, research by Sawang et al. (2017) on postsecondary students noted that "introvert students felt more engaged" because it helped "students to move from being passive listeners to active thinkers" (p. 16–17).

Post-secondary students often echo similar reasons why they like having technology available to them. Research using data collected on post-secondary students concluded that "student disdain" can be overcome by engaging students "through innovative pedagogical methods" (Bradford et al., 2016, p. 41). Deschaine and Whale's (2017) research on adult postsecondary students in an online course found that "time spent engaging students is worthwhile and results in greater course satisfaction and academic effort" (para. 1).

With all this information, there is no denying that the use of technology in the classroom has altered our understanding of how students learn (Chickering & Ehrmann, 1996; Tapscott, 2009) and why they learn (Marks, 2000; Marzano & Pickering, 2011). Strides have been made to foster innovative learning environments by providing students with blended learning environments that offer online and offline learning as well as by providing students with unique instructional practices that have been enhanced through the inclusion of technologies including a digital school library, virtual classrooms, the ability to receive immediate feedback from online

assessment, video conferencing, blogs, webinars, lectures on YouTube, videos and audios that explain concepts, and virtual laboratories (Lalima & Dangwal, 2017).

The existing research does not provide a definitive answer to whether or not the use of technology is beneficial in the classroom setting (Phillips et al., 2007; Waycott, Bennett, Kennedy, Dalgarno, & Gray, 2010). There are those who reside in one camp, believing that technology in the classroom is revolutionary and enhances the learning environment (e.g., Cummins, Brown & Sayers, 2007; Tapscott, 2009). Cummins et al. (2007) explore the role of technology by looking at case studies of classroom practice and they believe that technology can be the catalyst for deeper literacy learning. Tapscott (2009) argues that schools are "places to learn" and technology in the classroom can improve student learning and achievement (p. 134).

Then there are those who reside in another camp, believing that technology is a hindrance to learning (e.g., Openheimer, 2004; Selwyn, 2009). Openheimer (2004) visited dozens of schools in the United States and believes that American education is facing a crisis. He says that technology fails to improve schools and that there needs to be a renewed emphasis on the basics that stem from pedagogy about what *really* works. Selwyn's (2009) work provides a comprehensive review of recent published literature on young people and digital technology and his findings challenge the notion that technology engages students. In fact, he believes that we need to remain mindful of the "ostensibl[e] digital landscape of the twenty-first century" (p. 373).

In my estimation, the current research does not explain adequately the conditions that exist when technology engages or disengages secondary students. I am, therefore, interested in exploring how secondary students talk about technology and its potential to engage and disengage them in their learning. Marshall and Rossman (2006) note, "Increasingly, there are

calls for including children's perspectives as relevant and insightful in learning more about aspects of their worlds" (p. 106). Students are the ones most affected by educational policy and practices, and yet their perspectives are often absent from inquiry (Marshall & Rossman, 2006). "We must better understand these youth to determine how to best engage them in learning; yet, there is a notable lack of 'student voice' or student perspectives in the literature on student engagement" (Taylor, & Parsons, 2011, p. 6). With the increased use of technology in the secondary-classroom environment (Hramiak & Boulton, 2013), it is important to understand what secondary students believe about the use of digital technology and how the use of digital technology in a secondary classroom engages and/or disengages them. As Nesheim, Guentzel, Gansemer-Topf, Ross, and Turrentine (2006) state, when it comes to students, "if you want to know, ask" (p. 5).

Significance of the Research

Turner (2013) believes that digital technology has become a characteristic of modern life in the sense that almost everyone uses it. Michael Thomas (2011) adds that digital technologies have become an expected part of students' daily learning experience. We rely on it, and many of us own a multitude of devices. We know it when we use it and see it, but we struggle to explain it. Gane (2005) states that "Internet-related technologies have directly altered the patterning of everyday life, including the way we work, access and exchange information, shop, meet people, and maintain and organize existing social ties" (p. 475). With the prevalence of digital technologies in our daily lives, there is an assumption that technology is necessary in order to receive an "up-to-date education" (J. Young, 2006, p. A27).

Students born between 1982 and 2003 are part of a generation whose births coincided with the emergence of the Internet and digital technology (Berk, 2009). These students are

surrounded with and immersed by technology, which has garnered them the label of "digital natives" (Palfrey & Gasser, 2008, p. 4). According to Prensky (2010), digital natives naturally immerse themselves in digital technologies such as computers, cell phones, MP3 players, and video games. Similarly, Tapscott (2009), who refers to these digital natives as the "net generation," observes that this is the first generation for whom "using the new technology is as natural as breathing" (p. 18). Howe and Strauss (2000) refer to the same group as millennials. Regardless of which label is used to categorize today's learners, there is an ongoing debate about whether using technology improves their learning and their engagement (Beynon, 2007; Clark, 2001; Kozma, 2001). While it is widely recognized that technology can provide timely access to learning materials, Clark (1983) claims that technology is merely a vehicle to deliver instruction and does not, itself, influence student achievement. Similarly, Schramm (1977) suggests that learning is influenced more by content and instructional strategy than by the type of technology used to deliver instruction. While some scholars question the value of integrating the personal use of technology into the classroom-learning environment (Openheimer, 2004; Selwyn, 2009), others believe that technology solves issues related to student learning and achievement (Tapscott, 2009).

The way students are engaged in learning has "changed over the last twenty years in response to their engagement within a technology rich society" (Taylor & Parsons, 2011, p. 6). Bryant and Hunton (2000) suggest that teachers assume that frequent integration of technology is likely to exhibit increased states of engagement.

The assumption that digital technology improves student academic performance (Hake, 1998; Knight & Wood, 2005; Michael, 2006) and increases student engagement (O'Dowd & Aguilar-Roca, 2009) permeates many district-wide and school-wide initiatives. It is possible,

however, that the use of technology has been oversold by policy makers and advocates of technology use in education (Cuban, 2001). Digital technology may not be an antidote for all education challenges (Tyack & Cuban, 1995) or a remedy for educational reform (Sandholtz, Ringstaff, & Dwyer, 1997). Perhaps "not every use of computer technology enhances the learning environment" (Burniske, 2008, p. 120).

Engaging students is "one of the biggest challenges facing educators" (Harris, 2008, p. 57). By listening attentively to what secondary students have to say, this inquiry may shed light on some of these complexities, provide student perspectives, and enhance understanding of why and how technology is related to student engagement.

Situating Myself in the Inquiry

For the past fifteen years, I have worked as a secondary English teacher. Many of today's teachers wait years, even a decade, for a full-time teaching position, but I was fortunate to be hired immediately after completing my Bachelor of Education. The school at which I was hired was where I did my final practicum placement. This same school is where I continue to work today. It has become my second home. I feel comfortable when I am in the building. I talk about the students I teach and the teachers with whom I work as though they are a part of my extended family. "Mark's mother passed away," "Joe is driving me nuts," and "Mary has a job interview tonight. I hope she gets the job," are the things that I sprinkle into my family's dinnertime conversation. That is not to say that there are not times when my frustration gets the better of me and I wonder why I chose this profession. I love being a teacher, and I do whatever I can to promote engagement in my students. I strive to design learning activities that motivate my students to develop their critical thinking skills and engage them in activities that are relevant to

the world outside of the classroom. I regularly use technology to foster student engagement in my own classroom.

I have experienced many Board Improvement Plans for Student Achievement (B.I.P.S.A.) and School Improvement Plans for Student Achievement (S.I.P.S.A.). Some goals dissipate shortly after they are initiated. Others gain support and traction, finding their way into board plans and school goals year after year. The use of technology in the classroom is one of the initiatives that has persisted. Digital technology is viewed as a necessary tool for today's learners.

Over the years, various technologies I have encountered at professional development opportunities have peaked my interest. I would go home and plan, what I believed was, a thought-provoking and engaging lesson that embedded the new technology. My excitement and anticipation could not be contained as students walked into the classroom. On a number of occasions, though, the result was unanticipated and disappointing. Students were uninterested, detached, and not compelled to engage with the technology in the way that I had hoped. The activity that I thought would take the entire class period resulted in accessing my "teacher's toolbox" to modify the lesson, as the students waited. It is moments like these that led to my desire to explore student engagement and the use of digital technologies in the classroom.

I have personally seen digital technology engage students in activities and lessons. I have seen the power of the technology to engage students who were previously resistant to learning and, as a result, I believe that digital technology has the potential to engage students. This personal subjectivity may have rendered me more alert to positive engagement indicators when students were using digital technology. Moving from being the classroom teacher to being a researcher, however, required me to confront these subjectivities and take measures to maintain impartiality.

I began to observe student behavior generally, not just limiting myself to what I considered to be positive engagement indicators. This included checking in with students about things that I had observed to ensure that I had in fact correctly interpreted the event, which in turn prompted me to engage in conversations with students to understand the "thinkings" behind the action (Van Maanen, 1988).

Entering into the inquiry, I was idealistic. I anticipated that school technology, such as SMART Boards, Google Chromebooks, desktop computers, free school-wide WiFi, and printers, would continue to be funded, I expected that students would continue to have access to Google platforms such as Google classroom, Google+ communities, Gmail, Google cloud, and associated apps. I assumed that students could access technology seamlessly between home and school.

Most important to this inquiry, I assumed that, when given the choice, students chose to use technology not simply because it existed and was available, but because they were engaged by the possibility offered by technology. I also assumed that when students chose not to use the available technology, it was because they believed that the technology had little to offer them in comparison to other opportunities.

The Question of Digital Technology

The existing research on technology and student engagement supported my interest in exploring secondary students' perspectives on the phenomenon of digital technology in the secondary classroom and how it might engage or disengage them.

Developing my question was a lengthy process that emerged from my review of the literature, my discussions with colleagues, my experience in the field, and interrogation of my

personal and professional assumptions. In the end, I developed this question: *How does the use of digital technology in the secondary classroom engage and/or disengage students?*

During the research process, micro-questions emerged that further defined my initial question: *What do secondary school students believe about the use of digital technology in the classroom?* and *How do secondary school students engage with digital technologies available to them in the classroom?*

A Methodology for Exploration

To explore my research questions and the phenomena of technology in the classroom, I elected to use ethnography. Ethnography is not concerned with providing an objective picture of reality, but is instead an attempt to understand the thinkings, sayings, and doings of participants in a particular situation (Van Maanen, 1988). In this inquiry, I found myself interested in what secondary students had to think, say, and do about technology in a classroom setting and how they viewed its connection to student engagement. Recognizing that I bring my own subjectivities to this research, I sought to use students' words, alongside my field notes, to represent their experience with technology in the classroom.

Definition of Key Terms

The following definitions underpin this inquiry:

Digital Technology

In a broad sense, digital technology refers to "computer-based systems—particularly software applications and computer hardware—that can be used [by teachers and students] to produce, manipulate, store, communicate and disseminate information" (Selwyn, 2011, p. 6). It may be used for social and entertainment purposes, including text messaging and social networking (Gallardo-Echenique, Marqués-Molias, Bullen, & Strijbos, 2015).

More than an information delivery system, digital technology "encourage[s] active learning, knowledge construction, inquiry, and exploration on the part of the learners" (Cambridge International Examinations, 2017, para. 2). It includes, but is not limited to, personal cell phones, laptop computers, classroom projectors connected to the teacher's laptop, and Google Chromebooks.

Student Engagement

> As described at length in Chapter 2, student engagement in this inquiry is defined as: involvement in class discussions, participating in learning activities, asking questions, responding to other comments, marking in their texts, debating, bringing questions and problems to the class that were discovered by reading out of class, writing response papers, emailing or posting discussion thread questions and comments with other texts and writers, and probing deeply into a text or a research problem." (Garrett, 2011, p. 6).

This definition was selected because it offers concrete, observable, and measurable indicators.

Overview of the Dissertation

This chapter provided a context for the topic of digital technology and explained the purpose and significance of the study. Further, it articulated the research questions and addressed my personal assumptions at the outset of the inquiry.

Chapter 2 explores the most recent and salient literature on the topic of digital technology and its role in student engagement.

Chapter 3 begins with a brief discussion about my personal values so that the theoretical framework that guided this research is justified. It also provides a comprehensive examination of the theories that drove the research.

Chapter 4 provides details about the methodology and research design of this study. The recruitment process for a school and student participants is explained and the research phases are described. Ethical considerations are also discussed.

Chapter 5 presents a portrait of each one of the participants in the study and then it specifies the findings attained from the various data sources during each phase of research.

Chapter 6, provides a discussion of the results by looking at what the data revealed and how it aligns with the existing research. It then provides recommendations for the implementation and inclusion of digital technology in the classroom as best practice for instruction and engagement. This chapter also provides recommendations for future research. In this concluding chapter, I return, full circle, to the questions that initiated this research.

Chapter 7, the final chapter, revisits my research through my lens as an ethnographer to present a series of scenes that occurred while in the field. By presenting the data through a narrative, a true sense of the field is provided while highlighting the implications for my own practice.

Concluding Remarks

We are immersed in technology, and classrooms are no exception. With the prevalence of the use of digital-technology use in classrooms, it is important to understand how digital technology engages or disengages students. My own experiences as a secondary teacher not only initiated the desire to explore the research question, but also guided my journey in the field. The time spent observing and engaging in conversation with participants allowed me to write my way into understanding. This dissertation reflects my views as a researcher and represents my effort to listen carefully to the participants - participants whose perspectives, to this point, have been excluded from the existing research.

Chapter 2

Literature Review

> *It appeared that the transition from appropriately engaging with their cell phones for a classroom task to moving to a pen-and-paper task was a struggle for some students. Perhaps when their brains are activated with technology, it's difficult to put it down. In fact, when I attempted to re-direct a student who was playing a video game, he said, "I can't stop until I die." (Field note, February 7, 2017)*

With the expansion of digital technologies, there has been growing interest in the use of technology in the classroom. Dieker and Hines (2014) observe that many students "have more technology in their bedrooms than they are often allowed to use in today's classrooms" (p. 47). Mesch (2009) believes that technology in today's classroom often reflects "trends in youth activities, attitudes, and behaviours" (p. 50), while Dietrich and Balli (2014) suggest it "grabs attention because it offers novelty and variety compared to lessons taught in a traditional manner" (p. 29). Many teachers and school districts assume that technology engages students. Throughout this chapter, I intend to explore this assumption. I begin with a general discussion of student engagement and then consider the benefits and unanticipated consequences of the use of technology in the classroom. I return to student engagement, discussing it in conjunction with the research on technology. I conclude with a critical summary of how the research literature is useful in the inquiry.

Understanding Student Engagement

As a classroom teacher, I seek to engage my students. When I talk with my colleagues, it is clear that we all define and assess student engagement in different ways. The research literature is no different and reflects the complexity of student engagement in theory and in

practice. Understanding what student engagement is and is not, and identifying observable characteristics of student engagement, is critical for this inquiry.

Definitions of engagement often cite its consequences; it is discussed as a measure of the quality of education or in relation to low student achievement, disaffection with school, and high dropout rates (Coates, 2009; Kuh, 2003). We are told that disengaged students are distracted, passive, and unmotivated. The disengaged are often portrayed as students who give up easily in the face of a challenge and who generally withdraw (Skinner & Belmont, 1993). They may feel alienated or isolated in the learning environment, and these feelings may manifest as lower effort, decreased achievement, disruptive behaviour, poor attendance, and ultimately withdrawal from school. Our goal as educators, therefore, becomes to increase engagement, as engagement is assumed to strengthen students' skills (Skinner & Belmont, 1993) and improve the grades students attain (Finn & Rock, 1997). Engagement can also encourage students to become more involved in the life of their communities, to be responsible citizens, to foster collaborative relationships with their fellow students and their teachers, and to share in the power and responsibility of their learning (Ramaley, 2001).

Student Engagement as a Function of Behavioural, Cognitive, Affective/Relational Attributes

Appleton, Christenson, and Furlong (2008) define student engagement as a combination of behavioural, cognitive, and affective attributes. Behavioural attributes are visible and alterable variables and include, "most notably, the degree of participation in school activities, the quality of instruction, and student abilities" (p. 374). Cognitive attributes centre on students' interest, ownership, and strategies for learning, while affective attributes centre on a "students' sense of belonging, identification with school, and sense of relatedness" (p. 37).

Focusing on performance and understanding of academic content, Davis, Summers, and Miller (2012) build on this model, suggesting that these attributes are interconnected dimensions of engagement, and renaming the affective attribute as relational. The questions they ask regarding, respectively, behavioural, cognitive, and relational attributes are useful for this inquiry: "How do students' patterns of behavior and participating in the classroom affect their motivation, performance, and understanding of academic content?" "How do students' emotional and cognitive investment in the learning process affect their performance and understanding of academic content?" "How do students' ways of relating to their teachers and peers affect their motivation, performance, and understanding of academic content?" (Davis et al., 2012, p. 22).

Regardless of whether we use the models of Appleton et al. (2008) or Davis et al. (2012), the attributes/dimensions (noted parenthetically in the following discussion) serve as a useful framework with which to review the literature on student engagement, recognizing that some researchers attempt to focus on one attribute, while others do not attempt to isolate attributes. For example, Hu and Kuh (2002), use data from a student-experiences questionnaire to assess the quality of the undergraduate experience. The self-reported experiences of 50,883 undergraduate students from 123 institutions suggest that the amount of time spent on a task (behavioural) is a reflection of whether the student views the task as educationally purposeful, and as one that leads to desired outcomes (cognitive). As an educator for over thirty years, VandeWeghe (2009) draws from his own experience to explore student engagement; he attempts to make sense of the practical ways teachers engage their students, suggesting that engagement is observed as time spent deeply involved in a task (behavioural). Willms's (2003) summary of data collected in the 2000 Programme for International Student Assessment (PISA) indicates that students are engaged when they value learning (affective) and the outcomes learning can bring them

(cognitive). Dunleavy and Milton (2009), using data collected from 32,322 Canadian students in 93 schools from 10 school districts, find that engaged learners feel like they belong in the learning environment and school culture (affective/relational). Finally, Skinner and Belmont's (1993) survey of 144 students from Grades 3, 4, and 5 and their fourteen teachers, which probes student/teachers interactions, reports engagement indicators that include "generally positive emotions during ongoing action, including enthusiasm, optimism, curiosity and interest" (p. 572; affective).

Deschaine and Whale (2017) explore the topic of student engagement through a case study. The participants—graduate adult students who were teachers during the day and simultaneously enrolled in an online master's degree program—identified several factors related to student engagement including participating in real-time discussion boards (behavioural), being able to co-exist in the frenetic online environment with other students and the instructor without being distracted or losing attention (cognitive), and accepting support from a mentor to help minimize the impact on the instructional setting of working all day, taking care of home issues, dealing with young children, and other stressful factors (affective). These indicators, as reported by the post-secondary participants, highlight the complex and multi-faceted concept of engagement.

Online education has sparked many great conversations about engagement and, particularly, about the affective/relational attributes that must be considered when defining student engagement. Online learning can cause students to feel isolated from the teacher, their peers, and the process of learning (relational) (Lewis & Abdul-Hamid, 2006; Ortiz-Rodríguez, Telg, Irani, Roberts, & Rhoades, 2005; Russo & Campbell, 2004; Song, Singleton, Hill, & Koh, 2004). Song et al.'s (2004) survey of 76 graduate students considers the viability and veracity of

online learning by understanding the learner's perspective. They find that the lack of a sense of community creates a sense of isolation (relational). Ortiz-Rodrigues et al.'s (2005) study of graduate and undergraduate students' perceptions of distance education comes to an analogous conclusion: Communication, supported by building a learning community, is important to improve the quality of online learning. Lewis and Abdul-Hamid's (2006) interviews with 30 post-secondary instructors and Russo and Campbell's (2004) similar study with post-secondary students both find that the instructor's presence is important and that students find asynchronous learning feels more "real" because they are able to interpret non-verbal communications, such as tone (affective).

The models of student engagement offered by Appleton et al. (2008) and Davis et al. (2012) are reflected in the existing research on technology that represents the views of teachers, elementary students, and post-secondary students; these models are, therefore, useful in my research inquiry.

Student Engagement or Motivation

Confounding the definition of engagement is the fact that the word *engagement* is often used synonymously with words such as active, interest, motivation, and effort (Christenson, Reschly, & Wylie, 2012; Conner, 2011). The ensuing discussion chronicles researchers' attempts to determine what comes first, motivation or engagement. Christenson et al. (2012) explore student engagement through real-world learning situations. They analyze indicators and facilitators of student engagement and assess the effectiveness of classroom interventions. In their work, they define student engagement as students' active involvement in the learning process (behavioural). Some of the scenarios they put forth, however, appear to be examples of motivation rather than engagement. For example, "During math study sessions, the student

repeatedly tells herself, 'I can do this if I just keep studying what is on the study guide'" (Christenson et al., 2012, p. 245). Initially, this seems to be engagement, but as the scenario continues, we hear, "she also decided to reward herself with 30 min[utes] of TV time" and then she chose to "study with a few of her friends" (Christenson et al., 2012, p. 245). I am left wondering whether this student is motivated to complete the task and achieve the extrinsic reward she had set up for herself or whether she is she is intrinsically engaged in the task. Christenson et al. (2012) attempt to argue that when students are extrinsically motivated, they "are more likely to internalize autonomous reasons for completing" work (cognitive).

Conner (2011) uses a mixed-methods approach and data collected from 93 students in elementary, middle, and high school students. These students participated in a focus-group interview, completed a survey, and reflected on their own learning experiences to explore their attitudes towards school and their teachers. Data gathered from the elementary students suggests that students feel engaged when they are involved in learning and academic tasks, participate in school-related activities, and attend class regularly and on time (behavioural); further, the study indicates that students can successfully do the work (cognitive), when they are actively involved in learning and academic tasks (affective) and when they enjoy the work and like their teacher (affective/relational). Conner (2011) also finds that students' perception of the connection with their teacher is directly related to their engagement. However, a positive relationship with the teacher may be viewed as a variance of praise and, therefore, an extrinsic reward or motivation.

Connell and Wellborn's (1991) study of students in Grades 3–10 examines measures of student engagement and disaffection in school. Their assessment includes teacher and student reports of engagement. Their findings suggest that engagement functions as a way to facilitate

students' motivation for learning and development, whereby engagement leads to motivation rather than motivation leading to engagement.

Research by Liu (2016) probes when and why student teacher candidates choose to explore the use of technology in the classroom. Again, engagement and motivation are used interchangeably in the results, suggesting that technology allows student teachers to be "more entertaining" and students to be "engaged, curious, and ready to discuss" (p. 94).

Wellborn (1991), using the motivation ratings teachers gave 288 elementary students, considers matters such as engaged versus disaffected behaviour, engaged versus disaffected emotion, and engaged versus disaffected orientation. His new conceptualization of motivation acknowledges the emotional qualities inherent in engagement, which include flexibility, creativity, and lower levels of anger and anxiety. His conceptualization, however, also introduces behavioural variations of students' active involvement during a learning activity that include working independently, paying attention, not avoiding challenging tasks, and making decisions independently. This reconnects with Appleton et al.'s (2008) definition of student engagement as a combination of behavioural and cognitive attributes.

In his overviews of classroom-based, longitudinal research, Reeve (2012) defines motivation as "a private, unobservable psychological, neural, and biological process that serves as an antecedent cause the publically observable behaviour that is engagement" (p. 151). If, as Reeve suggests, motivation is unobservable, it is possible that the definitions of engagement offered by the above researchers are actually definitions of motivation.

For the purposes of this inquiry, I will remain open to motivation and engagement. Whatever the reason for engagement, whether extrinsic or intrinsic, the consequence remains the same: Learners are engaged in the teaching-learning process. I will, however, do my best to

consult with students to determine whether they can differentiate between the two. Ultimately, if our goal is to engage learners, then we, as educators, must remain open to finding what engages them, recognizing that there is no one-size-fits all formula.

Technology in the Classroom

As mentioned in the introduction to this chapter, technology is often assumed to be a quick fix for the student-engagement issue. The term technology is encompassing and involves computers, audiobooks, calculators, cell phones, cameras, and a vast array of other items. Prensky (2010) is an author and speaker on education who has taught elementary students and college students. His works explore what it means to be educated and what that means in today's digital world. In his estimation, the challenge facing education today is that

> all of today's teachers are preparing their students not only for a world they will face the day they leave school (a world we know), but also for a future in which, within the students' working lifetimes, technology will become over one trillion times more powerful (a world we can hardly imagine). (p. 9)

In his "roadmap for educators . . . [whose job it is] to prepare their students for living and working in the 21st century," he lists more than 130 technologies available to students and teachers (p. 6). Some of the tools are well known, including blogs, audiobooks, calculators, and cameras. Other digital tools like Intuition, Iteration, mashups, and modding tools are more obscure. This list was generated in 2010; it is, therefore, likely that the list would be even longer if created today. "Technology and digital media are everywhere and integrated into every aspect of individuals' lives" (Joan, Denisia, & Sheeja, 2013, p. 23).

Prensky's (2010) comprehensive research work "unites three strands of current educational discussion that have rarely been considered together: the students in our classrooms

. . . the ‘telling and testing’ pedagogy we have . . . [and] the digital technology” (p. xv). He comments that “in all the hoopla and debate these days about the decline of education,” we fail to acknowledge how the “rapid dissemination of digital technology” has changed our students’ worlds (Prensky, 2001, p. 14). He calls for us “to reconsider both our [teaching] methodology and our content” (p. 71). Through this inquiry, I hope to add to the discourse that calls us to reconsider not only our teaching methodology and our content but also the use of technology, its relationship to student engagement, and the way we share the teaching/learning space with students.

Benefits of Technology

The advantages of using technology in the classroom are well-represented in the literature and include preparation of students for the future, opportunity for collaboration and communication, exposure to different perspectives and the global world, student control and responsibility for learning, and creation of more complex and dynamic learning environments. While I have experienced the value of using technology in the classroom, the literature reviewed below suggests that technology warrants careful and thoughtful use (Frazier & Bailey, 2012). The headings below represent an attempt to organize the literature into its researched benefits; I must, however, acknowledge that this was not an easy task and that there are particular benefits—for example, critical thinking and relevance—that do not carry headings of their own, but are instead woven across those benefits identified as dominant.

Preparation for the future. There is no doubt that researchers suggest technology as a way to the future for today’s students. Dagget (2010) believes that the Internet and the computer can enhance instruction and engage students, thus preparing them for the future. Tucker’s (2012) research on blended learning—learning that mixes online learning with traditional classroom

instruction—leads him to believe that these "technolog[ies] can be the vehicle[s] used to hook student interest and develop relevant skills needed to be successful beyond school" (p. 1). Research conducted by Jacobsen and Friesen (2011) with high-school students—one of the few pieces of research that looks at secondary students—suggests that if we want our children to face the challenges of the future with skill and confidence, we need to use participatory digital technologies, that is, technologies that allow them to learn, assess, socialize, and collaborate. Future generations will need to be producers of digital and media technologies, not simply consumers of information (Cormodde & Krishnamurthy, 2008). Moreover, they will need to be critical users of technology, not simply producers (Campbell, 2015). As the definition of literacy evolves to include digital and media technologies, it is critical to build student understanding of these literacies for pleasure and work both now and for the future (International Reading Association, 2001; Leu, Mallette, Karchmer, & Kara-Soteriou, 2005).

Opportunities for communication and collaboration. Leu, Kinzer, Coiro, and Cammack (2004), in their work with students who are predominately in elementary or middle school, suggest that technology provides opportunities for students to develop and communicate through different modes. Holcomb and Beal's (2010) work looks at the integration of Web 2.0 technologies in social-studies elementary education; they observe how the comfort and ease of access afforded by technology allows students who would not normally be active participants in discussions to emerge as thoughtful voices. For example, English language learners who may need more time to decipher language may be able to use Google platform tools and online dictionaries to then provide meaningful feedback to a peer about their work by leaving comments on a shared Google Doc. Hung (2014) looks at engaging English language learners in active learning and finds that, by using an online technological tool, students are able to attain better

learning outcomes (cognitive engagement), develop better attitudes toward their learning experiences (cognitive development), and devote more effort in the learning process (behavioural engagement).

Research with postsecondary students notes that "introverted students felt more engaged" because technology helps "students to move from being passive listeners to active thinkers" (Sawang et al., 2017, pp. 16–17); allowing for information processing prior to sharing provides opportunities for all students to collaborate whether they are introverts or extroverts. Lee's (2009) work on 3D virtual worlds asserts that before collaborative learning can occur using digital platforms, educators need to foster a range of interpersonal and social skills by engaging in team building and group-decision team-making activities. Graham (2011) examines the technological pedagogical content knowledge (TPACK) framework and suggests that collaborative learning needs to be developed through face-to-face interaction and communication. While students may know how to use technology to communicate with others, they must be taught how to use it effectively and appropriately in an educational context (Rheingold, 2008).

I believe, supported by the research outlined below, that a teacher's role, regardless of whether technology is involved or not, is to create a learning environment that encourages collaboration and allows students to take prudent risks, to generate strategy and then execution, and to engage in complex moral and ethical decisions (Prenksy, 2006). For example, one outcome of Schroeder, Minocha, & Schneider's (2010) research on the use of social software in post-secondary institutions cautions teachers that, "it is not enough to set up the activities and leave it to the students to collaborate and share" (p. 165). Holt-Reynolds's (2000) examination of the role of teachers in today's classrooms indicates that teachers of the current and future

generations will need to activate learners and invite them to talk; these teachers must ensure that they have successfully engaged the students' participation. He further suggests that it is only when successful engagement occurs that a teacher's job ends.

Humans are inherently social beings. Morozov's (2013) work, which critiques Internet centrism, cautions that technology should not be considered a replacement for real social engagement. Dede's (2014) synthesis of research findings on effective approaches to teaching and learning at the high school level notes that, "digital teaching platforms have been found to provide powerful support for collaborative learning" (p. 10). Similarly, Laurillard's (2009) work on mobile learning suggests that by learning to use technology in the classroom, teachers and students can develop and refine technological skills essential in the twenty-first century—such as learning to collaborate with others.

Chickering and Gamson (1987) look at good practices in undergraduate education and note,

> Learning is not a spectator sport. Students do not learn much just sitting in classes listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must talk about what they are learning, write reflectively about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn part of themselves. (p. 4)

Using technology in a way that fosters collaboration may enhance student engagement, particularly if students have the opportunity to work with their peers by sharing ideas and resources (Chickering & Gamson, 1987).

Exposure to different perspectives and the global world. Bidwell's (2014) survey of more than 1000 teachers from kindergarten to Grade 12 concludes that technology "provides a

way to break down those usual four walls of a classroom" so that students can be not only brought together but also exposed to a larger global perspective (para. 11). Moreover, the work by McLoughlin and Lee (2007) looks at the use of two-way web tools by teachers and students and posits that, because student work can be shared with people beyond the classroom, students can benefit from interacting with a much wider audience. Dede (2014) explains that "21st century workers" increasingly interact "with peers halfway across the world whom they may never meet face-to-face" (p. 53). These technological skills are increasingly fundamental in today's job market (Conference Board of Canada, 2014; Rumberger, 1985).

Student engagement can also occur when students can reflect on the unique perspectives that their fellow students bring to class (Chickering & Gamson, 1987). Discussions in collaborative learning environments between post-secondary students expose students to different perspectives and, thus, allow them to develop critical thinking and judgment skills (Fung, 2004; Stacey, 1998).

Dewey (1915) believes that education must "reflect the life of the larger society" (p. 20). If one of the goals of education is to teach skills that students will use in the future, then it may be necessary to integrate digital technology into the classroom. This, however, requires a teacher who is willing to support behavioural, cognitive, and affective engagement (Appleton et al., 2008), use participatory digital technology (Jacobsen & Friesen, 2011), and collaborate (Fung, 2004; Stacey, 1998). As Rheingold's (2000) work on virtual communities suggests, the consolidation of all these factors would allow students to engage in diverse publics. Surveying the online practices of youth, ages 16–21, Kahne, Middaugh, Lee, and Feezell (2010) conclude that online participation allows students to be "exposed to views that align with *and* diverge from their own" (p. 2).

Student control and responsibility for learning. Some 38 years ago, computing coordinator Seymour Papert (1980) examined the "forces that are called into play as the computer presence begins to enter the politically charged world of education" (p. 5). He found that the most often used technologies for learners tended to turn control for the learning process over to the learner, allowing for information retrieval, engagement in incidental learning, and exploration of emergent hypotheses. He looked at technological tools used in elementary math classrooms like *Turtle Talk*, which is an "object[t]-to-think-with" (p. 11). By using technology in a way that showed their thinking, students were able to learn to program, and they were able to "learn very easily" (p. 13).

Technology for learning functions successfully when technology is used as a facilitator of thinking and knowledge construction (Jonassen, 1995), rather than as a delivery vehicle for instruction (Jonassen, Campbell, & Davidson, 1993). Halverson and Smith (2009) further describe technology for learning as "essentially technologies structured to reliably deliver and measure outcomes regardless of the context or the situation of the learner" (p. 51).

Technology for learning also makes room for frequent, timely, and meaningful feedback that is deemed to be important to the teaching and learning process (Gibbs, 2010). Dietrich and Balli (2014) interviewed 34 fifth-grade students at three elementary schools to explore the extent to which technology engages the students. They observe that "students were engaged in classroom learning when using technology, particularly when they had control of the technology" (Dietrich & Balli, 2014, p. 21).

West's (2015) various research studies on technology policy, electronic government, and mass media suggest that, at the most basic level, digital technology may offer learners greater

control over their learning. Specifically, learners control what they will learn, when they will learn, and the order in which they will learn it (Dror, 2008).

Further, effective use of technology can lead students to become silent experts in how, where, and by whom they want to be educated (Solhaug, 2009; Yang & Su, 2017). Solhaug's (2009) study relies on a quasi-experimental design to explore the impact of computers on students' learning experience. Solhaug uses data from 719 student-completed questionnaires to compare students from a school with Internet-connected stationary computers in special computer rooms to students in a school where every student had a wireless-connected laptop in their classroom. Students with the laptops used the computers as "tool[s] for critical thinking and enhanced student participation" (p. 418). For example, students could engage in "discovery tasks" and "reflective practice" (p. 417). One student explained that computers offer him the opportunity to "find information and participate in classroom conversations or discussions" (p. 417).

Yang and Su (2017) study data collected from 272 adult students enrolled in an animation-production course; the participants completed a questionnaire to explore the behavioural intentions of students when they enrol in a massive open online course versus their actual behaviours while enrolled in the course. The authors report that when learners perceive the technology to be easy to use and have control over the technology, they will have a stronger intention to get involved and use it.

While technology may allow students to "do it on their own" (Grandberg, 2000, para. 12), Dahlstrom (2012) reminds us that students do indeed need guidance and training in effective use of technology. English's (2016) survey of 60 students and eight instructors at a college campus explores technology and its impact on learning and pedagogy; English observes that

"most of the students who participated commented on the high level of support they received from the instructor" (p. 136). Thus, technology is not a replacement for real social engagement (Morozov, 2013) and personal interaction with a teacher.

While control and responsibility may be a benefit of technology, ongoing research suggests that students struggle to attain relational engagement through a solely online learning experience (Song, et al., 2004). Lin's (2007) study explores instructional technology by conducting in-depth interviews with 20 professional technologists. The participants emphasize that technology cannot be used "as a replacement for all existing learning methodologies" (Lin, 2007, p. 476). Berns, Gonzalez-Pardo, and Camacho's (2011) research on videogame-like applications includes an empirical evaluation of five learning sessions in which students played the application the authors had designed for the purposes of the research. The study reinforces Lin's message that by no means should new immersive media replace conventional face-to-face teaching. Rather, they should "be used as complementary tools in addition to face-to-face teaching" (p. 20).

Ross, Morrison, and Lowther (2010), in their study of American high schools, "solicited manuscripts from researchers who have been studying a broad range of high school issues . . . to determine . . . [how] to improve and expand rigor and relevance across a broad swath of high school programs" (p. vii). They conclude that educational technology should not be viewed as a "homogenous intervention;" rather, its "effectiveness depends on how well it helps teachers and students achieve the desired instructional goals" (Ross et al., 2010, p. 19). Similarly, Tamim et al.'s (2011) second-order meta-analysis summarizing 40 years of primary research about the impact of technology on learning concludes that "one of technology's main strengths may lie in supporting students' efforts to achieve rather than acting as a tool for delivering content" (p. 17).

This reconnects me with the research of Jonassen (1995), Jonassen, Campbell, and Davidson (1993), and Halverson and Smith (2009) regarding the importance of using technology for learning.

Marzano and Pickering's (2011) classroom stories and strategies for engaging students, derived from reviewing existing research, emphasize that students will engage with technology if they perceive the use of technology as important and relevant. Roodt and Peier (2013) explore whether use of YouTube specifically in the classroom has an effect on student engagement by surveying 241 post-secondary students, half of whom were exposed to the use of YouTube in their course. They find that "due to the technical literacy of [today's students], their learning styles differ from previous generations" (p. 473). As a result, today's teachers will need to adjust pedagogical approaches to fit the new learning styles. In light of this discussion, it is critical that educators consider how the technology is used, by whom, and why. As I proceed in the inquiry, I will look at how the teacher makes adjustments, if any, based on her students' learning styles and technological literacy. I will also look to see how technology enhances students control and responsibility for learning.

Creation of more complex and dynamic learning environments. While technology does indeed offer wide opportunities to create exciting worlds and learning opportunities, the research is clear on the role the teacher plays in the success, or lack of success, experienced by learners. Suzanne Young (2006) investigates student views of online learning in post-secondary education using data collected from 199 students via a Web-based instrument. The data suggests that technology allows teachers to integrate traditional lectures with demonstration methods. The students report that effective teachers are visibly and actively involved in the learning, work to

establish relationships with students, and provide a structured, yet flexible classroom environment.

Research by Callow and Orlando (2015) observed 28 teachers—representing classrooms from early (pre-school to Grade 5), middle (Grades 5–8), and later years (Grades 9–12)—who were nominated by principals, regional consultants, and professional associations as exemplary. The researchers observed classroom lessons and activities over a five-day period, met with each teacher at the end of each day and used an engagement framework to allow for triangulation of data. The study concludes that "when used appropriately, technology can enhance the cognitive, affective and operative aspects of classroom learning" (p. 367); this observation echoes discussions of the behavioural, cognitive, and affective/relational attributes/dimensions of student engagement (Appleton et al., 2008; Davis et al., 2012). Technology may also enable learners to "construct learning materials in ways that are less cognitively demanding and taxing on the cognitive system" (Dror, 2008, p. 218).

Burke, Butland, Roberts, and Snow (2013) exploration of the literacy pedagogy of three elementary teachers examines their engagement with new literacies. Three teachers, enrolled in a graduate course, were asked to explore teaching practices that would facilitate the use of new literacies in their classroom and to discuss how their own pedagogy may have been transformed. Burke et al. conclude that a "multimodal approach to literacy can have considerable impact in moving students toward realization that literacy does not simply involve the traditional 'read and respond' approach, but that it can be critically viewed as relevant and meaningful to [students'] daily lives." This research posits that "expanding teaching practices" to support multimodal literacies can enhance critical thinking and collaborative work (pp. 50–51).

Gee and Levine (2009) in their consolidation of existing research on student engagement suggest that "a crucial first step in promoting student engagement is to rethink literacy for the 21st century" by using digital tools to allow students to develop technical expertise (p. 49). This presupposes that teachers cannot continue to teach in the same way with technology, but instead must bring teaching and learning in line with technology (Knobel & Lankshear, 2007). Although school practices can "enter into conflict with new technology practices," Knobel and Lankshear (2007) call for educators to rethink how they engage with new technology rather than using technology in conventional ways (p. 34).

Research that supports the use of digital technology in the classroom points to the need for teachers to grow and develop alongside their learners (Burke et al., 2013; Gee & Levine, 2009; Knobel & Lankshear, 2007). Specifically, Coiro's (2005) work summarizes findings from her current work, examines her one-on-one work with educators in her role as a provider of professional development, and explores the journeys of teaching award winners to learn how to successfully integrate technology into the curriculum. Her work indicates that before educators can rethink how to engage with new technology, teachers need to be given instruction in using new technology (Coiro, 2005).

Wright, White, Hirst, and Cann (2013) attempt to map student attitudes towards the academic use of social networks by conducting a content analysis of the Google+ posts of 257 post-secondary students and then asking 109 of them complete a questionnaire. Their results posit that if technology is used effectively, with sound pedagogy for its use, it is a resource for academic purposes. They also suggest that "dialogue and collaboration may need to precede any social revolution in education" (Wright et al., 2013, p. 138).

Lankshear and Knobel (2006) have spent many years studying new literacies and their link to student engagement, and find that effective learning requires genuine engagement of participants and support for co-learners (Lankshear & Knobel, 2006). Johnson (2005) in her year-long project with a public-school teacher who took risks to craft a curriculum for her Grade 10 students, observes that student engagement requires exposure to genuinely meaningful and complex media that demands serious thinking and problem solving, recall, reflection, and comparison. Educators need to be aware that, where technology is concerned, the skills and comfort levels of today's students differ greatly as do their intended uses for the technology (Jones, Ramanau, Cross, & Healing, 2010; Kennedy, Judd, Dalgarno, & Waycott, 2010). Referring to their own work with secondary students, classroom teachers Nott and Nott (2014) suggest that it might be helpful to engage students by using the tools that they are comfortable with and motivated to use.

In her study with using social media in the classroom, Poore (2016) suggests that teachers may encounter challenges related to "'the participation gap,' the 'transparency problem,' and the 'ethics challenge'" (p. 240). Molyneaux and Godinho (2012)—using data collected from 114 elementary students and 5 teachers via classroom observations, semi-structured teacher interviews, an online student survey, and student focus group interviews—investigate how students engage with a website that "embraces constructivist learning principles, which include encouraging learner autonomy, nurturing students' natural curiosity, emphasizing learner initiated inquiry and exploration, and providing real-world, case-based learning environments" (Molyneux & Godinho, 2012, p. 1469). They conclude that digital technology engages students, as evident in the student participants focus and lack of off-task behaviour (behavioural), their collaboration to support each other's navigation of the website (affective/relational), and their

ability to acquire science-based discourse (cognitive). In this light, it seems that the dynamic learning environment fosters all attributes of engagement.

Ladbrook and Probert's (2011) research involving 188 Grade10 students and 24 teachers notes that, sadly, many teachers' pedagogical practices and levels of technological knowledge limit the degree to which they can effectively support students in the classroom. This conclusion is drawn from their study of student surveys, a fourteen-day diary activity, focus groups, and a teacher survey. They conclude that "the importance of . . . developing the knowledge and the skills of teachers, cannot be underestimated" (Ladbrook & Probert, 2011, p. 118).

It is critically important within the context of this inquiry to explore the relationship between teacher expertise and the opportunities teachers provide to students in the classroom. As I proceed in this inquiry, I remain curious as to whether the key to technology use in the classroom is teacher expertise or teacher willingness and openness to construct knowledge with students. I am again reminded of Dewey's (1915) belief in the role of the teacher. He states that the teacher "must survey the capacities and needs of the particular set of individuals . . . and must at the same time arrange the conditions, which provide the subject-matter or content from experiences that satisfy these needs and develop these capacities" (Dewey, 1938, p. 58). This further highlights that teachers are an important factor in using technology to engage students.

Technology for Learners

Collins and Halverson (2009) explore how and why some technologies flourish inside of schools, while others succeed outside of schools. They suggest that success is determined by the purpose of the technology: Is it a technology for learning or a technology for learners? Lankshear and Knobel (2006) offer an alternative perspective, suggesting a genuine reticence on behalf of educators who view themselves as outsiders to technology yet insiders to learning: "It is better to

keep new technologies *out* of learning if the prices of their 'integration' would be to impose outsider ways on insider sensibilities" (p. 245).

Bassi, Buchanan, & Cheney (1997) suggest that the best digital tools are not imposed and not mandated, but instead emerge if and when they are needed. I believe that technologies that emerge out-of-school are developed by and for those using them. So, I am left to wonder what would happen if out-of-school technologies and approaches to technology use were normalized and invited into the classroom, putting control of cutting-edge technologies in the hands of the learners. Would this lead to greater engagement or greater disengagement?

I agree with the assertion that "technology can either help or hinder the educational process" (Prensky, 2010, p. 3). Provided that technology is integrated into a rich pedagogical framework that offers meaningful and authentic learning experiences, it can be a beneficial tool (Arthur, 2011). Realizing the full potential of technology requires teachers who are motivated to develop strong and rich technological pedagogical approaches that support meaningful student engagement (Stronge & Hindman, 2003). It is for this reason that, in addition to observing and talking with students, I will also be observing and exploring the teacher's beliefs, assumptions, theories, and practices related to technology as well as to student engagement.

The Link Between Technology, Student Engagement, and Self-Efficacy

Palloff and Pratt (1999) refer to building virtual classroom environments that foster a sense of community while allowing students to take charge of their learning as being similar to the way "students in a face-to-face classroom see each other and work together, getting to know each other better through that process" (p. 29). They explore how to make this same process happen while online and propose that it is the instructor's role to incorporate technology in a way that allows students to learn not only about themselves and their own learning styles but also

about how to collaborate with others in the problem-solving process. In this process, they grow by becoming increasingly confident in their abilities, and they gain confidence finding the information they need, building their sense of self-efficacy.

Perry and Steck (2015), using a sample of 110 students and two teachers in a secondary classroom and a control-and-treatment group model, explored the effectiveness of iPads in geometry instruction and tested their prediction that the use of iPads would improve academic proficiency. They found, instead, that iPads actually "increased off task behaviors" (p. 138), resulting in drastically lower midterm proficiency for those who used them than for the control group who did not use iPads. They conclude that student self-efficacy may have been partially responsible in the group with iPads where students were deferring to iPads instead of believing that they could do the task on their own.

Bandura (1997) suggests that self-efficacy is linked to students' level of motivation and performance, both of which address behavioural and cognitive engagement. It is not surprising that students with a developed sense of self-efficacy perform better (Solhaug, 2009), but it is unclear what produces this self-efficacy. In fact, the answer to this question may very well be a cyclical chicken-egg response: Which comes first? Self-efficacy, engagement, time spent on task, motivation or something else?

Dorrow and Boyle's (1998) survey of sixty community-college participants uses a pretest- posttest model to explore the impact of instructor feedback during the writing process; the authors observe that students who use technology are more likely to maintain a focus on learning, show higher levels of class enjoyment, and participate in class than those who do not use technology. Referring to online postsecondary students, Deschaine and Whale's (2017)

finding is similar: “Time spent engaging students is worthwhile and results in greater course satisfaction and academic effort” (para. 1).

The research on elementary students also aligns with these research findings. Hong, Hwant, Tai, and Lin’s (2017) research with 78 elementary students explores the students’ intrinsic motivation to online learning self-efficacy. This research finds an interplay between cognitive and affective/relational engagement that creates high levels of self-efficacy among learners as evidenced through participant statements like “If I come across any trouble while using a website to learn, I believe I would be able to overcome it”; “If I work hard, I can solve any problem while using the website to learn”; and “I have the confidence to master” new content on an e-learning platform (p. 563).

Topolovcan, Matijevic, and Dumancic’s (2016) work with 1528 eighth-grade students considers the role of constructivist teaching in students’ computer self-efficacy and attitudes towards new media. The data from the survey confirms that more frequent use of new media in the classroom leads to a more positive attitude towards new media. This positive attitude results in a higher level of self-efficacy. After surveying 978 middle-school mathematics students before and after they used a Web 2.0 tool for mathematics, King (2014) observes that, “educators can integrate technology use and content instruction to increase student familiarity with technology applications and improve digital performance (King, 2014, p.118–119).

Project Tomorrow (2011) surveyed 294,399 students from kindergarten to grade 12, 44,267 parents, 35,525 teachers, 2,125 librarians, 3,578 school/district administrators, and 1,391 technology leaders. This population represented 6,541 public and private schools from 1,340 school districts. This research explores the ways in which students use emerging technologies for learning. The data suggest that online and blended learning “enables a greater personalization of

the learning process . . . thus empowering a new sense of personal ownership of the learning process" (p. 9). Project Tomorrow contends that technology enables, engages, and empowers students:

> Students have access to a rich and varied set of digital tools and resources that provide them with gateways to new learning experiences that are not bound by their classroom walls or even the boundary lines of their town or city; the world is now their school. These digitally enabled learning experiences are so engaging and compelling that they ignite a new, insatiable curiosity for more and more knowledge; a curiosity that is fueled by the real world context of the experience and the opportunity to collaborate with peers and experts. And each learning experience is carefully tailored to meet the specific needs of the learner; the personalization potential of technology is realized. This ability to learn how to effectively leverage a wide range of technology tools and services to drive one's own educational destiny empowers our students for a new world. (p. 14)

Unanticipated Consequences—Student Disengagement?

So, with all of this "hoopla," as Prensky (2001) says, about the potential for technology in the classroom to support engagement, I look to my own colleagues and wonder why some of them still resist the lure of technology in the classroom. Perhaps they know something I don't? Should we be promoting the use of technology or should we be heeding the advice of Morozov (2013) who suggests that the potential uses of digital technologies have been overhyped and their possible consequences underexamined?

Marks (2000) asserts that engagement with technology requires focused interest, attention, and perseverance. Carr (2008) disagrees, noting that the Internet "is chipping away [the] capacity for concentration and contemplation" (p. 57). Friedman (2006) suggests that we

have transitioned from the age of information to the age of interruption because we "interrupt each other or ourselves with instant messages, email, spam or cell phone rings" (para. 10). Prensky (2001) is concerned about the "twitch speed, multitasking, random access, graphics-first, active, connected, fun, fantasy, quick-payoff world" provided by technology (p. 5).

Berk (2009) synthesizes existing pertinent research based on ten national and international surveys to explore teaching strategies for the Net Generation. He asserts that today's students are "born with a chip" and "have grown up with Sesame Street, MTV, reality TV, the Internet, PCs/Macs, video games, Facebook, MySpace, Twitter, Flickr, Skype, iPods, iPhones, PDAs, and TV/DVD remotes as appendages to their bodies (p. 3–4). The trick, as he sees it, is to align teaching strategies with curriculum standards and the characteristics of today's students. He says, "teaching is all about the students" and the research suggests that learner-centered techniques should be blended with the latest technology (p. 85). He adds, "Students need to feel connected to [the teacher] and to each other," concluding that therefore we need a blend of "face-to-face and online" teaching and learning (p. 86).

Moreno's (2013) work on multimedia environments provides an empirical review by examining a set of studies exploring the effectiveness of three different media: multimedia, agent-based multimedia games, and virtual reality environments. He suggests that the use of technology increases the cognitive load of students and, as a result, forces them to do a great amount of incidental processing. This "brain overload" can hinder learning and reduce student engagement. Moreno and Valdez (2005) designed an experiment to test the effectiveness of multimedia programs by having three groups of college students learn about lightening in three different ways: images, words, and dual codes—a set of picture frames with their descriptions in words. They conclude that the cognitive load can be reduced when the learner has the

opportunity to be actively involved in the process of understanding through two-way verbal communication that allows the learner to attain feedback. This underscores the role of the teacher when using digital technology and emphasizes that technology should not replace teachers.

Other researchers, such as Erika Smith (2012) and Lauren Smith (2015), however, suggest that computers, in conjunction with access to the Internet, allow students to look up information and data in a time-efficient way. Marks (2000) suggests that, in the moment, completing tasks by conventional means may require focus, interest, attention, and perseverance, but over time, the efficiency of computers may also erode the longer-term attention required to complete more complex tasks. As a result, today's learners rush through work and expect to end their research with one click of a mouse (Emmanuel, 2013). In effect, attention is sacrificed for efficiency.

Not only does attention suffer, but social interaction does as well. Prensky (2010) suggests that today's students "have learned to focus only on what interests them and on things that treat them as individuals rather than as part of a group or class (as we so often do in school)" (p. 2). Smith's (2012) comparative analysis of recent literature to analyze key themes and issues emerging for today's students finds that many of the students who cannot sit still or concentrate in the classroom can sit for hours focused on a movie, a text conversation, or a computer screen.

Perspectives such as those outlined above are often underrepresented in discussions surrounding the use of technology in the classroom. Educational thinkers like Cuban (2001) and Wenglinsky (2005) argue the perils of overinvestment in technology. Cuban's (2001) assessment of the use of computers in classrooms involves interviews with students and teachers and classroom observation across 11 preschool and kindergarten classes at seven different schools, two high schools, and one university. His careful exploration of how often computers are used

and in what ways leads him to "call for a moratorium on buying any more computers for K–12 schools" (p. 192). He believes that computer technology is not a valuable substitute for teaching and learning, and that broader changes in the ways schools are organized need to come first. Weglinsky's (2005) work with twelfth-grade students in a history class suggests that schools need to "ensure that students have the generic technology skills they need to apply this powerful tool [of digital technology] across the curriculum" (p. 32).

While I have experienced the value of using technology in classrooms, I feel it warrants careful use and borader study, largely a result of its unanticipated consequences. Many schools and boards, including the site of this inquiry, provide open Internet access to students and implement bring-your-own-device policies. This presupposes that digital technology engages students; in this inquiry, I will observe for indicators of engagement when technology is used, but I will also look for instances when disengagement occurs.

Observing Student Engagement With Technology in This Inquiry

It is clear from this review of literature on technology of student engagement that defining student engagement is a tricky endeavour and that the research is inconclusive on whether technology engages or disengages students.

I have come to understand that the measurement of student engagement requires far more than simple observation. It also requires conversation and discussion with students in order to ensure that the interpretation of engagement or disengagement is actually grounded in the students' experience and reflective of how the student is feeling. Behavioural, cognitive, and affective/relational engagement are all rooted in subjective experience, and I can, therefore, not assume that what I view or interpret as engagement or lack of engagement is, in fact, true without participant validation. Having reviewed this research, I now recognize that engagement

is an active process that permeates a student's experience of school and, for the purposes of this inquiry, a student's experience of technology. It is not as simple as calculating the amount of time spent on a task (VandeWeghe, 2009) or getting a high mark on a culminating assignment (Willms, 2003). At its core, engagement is a deeply affective experience that is most often reflected in a student's sense of belongingness (Dunleavy & Milton, 2009).

Looking ahead to data gathering and analysis, I will need to balance my observation of the behavioural, cognitive, affective/relational attributes of student engagement with technology. I will observe students

> [joining] in class discussions [behavioural], participating in learning activities [behavioural], asking questions [cognitive], responding to other comments [affective/relational], marking in their texts [cognitive], debating [affective/relational], bringing questions and problems to the class that were discovered by reading out of class [behavioural engagement, relational engagement, and cognitive engagement], writing response papers [cognitive], emailing or posting discussion thread questions and comments with other texts and writers [affective/relational], and probing deeply into a text or a research problem [cognitive]." (Garrett, 2011, p. 6)

This definition of student engagement recognizes that the attributes/dimensions of student engagement do not operate in isolation. It acknowledges that although there is overlap, there are indicators to observe them individually.

Concluding Remarks

In sum, there is no clear definition of student engagement nor is there a clear understanding of how, if at all, classroom technologies can influence engagement. Perhaps we need to participate in "dialogue with the students, who in turn while being taught also teach.

They become jointly responsible for a process in which all grow" (Freire, 1993, p. 67). Perhaps we need to ask students how the use of digital technology in the classroom engages and disengages them. Looking at the existing research, I notice that much of the research amplifies the voice of educators (Callow & Orlando, 2015; Liu, 2016). The student perspective is minimized. When I seek to understand what students say engages them, I can only see the perspective of elementary students (Dietrich & Balli, 2014; Godzicki et al., 2013) and postsecondary students (Bradford et al., 2016; Deschaine & Whale, 2017; Sawang et al., 2017). What about the secondary students? I can begin to fill a gap in the existing literature by exploring this study's research question: *How does the use of digital technology in the secondary classroom engage and/or disengage students?*

Chapter 3

Theoretical Framework

> *Is playing with their cell phone a student's way to disengage when a task is too difficult for them or when they hit an obstacle? I wonder if having access to personal cell phones during a task that students view as challenging because it requires critical thinking leads some students to easily opt out when something is difficult. It seems that those students who didn't use their personal cell phones persevered to locate more devices and thus, their worksheets showed analytical depth whereas those students who played video games just completed the task to get it done. (Field note, February 8, 2017)*

As a secondary teacher, I have witnessed the integration of technology in the secondary classroom as a tool to increase student engagement; I have, however, also observed students disengage when technology is used as a classroom-learning tool. In this inquiry, I explored, examined and, came to understand what students believe about the use of digital technology in the classroom and how students engaged with the digital technologies that were available to them in the classroom.

My research interests are framed within the belief that technology has the potential to engage students when students are given interactive opportunities to construct their own learning and create user-generated content rather than using technology in a way that is superficial and one-sided.

Looking at Technology Through a Constructivist Framework

New emphasis on technology in educational theory sees the natural re-emergence of constructivist theories (Brooks, 1990; Reiser, 2002; Sutton, 2003), given that constructivism and classroom technology contribute to the creation of the learning environment. The relationship between technology and constructivism has been studied by many researchers (e.g., Black &

McClintock, 1995; Brush & Saye, 2000; Collins, 1991; Duffy & Cunningham, 1996; Rakes, Flowers, Casey, & Santana 1999; Richards, 1998).

Constructivists view learners as active rather than passive, where knowledge is not simply gained from the outside world or from a teacher; rather, the individual learner interprets and processes what is received through the senses to create meaningful knowledge (Meyer & Land, 2012; Reiguleth, 2013). Constructivism views learning as "an active process that assimilates new information into the learner's knowledge paradigm" (Brown, 2005, p. 124). A central assumption of constructivism is that learning is rooted in experience (Brown, Collins, & Duguid, 1989), and all new knowledge acquired is in relation to the students' prior knowledge (Baviskar, Hartle, & Whitney, 2009). When students recognize the difference between their prior knowledge and the new knowledge, they interpret and modify their prior knowledge within the context of new knowledge (Baviskar et al., 2009). In this way, constructivism is a social and collaborative activity (Al-Fadhli & Khalfan, 2009; Loyens, Rikers, & Schmidt, 2007). The emphasis on active participation by learners is considered by Phillips (1995) to be a positive implication of constructivism as it predisposes students towards classroom participation, further promoting "improved attention to the subject matter and correspondingly [improved] learning" (Hyslop-Margison, & Strobel, 2008, p. 73). In such contexts, the learner is at the centre of the learning, while the teacher plays a facilitating role, and learning is self-directed (Boekaerts, 1999; Regan, 2003), co-constructed through interaction with others (Palincsar, 1998; Roschelle, 1992) in addition to interpretation and synthesis of ideas (Kutz & Roskelly, 1991). In constructivist contexts, new teacher competencies include supporter and facilitator of students' work, arbitrator of group discussions, inspirer and encourager, critic to mobilize greater effort when a student is not meeting objectives, and evaluator to initiate improvement of general

learning capacities of students (Witfelt, 2000). The teacher acts as a "guide on the side," as opposed to the "sage on the stage" (King, 1993, p. 30).

Constructivists believe that learners should be able to construct their own knowledge and that knowledge construction can be facilitated by the use of technology (Wagner, Vollmar, & Heinz-Theo, 2014) in the classroom. Constructivists believe that learning is facilitated through tools (Duffy & Cunningham, 1996) and technology is an exemplar tool because it supports new understandings and capabilities, and acts a cognitive tool (Duffy & Cunningham, 1996; Jonassen, 1995; Kozma, 1991). Technology offers learners access to a breadth of knowledge, enabling them to navigate their own learning maps and discover what knowledge they want to acquire (Lawless & Brown, 1997). Technology in the classroom has the potential to enhance "learning experiences" (Snyder, Bolin, & Zumwalt, 1992, p. 415) whereby schools become "places to learn not to teach" (Tapscott, 2009, p. 134).

When electronic learning meets experiential learning, it becomes *eeLearning* (Trevitte & Eskow, 2007), an approach that infuses e-learning technology with the philosophy and methodology of experiential education in an effort to promote inquiry and engage learners in the experiences through which knowledge is created (Doering, 2007; Riedel, Endicott, Wasescha, & Goldston, 2007; Trevitte & Eskow, 2007).

Concannon, Flynn, and Campbell (2005) suggest that students believe that e-learning is "a valuable support to the learning process. They see it as additional reinforcement to traditional face-to-face delivery mediums, and they make regular use of the medium's flexible access, and the incentive it provides for ongoing study and continuous assessment" (p. 512). In this way, technology is positioned as a constructivist tool that allows for increased freedom in learning (Dewey, 1915, 1938).

Virtual field trips, for example, foster experiential learning opportunities for students (Murphrey, 2010) and allow students to gain a better understanding about a place that their class may not be able to visit and to practice with technological innovations that promote dynamic academic growth (Spicer & Stratford, 2001). Using a variety of websites, software applications, and web-based programs, students go on a virtual journey that helps to develop knowledge that is then organized and synthesized (Orey, 2010) in students' minds.

The benefits of integrating digital technology into classroom learning extends beyond students' attainment of computer skills; this integration results in a process in which learners try, fail, access, evaluate, analyze, and apply meaningful skills including but not limited to researching, analyzing data, applying and representing knowledge, communication, and collaboration (Scheffler & Logan, 1999).

Technology and a constructivist approach need not be at odds with each other. If we change our view of computers from merely a means to deliver instruction to one of a tool to solve problems, then the reform movement can influence the use of technology, and technology can influence the reform of education. (Morrison, Lowther, & DeMeulle, 1999, p. 5)

Teachers who integrate technology into the curriculum to both complement and redefine instruction but also redefines it are referred to as techno-constructivists; they have realized the full potential of technology to help students build experiences and construct meaning (Noon, 1998). Judson (2006) adds that constructivist-minded teachers are more likely to use technology in their classrooms because these teachers see it as a worthwhile learning tool in their student-centred classrooms. Technology for many teachers is more than just a tool; it is the framework for constructivist methodology (Gilakjani, Leong, & Ismail, 2013).

The Relationship Between Dewey's Theory of Learning and Technology

Dewey's (1915, 1938) *Theory of Learning* views education and learning as social and interactive processes and suggests that students thrive in environments where they experience and interact with the curriculum and seek out information about which they are curious. Dewey (1959) makes a strong case for the importance of education as a means to both gain content knowledge and learn how to live. Because Dewey (1959) believes that education should resemble "real life" and that curriculum should have "real-life" relevance, he contends that students are engaged through activities connected to real-world issues and problems (Roblyer & Doering, 2010). Dewey rejects the idea of the traditional classroom and champions for a classroom environment that is student-centred and active, observing that traditional classrooms often require student to do little more than listen:

> If we put before the mind's eye the ordinary schoolroom, with its rows of ugly desks placed in geometrical order, crowded together so that there shall be as little moving as possible, desks almost all of the same size, with just enough space enough to hold books, pencils, and paper, and add a table, some chairs, the bare wall, and possibly a few pictures, we can reconstruct the only educational activity that can possible go on in such a place. It is all made "for listening." (Dewey, 1959, p. 50)

Dewey (1980) advocates for a classroom that connects students with one other because "a being connected with other beings cannot perform his own activities without taking the activities of others into account. For . . . when he moves he stirs them and reciprocally" (p. 16). Dewey (1915) further argues for a study of subject matter that intertwines academic and vocational education. He believes that "the only way to make a child conscious of his social heritage is to

enable him to perform those fundamental types of activities which make civilization what it is" (Dewey, 1897, p. 78).

Dewey's theory reinforces the importance of engaging students through experiential-learning opportunities. Dewey (1915) argues that education is a social process and it must "reflect the life of the larger society" (p. 20). Further, he says the educator "must survey the capacities and needs of the particular set of individuals . . . and must at the same time arrange the conditions which provide the subject-matter or content from experiences that satisfy these needs and develop these capacities" (Dewey, 1938, p. 58). In short, Dewey (1915, 1938) believes students must be engaged with activities that have meaning for their individual lives.

Technology is prevalent in the lives of today's students (Strauss & Howe, 2006); it is, therefore, essential that students learn to effectively use technology in order to live and function in today's society (Moeller & Reitzes, 2011). Through the use of technology in the classroom, students can actively participate in their own learning. They can access resources to answer questions and seek out information about which they are curious. This participation in the learning process is authentic, active, and relevant. There are many researchers (Bertram, 1998; Davis, 2012; Pieratt, 2010) who suggest that Dewey would have advocated for the use of technology in the classroom supporting his belief that if we teach today's students as we taught yesterday, we rob them of tomorrow.

Engagement Theory and the Role of Technology in Student Engagement

Engagement theory has emerged from educators' experiences teaching in a technologically-rich environment (Kearsley & Shneiderman, 1998), making it relevant to this study. Its emphasis on meaningful learning and on experiential learning is consistent with constructivist approaches to learning. The fundamental principle underlying engagement theory

is that students must be meaningfully engaged in learning activities through interaction with others and involvement in worthwhile tasks (Kearsley & Shneiderman, 1998). Although engagement can occur without the use of digital technology, technology "can facilitate engagement in ways which are difficult to achieve otherwise" (Kearsley & Shneiderman, 1998, p. 20). Engagement theory promotes student activities that "involve cognitive processes such as creating, problem-solving, reasoning, decision-making and evaluation" because students are "motivated to learn due to the meaningful nature of the learning environment" (Kearsley & Shneiderman, 1998, p. 20).

Kearsley and Shneiderman (1998) break down engagement theory into three components: relate, create, and donate. Relate emphasizes the process of collaboration between students in order to develop communication and social skills—skills the modern workplace demands proficiency in (Organization for Economic Co-operation and Development, 2013). Create stresses the importance of students engaging in creative and purposeful activity; when students are given the opportunity to conduct their own projects, they have a "sense of control over their learning which is absent in traditional classroom instruction" (Kearsley & Shneiderman, 1998, para. 6). Donate highlights the value of projects that make a useful contribution to an outside "customer"; these tasks are authentic and increase student motivation and satisfaction, which results in student engagement. It is important to note that Kearsley and Shneiderman (1998) intended their concept of engagement to function as a "conceptual framework for technology-based learning" (p. 20). In the end, engagement theory, as presented, is reflective of Dewey's (1915, 1938) emphasis on authentic tasks.

Concluding Remarks

In sum, as mentioned in the onset of this chapter, I believe that learning occurs when the learner is active; when the learner is given the opportunity to construct their own meaning, acquire knowledge through experiences, and is able to see the relevance of what they are learning. Dewey's (1915, 1938) *Theory of Experience* and Kearsley and Shneiderman's (1998) *Engagement Theory*, although unique and distinct, are steeped constructivist ideals in the sense that they both advocate for the learner to construct their own meaning. Viewing the use of digital technology through these lenses offers increased understanding of how digital technology can engage and/or disengage students. In true constructivist fashion, it is critical to ask students what they believe about the use of digital technology in the classroom and explore how they engage with the digital technologies in the classroom. There is an old Chinese proverb: I hear and I know, I see and I remember, I do and I understand. Analogously, digital technology used with the lens of constructivist-learning theory gives students the opportunity to see, hear, and do.

Chapter 4

Methodology and Research Design

> *Students have so much to say. If you give them the opportunity to talk, by providing a listening ear, they will tell you so much. At times, they may tell you things that you don't want to hear but whatever they say is valuable. (Field note, February 10, 2017)*

I believe that when you want to research an individual or a group, it is critical to respectfully immerse yourself in their way of knowing and living (Janesick, 2000). Rooted in my desire to explore the narratives of students, it is important that I listen, observe, and, talk with students as a way of knowing. Using an ethnographic approach, I explored the role of technology in student engagement by looking to understand the thinkings, sayings, and doings of my student participants (Van Maanen, 1988). This methodology is a natural extension of my paradigm and my review of the most salient literature surrounding student engagement and technology and the absence of the adolescents' perspective.

A principle of ethnography "holds that there are certain categories of phenomena which are universally relevant to human communities, through these communities differ in terms of how these phenomena are expressed" (Whitehead, 2004, p. 13). Grounded in my experiences as teacher and department head, I assumed that students like to talk with their peers, engage often with their cell phones and social media accounts, want to attain academic success (whatever *success* may be for each of them), and like their views and opinions to be respectfully heard. Prior to beginning my research, I understood that my role as an ethnographer was to look for the variances in terms of how students express their culture (Whitehead, 2004). For Agar (1982), an ethnographer needs to look for "disjunction between [the] worlds" of the ethnographer and the host culture (p. 783). When this disjunction arises the ethnographer is prompted to develop

focused questions and search for answers. Such processes will occur often in environments where the ethnographer spends most of their time.

I wanted to be able to observe, speak with and listen to students over an extended period of time. I wanted to get to know them in a way so that they would be comfortable sharing their thoughts with me. I wanted to spend time in an environment in which I am comfortable and spend most of my time.

As a secondary English teacher, I seek to create learning environments where students are inspired and engaged through an opportunity to explore their own way of knowing and to demonstrate that knowledge acquisition in a method they choose. I consistently incorporate the use of reflective journals, student questionnaires, one-on-one conferences, and focus groups through class discussions, online polls, and open dialogue within my classroom. This is my attempt to allow students' perspectives to emerge naturally, so they can guide the direction of their learning and my teaching. My students are enabled and encouraged to join in the process of guiding the direction of our class; in this way, I do my best to put them on an equal footing with me, the teacher (Parr, 2008). I feel like I can "be better informed by listening to all voices" of the students in my class (Parr, 2011, p. 810). Van Manen (1990) believes that "the method one chooses ought to maintain a certain harmony with the deep interest that makes one an educator in the first place" (p. 2).

Rationale for Ethnography

Ethnographies provide the landscapes and the details of worlds. They aim to discover, understand, and describe human behaviour holistically, as it occurs naturally within social and cultural contexts. In so doing, ethnographers can look for patterns and themes that ethnographic consumers can take away and use to enhance their own understandings of similar actions and

contexts… It [ethnography] is appropriate for questions that ask why, how, what is happening, and what does it look like? (Purcell-Gates, 2004)

Ethnography, as a qualitative approach was best suited for this study as I sought to gain a more in-depth understanding of students' perspectives on their engagement with technology. Qualitative methodology is a better fit when a research study is "exploratory in nature" (Corbin & Strauss, 2014, p. 35). Bogdan and Biklen (2007) identify that qualitative research is naturalistic, produces descriptive data, is inductive, and shares the participant perspective. Ultimately, my goal was:

> to make visible the often invisible patterns and practices of life, to understand who has access to knowledge of these patterns and practices of life, and to identify the consequences for particular members of knowing (or not knowing) and understanding (or not understanding) these patterns. (Dixon, Frank, & Green, 1999, p. 5)

Although "ethnography does not have a standard, well-defined meaning" (Hammersley & Atkinson, 2007, p. 2), its overall purpose as a methodology is to understand human behaviour within natural contexts (Purcell-Gates, 2004) or as Agar (1996) puts it, on the participants' "home turf" (p. 120). Ethnography's "emphasis is on direct personal involvement" (Agar, 1996) of participants and researcher, without a researcher attempting to change or influence the natural environment. Ethnography, as method, "demands the ethnographer's presence in the culture of study" (Van Maanen, 1988, p. 17) over an extended period of time. It values the relationship between research and participants and allows participants' views and perspectives to emerge in meaningful, respectful and authentic ways. Participants are co-researchers (Aarsand, 2012) and "consultants about culture and meaning" (Lassiter, 2005, p. 8). Ethnography allows participants,

students in particular, “to be seen as competent informants about and interpreters of their own lives” (James, 2001, p. 250).

Ethnography can also be empowering (Green, 2003; Jones & Watt, 2010), as participants become increasingly confident in sharing their perspectives and willing to self-advocate and seek information that they may or may not need (Green, 2003; Jones & Watt, 2010).

Finally, ethnography allows for participants to be collaborators and co-researchers. They are not mere spectators in the research process but, are part of the research itself, this avoiding the superordinate-subordinate relationship between teacher and students. Rather than demanding, interpreting, judging, and answering (Hammersley, 1990), the participants became co-interpreters, co-judges, and co-researchers.

Data is descriptive weaving together participants’ words and my field notes and journals in an effort to see my research curiosity through the perspectives of my participants: students, teacher, and myself, as researcher. As researcher, I did not set out to find data or prove or disprove a hypothesis, favouring a constructivist paradigm that recognizes that reality is co-constructed by researcher and participant, and situated within a given context (Guba & Lincoln, 1994). While I began with an overall question, micro-questions emerged once the research had begun, preliminary data had been collected, and I began to establish relationships with my participants.

Understanding the dynamic between student engagement and technology required observation of students in their natural environments, in this case, the classroom. As a classroom ethnography, this inquiry “emphasizes the sociocultural nature of teaching and learning processes, incorporates participants’ perspectives on their own behavior, and offers a holistic analysis

sensitive to levels of context in which interactions and classrooms are situated" (Hornberger & Corson, 1997, p. 135).

What is Ethnography?

Ethnography is an "eclectic" (Wolf, 1992, p. 127) and multiple-technique process that "includes both qualitative and quantitative methods, and both classical and non-classical" approaches in an attempt to present "the world of its host population in human contexts of thickly described case studies" (Whitehead, 2004, p. 5). Rossman and Rallis (2012) describe ethnography as

> a qualitative research project [that] takes place in the field, relies on multiple methods for gathering data, and calls on [the researcher] to be pragmatic, flexible, politically aware, and self-reflective. Fundamentally interpretive and emergent, qualitative research is systematic inquiry that is characterized by a stance of openness, curiosity, and respect. On the practical side, qualitative research is labour intensive, time consuming, frustrating, and challenging. There are no formulaic rules to follow, only guiding principles gleaned from direct experience, including reading the literature, studying with others, and the actual doing. Moreover, many find it exhilarating and deeply moving, and it can change [the researcher's and possibly the students' worldview]. (p. 11)

Hammersley and Atkinson (2007) add that

> ethnography usually involves the researcher participating overtly or covertly in people's daily lives, for an extended period of time, watching what happens, listening to what is said, and/or asking questions through informal and formal interviews…—in fact, gathering whatever data are available to throw light on the issues that are the emerging focus of inquiry. (p. 3)

Ethnography has the tendency to be both process and product, and allows for an inquiry to unfold naturalistically. As method and process designed to produce thick description, ethnography draws on diverse tools and recursive research methods such as questionnaires, conferences, field notes, jot notes, and informal conversations (all of which are described below) to tell the story of what is happening in this particular research context.

Role of the Researcher

During the research, I avoided the "tendency to view the self . . . as a potential contaminant, something to be separated out, neutralized out, minimized, standardized, and controlled" (Fine, Weis, Wesson, & Wong, 2003, p. 169). I did not want to "hide behind the cloak of alleged neutrality" (Fine et al., 2003, p. 169). I was well aware that "the un-get-roundable fact [of ethnography is] that all ethnographical descriptions are homemade, that they are the describer's descriptions, not those of the described (Geertz, 1988, p. 144–145). Instead, I aspired to engage in a "delightful dance of words" to present myself as both a vessel and a vehicle of knowledge (Van Maanen, 1988, p. 77). This put me in a position of "straddling the roles of participant, researcher and teacher" and it led me to "consider a participant observer stance" (Parr, 2011, p. 805). What this means is that I "associate[d] with [students] over an extensive period of time" so that I could immerse myself in their way of learning (Agar, 1996, p. 120). This research is my attempt to provide an "authentic account of my experience" in the classroom (Geertz, 1988, p. 143). I hope this research "convey[s] in words" what it was like to engage with technology in that particular classroom at that specific time (Geertz, 1988, p. 143). With this perspective, I participated in the classroom by engaging in the teaching and learning process, but I also observed the students to see how they used the technology. This required the "continuous tracking between the 'inside' and 'outside' of events: on the one hand grasping the

sense of specific occurrences and gestures empathetically, on the other stepping back to situate these meanings in wider contexts" (Clifford, 1983, p. 127). This stance simultaneously required me to be emotionally involved and objectively detached (Tedlock, 2000).

As ethnographer and co-participant, I hoped to participate in a "dialogue with the students, who in turn while being taught also teach" (Freire, 1993, p. 80). This partnership attempted to generate students' interest in their learning environment by getting them involved by seeking to understand their opinions on the use of digital technology in the secondary classroom—a real-word topic of interest among educators. In this research design, students themselves were able to monitor and guide the learning process (Pintrich & DeGroot, 1990). Olson (1992) suggests that in order to support Freire's (1993) view of education, teachers need to respect "students and their contexts" (p. 3). In this dynamic, the students were able to share their ideas about their engagement with technology as they would share with their peers so that, within the students' own world, I could aim to understand what students find important about technology (Stake, 2005).

Brene Brown (2010) talks about listening in to students' perspectives as a way to empower students. She says:

> Sometimes our intuition or our gut tells us what we need to know; other times it actually steers us toward fact-finding and reasoning. As it turns out, intuition may be the quite voice within, but that voice is not limited to one message. Sometimes our intuition whispers, 'Follow your instincts.' Other times it shouts, 'You need to check this out; we don't have enough information.'" (Brown, 2010, p. 88)

This process of engaging more deeply with students allows teachers to explore the students' perspectives (Johnson, 2014). It is in this vein that I attempted to understand the views of my

participants because I believe that when we pay attention, we can allow students to share their insight, because we give them an opportunity to have their views heard.

Research Procedures

This section provides an overview of the procedures that were used during the classroom ethnography. It will explain how participants were recruited, how data was collected through the different research phases, and how it was then analyzed. The ethical issues that were considered prior to and during the collection of data will also be discussed.

Description of Participants

In order to respect and value students in the classroom, they were each offered the opportunity to participate in my research. My ethnography took place in a class composed of 28 secondary English students in Semester 2 (February 6, 2017 to June 29, 2017) of the 2016–2017 school year, in a secondary school in a middle- to upper-class neighbourhood in southern Ontario. The students were enrolled in a Grade 11, university-level English class coded in the Ontario curriculum as ENG3U1 (see Appendix 5). Students were expected to meet the Ontario curriculum expectations of the course by critically examining the influence of power. Learning objectives included writing in different forms, analyzing and creating media, and engaging in active reading by critically examining the content. The participants ranged in age from 16 to 17 years old. They met for one period each day from Monday to Friday. The class period was 75 minutes long and students had a total of 110 hours of instructional learning time.

The board. As a secondary English teacher currently employed with a school board, it made sense to conduct an ethnographic inquiry within my own school board. The school board's position on digital technology made it a site I could not ignore. The school board uses Wi-Fi in

all schools “in order to provide connectivity to resources and improve communication” (source omitted to protect anonymity, 2016). Students are permitted to “bring their own personal devices to school, which are used at the teacher’s discretion for enhancing learning through technology” (source omitted to protect anonymity, 2016).

Once the school board’s Research and Accountability Committee reviewed my research proposal and granted permission for me to move forward, I reached out to secondary principals in the community to introduce myself and my intentions. Once a secondary principal expressed interest in my research, I communicated with him to ensure that he understood my research procedures and intent. After the principal’s permission was formally obtained, I made direct contact with a classroom teacher with whom I had previously worked.

The school. The school is a Grade 9–12 secondary school. It is fairly new and aims to be paperless, encouraging students and teachers to embrace technology. The student handbook indicates that the school is committed to maintaining “the highest level of computer technology and software access” and providing “every opportunity for growth and development in the use of computer technology” (source omitted to protect anonymity, 2016). Moreover, the school’s 2017 School Improvement Plan for Student Achievement (SIPSA) is focused on ensuring that the “teaching and learning incorporates 21st Century content, global perspectives, learning skills, resources, and technologies” while building “authentic learning experiences and experiential learning” opportunities “into all subject areas and programs” (source omitted to protect anonymity, 2016). The primary purpose of an ethnography is the “opportunity to learn” (Stake, 2000, p. 446), and I saw this site as a place where I could truly get a sense of how students engage with technology. Stake (2000) states that researchers will likely select a site “from which

[they] feel [they] can learn the most. That may mean taking the one most accessible, the one we can spend the most time with" (p. 446).

Although this particular school may be considered atypical, I opted for depth over breadth, because "the aim in participant selection is not population representativeness" (Cole & Knowles, 2001, p. 67).

The teacher. The classroom teacher has been teaching since 2007, and has held the positions of department head, acting department head, and classroom teacher. She has taught in a variety of different schools and boards, including ones in British Columbia. She is responsible for teaching a number of subjects, including English, social science, and law. We had previously worked and team-taught together, and we had already established a relationship of mutual trust and respect that stemmed from a common philosophy of teaching. In her words, she believes that "technology can be both a benefit and a curse." It can "be a powerful tool to engage students and make learning easier" but she has "also witnessed how distracting technology can be and that it can disrupt the working and learning process."

Students are typically permitted to use their personal devices in class at various times; she states, "I don't have an explicit technology policy. I generally follow the rule that students can use it for learning and to check their personal texts, etc. during work time." Although she does allow her students to use their personal devices, she also encourages them "to put their phones away when [they] are doing a lesson." She would like to "see kids in high school learn to manage technology use appropriately to enhance learning but [to] also know when to put it away because it is distracting or rude."

The classroom teacher further explains that "there is no explicitly stated philosophy regarding technology" use at the school. Because the school aims to "prepare students for the 21st

century world," she states, "I think most teachers, including me, embrace technology and try to use it as a means of engaging students." She also feels that "this is encouraged and supported by [the school's] administration."

The school's inferred philosophy about technology results in classroom teachers not having an explicit policy about technology. There are no class rules outlined on the course syllabus or posted in the classroom. When I asked about teaching students to "manage technology use appropriately," she acknowledged that this is a "skill that [she is] working to teach more explicitly." On a number of occasions, during my time as a participant observer, I looked on as she engaged in one-on-one conversations with students while they were using their personal devices in a way that she felt was impeding either their learning or the overall classroom learning environment. When queried, she said, "It's easier to help students understand how their behaviour is affecting their learning when they're actually doing the behaviour."

I connected with the classroom teacher to explain my research interests, procedures, and intent; after providing clarification, she signed the teacher information letter and consent form (see Appendix 6). She was scheduled to teach two sections of a Grade 11 English course (ENG3U1) as well as a Grade 12 social-sciences class (HHS4U1). We agreed that her first period Grade 11 English class was the best site of inquiry for a few reasons. I am an English teacher, and I felt my understanding of the curriculum and comfort with the content would make it easier for me to develop a relationship with the students in the classroom. Because students would get academic support from me, I believed that they would be more inclined to trust me. This trust would open up the door for them to engage in conversation with me to reveal their "thinkings, sayings, and doings" (Van Maanen, 1988). Also, the morning class was a little bigger, allowing me to recruit a greater number of students.

During the semester, the classroom proceeded as it would normally. Any time the teacher said or did something that prompted me to ask a question or need more information, we engaged in informal conversation or I sent her an email so she could reflect and respond. I did not conduct a formal interview as I was able to explore her pedagogical beliefs and assumptions through this informal dialogue.

The students. In order to gain entry into the culture and the social dynamics of the classroom (Wolcott, 1997), I spent time getting to know the students by supporting the classroom teacher and initiating engaging learning games and activities (Silberman, 1996). I talked with each student in an informal, conversational way, asking authentic questions and building on what the students said (Nystrand & Gamoran, 1990). This was in an effort to get to know their language, rituals, and routines (Fontana & Frey, 2000; Tedlock, 2000). In order to establish my credibility and willingness to work with the students, I assumed the role of a helpful and accommodating collaborator (Parr, 2008). On the first day of the semester, all students in the class were informed about my research study (see Appendix 1). I outlined the purpose of my research as well as my intended method of data collection. I conveyed that no specific data attained from specific students would be shared with the classroom teacher. Only generalizations would be shared with the classroom teacher and only for the purpose of giving her feedback on the engagement of students during particular classroom tasks. This was to ensure that students' right to privacy was respected as they engaged in the classroom learning (Dyregrov, 2004; Kavanaugh & Ayres, 1998; Orb, Eisenhauer, & Wynaden, 2001) and during the process of sharing their thoughts with me. I then touched on key points in the participant letter of consent (see Appendix 7), answering any questions as they arose. Students who were interested in participating in the project received two letters of consent: one that the participant's parents

needed to read and sign (see Appendix 8) and one that the participant needed to read and sign. Students were asked to take both letters home and discuss participation in the study with their parents. Students who chose to participate in the research study and had parental approval were asked to submit both signed consent forms to me. Never at any point during the research process did I share the names of the research participants with the classroom teacher; again, this was to protect the student's right to privacy. Fifteen students consented to participate; ten out of the fifteen identified as female, and five as male. Fourteen students were in Grade 11 and one student was in Grade 10.

The Research Process

During the semester, the classroom teacher proceeded as she had already planned. Students completed assignments and submitted them for evaluation. They engaged in group work, class discussions, conferences, interviews, and activities, all of which could potentially contribute to their final grade. I was present in the class every week, Monday to Thursday, for the entire class period of 75 minutes. As a participant observer, I kept a record of behaviours displayed by each student while they were using technology, and I maintained a reflective journal with field notes as evidence of learning. Participants engaged in the same activities as their classmates who did not participate in the study; thus, the learning experience did not change (see Appendix 5). The thick data produced by all the participants in the study—students and teacher—offer insight into how digital technology can engage secondary students. Field notes, student work, and reflective journals form a preliminary framework for understanding engagement with technology. Data was "the product of field notes and headnotes" (Ottenberg, 1990, p. 147). The "thick description" that characterizes ethnography led this researcher to "[do]

the describing" (Geertz, 1994, p. 224), which led the researcher to be an ethnographer. How and when the data sources were collected and analyzed is summarized in Table 1 and detailed below.

Table 1

Design Summary

	Phase 1	Phase 2	Phase 3
Methodological Approaches	Qualitative: classroom ethnography	Qualitative: classroom ethnography	Qualitative: classroom ethnography
Data Source	Students	Students	Students
Methodological Tools	Participant observation Field notes Questionnaire Audiotaped Conferences	Participant observation Field notes	Exit questionnaire Audiotaped focus-group discussion
Data Analysis	Cutting and sorting method	Grouping word repetitions Cutting and sorting method	Cutting and sorting method

Phase 1: Gaining Entry and Establishing a Basic Understanding of Student Engagement

Timeline: February, 2017. During this phase, I simultaneously took on the roles of participant and observer. As students engaged in classroom activities, classroom work, and learning, I observed their behaviour and listened to their conversations. When students asked for support, I engaged in conversations with them. "Conversation entails listening . . . but it is done in a situation of mutual trust" (Clandinin & Connelly, 1994, p. 422). As students engaged in dialogue with their peers, I functioned as a participant observer. When technology was used by students as part of the learning process or by the teacher as part of her teaching practice, I took on the role of observer by sharing in the inquiry process and collaborating with students. Participating in the learning process through collaboration allowed me to gain understanding of how students liked to use technology while in the classroom. This continual negotiating of my

role had me straddling the role of researcher and participant. After engaging in this way for the first two weeks of the semester, the opportunity for students to return participant and parent consent letters ended. A total of fifteen student participants were recruited. The goal of Phase 1 was to gain a holistic understanding of student engagement with technology. Phase 1 involved data collection from a variety of sources:

Observation. While students were in the classroom, I observed them as they worked individually and in small groups. I kept track of general classroom observations that centred on the teacher. I noted the technology that was provided or offered to students and observed how the classroom was set up, how the teacher organized each class, and how the teacher worked to build a relationship with students.

The classroom had 32 desks that were organized into small groupings of four to six desks. The room had a wall of windows that overlooked the football field and parking lot; two walls had a wall-to-wall whiteboard, and one wall had bulletin boards that displayed students' work. The classroom had a ceiling-mounted projector and the teacher's desk was in the front corner of the room, which allowed her to plug her computer into the projector. She made good use of slide shows, videos, and images to support the teaching-learning process. The school had open, consistent, and reliable Wi-Fi for student use. A class set of Chromebooks were provided for student use.

As the students entered class each day, there was an agenda on the whiteboard so that they could take a look at what they would be doing during the period. There was also music playing, which often prompted conversation, such as "How do you know this song?" particularly when students were singing along.

Because this school does not have bells to indicate the start or end of each class, there were times when class began a little late. Most often, this was a result of the teacher's deep engagement in conversation with students. She would often remark, "I like your dress," "You cut your hair," "You look tired. Are you ok?" or "I love that colour." In addition to engaging in casual conversation with students, the teacher used humour to build a relationship with students. When she would teach, her examples were often quirky and funny, resulting in laughter from the students. She would also give occasional examples from her personal life, which allowed students to get to know her in a small way. During the semester, they came to know that she is married, has a sister, had lived in British Columbia, and is part Portuguese. It seemed to be just enough for students to feel like she was open to conversing with them.

Entry questionnaire. Students completed a questionnaire (see Appendix 2) to describe their ability and skill with using technology, their preferences in using technology as a tool to present their work, and their access to technology inside and outside of the classroom. The questionnaire served as an expedient way for me learn about individual students; questionnaire responses served as an icebreaker and an effective starting point for entry conferences. This questionnaire was given to students, and they could complete it in class or at home, and then return it to me the next day.

Entry conference. Each participant engaged in a one-on-one conference with me, which provided an opportunity to dig more deeply into the responses provided in the questionnaire. Each conference was scheduled at a mutually agreed upon time before class or during lunch. In the end, each student participated in a single one-on-one entry conference with me. During the conference, participants were invited to elaborate on their questionnaire responses to build a deeper understanding of their engagement or lack of engagement with technology. Participants

were asked to explain their answers and discuss any inconsistencies that may have emerged. The conferences also provided an opportunity for me to ask my overall research question and for students share their answers with me. The conferences were conducted as a conversation between persons (Kvale, 1996), rather than as a formal interview, in order for the participants to feel comfortable. Cole and Knowles (2001) emphasize the term "conversation" because the process of "gathering of information is a conversation between 'friends' rather than as an interview with a stranger" (p. 72). Each conversation was an opportunity for us to informally and authentically talk (Roth & Tobin, 2005).

Each conference began by referring back to the questionnaire, so that I could ask about the thinking and reasoning behind some of the students' responses. As suggested by Weiss (1994), I used these preliminary questions only as a guide, and not as a limiter. I chose conferencing, recognizing that "an interview is literally an inter-view, an inter-change of views between two persons conversing about a common theme" (Kvale, 1996, p. 44).

Conferences were held before school, at lunch, or during class time. These conferences were held in a quiet workroom so that the student or I would not be interrupted or distracted. Conferences were audio-recorded so they could be transcribed. Each participant was given a transcription of his or her conference to "read them and make any necessary corrections" (Pitney & Parker, 2009, p. 66). Through member checking (Butin, 2010; Creswell, 2009), student participants were allowed to add, change, or remove anything. Member checking (Butin, 2010; Creswell, 2009) also ensured that participants were represented authentically (Aarsand, 2012) and that their perspectives were captured in such a way that they felt honoured. Further, Member-checking ensured the validity of the transcript (Polit & Beck, 2007); it served to avoid significant errors and inconsistencies in the transcript (Lapadat, 2000) that could have had an

impact on the quality of the transcript and, as a result, on the quality of the entirety of the research (Mero-Jaffe, 2011). Students were also offered the opportunity to listen to their own recording as a way of comparing it to the prepared transcript. Once the transcribed conferences were reviewed by the students and returned to me, they were analyzed to identify emergent themes.

Phase 2: Engagement With Technology

Timeline: March, 2017 to June, 2017. This phase involved talking with the classroom teacher about the information gained from the students. The information that I provided to the classroom teacher included general things I had noticed rather than specific observations I had made. This was to ensure that the classroom teacher didn't know which student had made which comments. The classroom teacher was made aware of my observations and general findings and she had the choice of whether to modify the course in order to differentiate instruction and meet the needs of the students in the class. The data collected and analyzed from Phase 1 was intended to be used to inform the teacher. Throughout Phase 2, the data-collection procedures of observation, individual and group conferences, class discussions, and journaling were continued, and data was consistently analyzed as a way to inform my understanding of how students were engaging with technology. Ethnographic methods support ongoing data analysis as a way to inform the experiences of the participants and the inquiries of the researcher, and to reveal areas where more extensive examination is required (Parr, 2008). By "deeply hanging out," I encountered "researchable moments" (Cole & Knowles, 2001, p. 78–79). Researchable moments are serendipitous because "they are happenstance. They cannot be predicted" (Cole & Knowles, 2001, p. 78–79). An off-topic question asked during a class discussion, for example, could lead students to access technology in order to engage in an inquiry to find a response. In fact, this did

happen on a number of occasions. For example, a student was analyzing the novella *Of Mice and Men* for symbolism. She wondered what Soledad, the setting of the text, meant. After using the Internet to engage in inquiry to answer her question, she learned that it means isolation in Spanish. This was then shared with the classroom teacher and me. It then became part of a class discussion.

Phase 3: Putting It All Together

Timeline: June, 2017. In order to gain a holistic understanding of student engagement with technology, Phase 3 employed discussions and a questionnaire to invite participants to reflect on the use of technology during the course and provide overall comments, feedback, and conclusions.

Exit questionnaire. Students completed a questionnaire that was similar to the one the completed in Phase 1 of the data collection (see Appendix 3). This provided an opportunity for students to reflect back on their engagement in the class over the course of the semester; it also gave them a chance to provide recommendations for use of technology in future classes. Again, this was an expedient way for me to gather information, and it allowed me to look at change over time in student response that could be juxtaposed alongside my observations.

Focus-group discussion. The participants were asked to engage in a focus-group discussion in order to reflect on what classroom activities they found most valuable and interesting and to attempt to evaluate and explain why. The intent of the focus group was to elicit a greater point of view from the participants than would have been possible with a researcher-dominated interview (Greenbaum, 1998; Krueger, 1998). Focus groups allow the researcher to elicit as many points of view as possible, allowing the research to paint a portrait of a combined perspective (Krueger & Casey, 2000). There were fifteen participants in the study; the decision

was, therefore, made to have two separate focus groups. Well-designed focus groups usually consist of between six to twelve participants (Baumgartner, Strong, & Hensley, 2002; Bernard, 1995; Krueger & Casey, 2000) so that all participants have the opportunity to share their insight. As such, two focus-group conversations were planned for this inquiry. As noted in Chapter 1, Taylor and Parsons (2011) indicate that, "there is a notable lack of 'student voice' or student perspectives in the literature on student engagement" (p. 6). The focus-group conversation was, therefore, an opportunity for participants to speak freely about how and when technology engages or disengages them in the classroom.

Focus-group discussions were audiotaped and transcribed. To initiate the conversations, I asked a question, and students raised their hands to respond. As the discussion progressed, the discussion became more conversational, which resulted in students talking freely rather than raising their hand to share their ideas. This focus-group conversation occurred prior to students beginning their final performance task. It was a perfect time to allow students to reflect on the entire course since it was nearly complete. The two focus-group conversations occurred during lunch on two separate days. It was a time for students to eat, talk, and think. Although I had questions to guide the conversation (see Appendix 4), each focus-group conversation was organic in the sense that a student would make a comment that would lead another student to respond and ask a clarifying question, which would lead me to ask a new question. In essence, I would ask authentic questions and then build on what the students said (Nystrand & Gamoran, 1990).

Data Analysis

There is no quick formula that can be used to analyze data from an ethnography. Marshall and Rossman (2006) define qualitative data analysis as

> the process of bringing order, structure, and meaning to the mass of collected data. It is a messy, ambiguous, time-consuming, creative, and fascinating process. It does not proceed in a linear fashion; it is not neat. Qualitative data analysis is a search for general statements about relationships among categories of data. (p. 111)

This method of analysis allowed me to "recognize and substantiate new meaning" (Stake, 1995, p. 97) to data obtained.

Data were analyzed in a similar way for patterns and commonalities so that common and divergent themes could be identified (Strauss & Corbin, 1998). Initial analysis looked for similarities and differences in content and patterns of keywords-in-context (Leech & Onwuegbuzie, 2007; Morgan, 1998; Strauss & Corbin, 1998) using both the cut-and-sort method and the word-repetition method identified by Ryan and Bernard (2003). A second cycle of coding arrived at emergent themes—patterns that emerged through participant responses. This was done "in order to begin drawing deeper meaning from participant responses regarding their perception of technology integration and its impact on student engagement" (McDowell, 2013, p. 56).

Round 1 data analysis for Phases 1 and 3. The cut-and-sort method of data analysis (Ryan & Bernard, 2003) was used to analyze Phase 1 conference data and Phase 2 focus-group data. I first read through the transcribed conversations to identify quotes that explicitly referenced the use of technology. Individual quotes were cut out. Similar quotes were then grouped and put into piles. These piles represented themes that emerged. For example, the theme of technology as a hook and an energizer emerged from these comments in Phase 1: "Immediately when I see that technology is being used, I get really engaged" (David), and technology can be a way to "gain interest and attention" (Samundar).

Round 1 Phase 2 and reflexive journal. Ryan and Bernard (2003) suggest that "if you want to understand what people are talking about, look at the words they use" (p. 86). My field notes and reflexive journal are filled with words used by students and those I used to capture the field; it, therefore, made sense to use the word-repetition method of analysis (Ryan & Bernard, 2003) to analyze this data. After four weeks, I read through my work to look for words and synonyms that were frequently used. Like the cut-and-sort method, frequent words and their synonyms were cut out and then grouped into similar themes. For example, "activity," "move around," and "get out of their seats" were words that I consistently used and formed the basis for the theme of kinesthetic tasks.

Round 2 all phases. Once the initial identification of themes had taken place, a second round of analysis took place in order to triangulate data from all three phases. Hammersley (1992) suggests that the quality of data analysis depends on the repeated, systematic searching of data; I, therefore, repeated this process every four weeks, over the course of the rest of the semester. Applying an "inductive, generative, constructive, and subjective" approach (Goetz & LeCompte, 1981, p. 334), "I compared and contrasted the data by re-analyzing old data in light of the new data gathered and new themes emerging" (Burrows, 2008, p. 67). Themes identified in the initial rounds of analysis were assigned a colour. For example, kinesthetic tasks were green, transitions were given the colour yellow, critical-thinking tasks were pink, explicit instructions were blue, use of technology as a teaching tool was purple, and use of technology as a learning tool was grey. Using the cut-and-sort method, I moved quotes and words around, attempting to identify themes that crossed all phases. Although computer software could have been used to tag and sort, I thought it was important for me to manually sort the data so that I did not lose the context of the participants' words and what I had observed in the field.

Re-presenting data. Ethnography is, at its core, a storytelling institution (Van Maanen, 2011) that values collaboration and dialogue with participants, openness, reflexivity, and respect in a way that allows for their perspectives to be presented accurately and fairly. Student insights—revealed using their words and transcribed conversations—were only woven together once the ethnography had been experienced and read firsthand (Van Maanen, 1995). The participants took an active role in the research. During the data-collection stage and through an ongoing dialogue, they co-interpreted and co-authored to create the final multi-voiced product (Lassiter, 2005) that is this research. Snippets of conversations and field notes created a montage of the perspectives of participants, and this montage intersected with my own interpretations to create a story and answer the research question (Denzin, 1997). This led to a systematic effort of turning fieldwork art into imaginative and creative work (Wolcott, 1997), guided by the following two overarching themes:

a) the value of technology integration in the classroom environment and the understanding of how to use the technology; and

b) the manner in which students engage in the classroom when digital technology is accessible.

Ethical Considerations

In an attempt to minimize the potential risk to students, the classroom teacher was responsible for the way in which students accessed and used technology in the classroom. In addition, students were in control of their own participation in the research and had the ability to withdraw at any time.

I ensured that students did not feel an obligation to participate due to my role in the school district. Because of my ability to adopt the stance of Freilich's (1970) "marginal native"

or Agar's (1996) "professional stranger," I was able to successfully become a "native" (Tedlock, 2000, p. 456) in the classroom. I had already learned the students' language, rituals, and customs; the result was that I was "part-insider and part-outsider" (Lobo, 1990, p. 127). This allowed me to conduct my research in a safe, transparent, and respectful environment.

I understood that when teachers engage students as participants in a research study, they assume double agency (Edwards & Chalmers, 2002) or divided loyalties (Bell & Nutt, 2002). This can happen when a teacher tries to fill the role of teacher and the role of researcher simultaneously (Edwards & Chalmers, 2002). In an attempt to avoid this, as mentioned previously, the classroom teacher proceeded as she had already planned. In addition, the classroom teacher was not given access to the participant names. This was an explicit attempt to ensure I did not divide my loyalty to the students and to avoid the direct pressure students may feel to participate in the research study.

Another ethical consideration was my own personal subjectivity. As mentioned earlier, I am a secondary teacher and I have seen the potential of technology in engaging students, but I have also seen that overuse of technology can lead to disengagement. This shaped my interests and is what led me to pursue my research. It is natural for one's self to influence one's research interests, but it is also the beginning of bias (Mehra, 2002). It was important for me to recognize and state this personal subjectivity, thus avoiding a cloak of neutrality (Fine et al., 2003). Furthermore, my subjectivity could have emerged through the "rhetorical conventions" of my "authorial voice" (Van Maanen, 2011, p. 5, p. xiii). To avoid this, I have maintained the original words of the participants, choosing not to retouch any of the original words; "even the most cringe-worthy" (Van Maanen, 2011, p. x) and "less tidy" segments (Wolf, 1992, p. 53). This is an explicit attempt to create "free-spirited authenticity" (Van Maanen, 2011, p. 134).

Privacy and Confidentiality

Privacy and confidentiality are important considerations in this inquiry because participants were under the legal age of consent. This section explains how I attempted to ensure participants' privacy and confidentiality, all of which were outlined in the letters of consent.

Privacy, confidentiality, and anonymity of participants. Because the research occurred in the classroom environment, confidentiality within the classroom was not possible, but this was not to be perceived to be an issue. Raw data did not contain students' original names. All raw data was held in a secure location that was only accessible to the researcher. When data is used in resulting papers, dissertations, and presentations, I will ensure the privacy and anonymity of the participants by assigning them pseudonyms. Any references to individual teachers, schools, and school boards will be removed when reports and presentations are prepared to protect the anonymity of student, school, teacher, and board participants. Confidentiality is something that classroom teachers are bound by. I will ensure that I hold students' responses in confidence and do not disclose their "thinkings, sayings, [or] doings" outside of the context of the research project (Van Maanen, 1988, p. 47).

Storage and retention of data. To maintain the confidentiality of participants and the integrity of the data, it is important to consider security, because new data-security issues are constantly emerging. I will discuss how "data in motion" and "data at rest" were secured (Zikopoulos & Eaton, 2011).

Data in motion is transmitted through electronic tools like email. Whenever data needed to be transmitted, the university's email system was used because it uses a secure socket layer (SSL) that encrypts the communication path. The computer I used has Windows 7 installed and, as such, has a built-in utility called Encrypted File System (EFS). This allowed me to encrypt

individual files or entire folders. The only way to open this information is with a password; in consideration of this, a unique password, with a combination of upper-case letter(s), lower-case letter(s), number(s), and symbol(s) was used.

Data at rest is the storage of information both in electronic and paper form. All data obtained in paper form was transcribed to an electronic format and the paper was then shredded. Electronic data was stored on a computer that required a secure password to log in to. In addition, individual data files and data folders had an extra layer of security that required an additional password to access. Electronic data was backed up on a USB key that was encrypted; a secure password was required to access any information on the USB key.

All data will be kept for five years post publication. At that point, my research supervisor will shred all paper data and supervise me as I remove all electronic data from the computer. If the computer needs to be disposed of, a hard-drive cleaning will occur before the disposal. In addition, all data stored on a USB key will be destroyed by reformatting the key.

Concluding Remarks

Ethnography is a method in which "the participant is empowered" (van Helvert & Wagner, 2011, p. 260) because they are "enable[ed] . . . to represent themselves (Huss & Cwikel, 2005, p.46). It involves collaboration and partnership that honours participant knowledge (Lassiter, 2005). In summary, I chose an ethnographic approach because it aligned with my personal world view, paradigm, and theoretical framework. For these reasons, I believe that this inquiry could not happen any other way (Wolcott, 1999). This chapter provided a rationale for ethnography. It then outlined my role as a researcher by describing the research procedures in each phase of data collection. I explained how the data were analyzed, discussed my ethical considerations, and the steps I took to seek privacy and confidentiality of the participants.

Chapter 5

Research Findings

> *After students completed their quiz, they were expected to read the next chapter in their book. Several students handed in their quizzes and quietly played with their cell phones. When I approached one male student to encourage him to put his phone away and read the assigned chapter, he replied by saying "I need to chill after that quiz." When I asked another student to do the same, he replied with "I need to take a break." It appears that, for today, the cell phone was a way for some students to decompress after the quiz. The students who finished needed to stay quiet, because others were still writing, so playing with their cell phones was a way to stay quiet and not be distracting. It was like the technology helped students quietly disengage to alleviate the stress of a quiz. (Field note, February 17, 2017)*

While conducting my research, I engaged in the everyday language of "asking, watching, and reviewing" (Wolcott, 1992, p. 19). In order to provide a broad assessment of digital technology and student engagement, "multiple sources of information [were] sought and used because no single source of information could be trusted to provide a comprehensive perspective" (Patton, 1990, p. 244).

This chapter presents the key findings attained from the various data sources that were analyzed. The findings are presented in a conventional way. This chapter is organized into four sections, each of which corresponds to the phases of research described in Chapter 4, and then I provide a summary of the common themes that that emerged across all the phases.

The data was reviewed to answer the research questions that sparked this research study: How does the use of digital technology in the secondary classroom engage and/or disengage students? Micro-questions were also considered: What do secondary school students believe about the use of digital technology in the classroom? and How do secondary school students engage with digital technologies available to them in the classroom?

Phase One Data

As a participant observer in a school that was new to me, I was anxious and nervous. I was worried, and I wondered if the students would listen to me when I spoke. I wondered if they would talk to me. Other worries centered around my research. Will they be interested in my research? Will I get the minimum number of participants? As I walked to the front of the classroom and felt all the students' eyes on me, I felt sick. "Queasy" is the word I used in my field note. It felt like my first day of school. After stumbling to start, I was able to articulate who I was by introducing myself and my research. "There were some clarification questions and I heard things like, 'You're going to be Dr. Sharma' and 'that's so cool.' There seemed to be curiosity and interest in my research" (Field note, February 6, 2017). Once I had recruited my minimum number of participants, I was able to relax and truly embrace my role as a participant observer.

The Questionnaire

The questionnaire was handed out to all participants in the final fifteen minutes of class. Eleven students completed the questionnaire and returned it to me before leaving. Four students needed more time and asked to take it home. I agreed and asked that they return the questionnaires to me tomorrow. Three of the four questionnaires were returned the following day. One participant was absent, so her questionnaire was returned two days later. Student responses can be divided into two categories: student's ability to access technology and student's preference for classroom learning

Accessing technology. 12 students indicated that they like having regular access to technology in the classroom and three indicated that they like having access to technology some

of the time. None of the participants indicated that they do not like having regular access to technology in the classroom.

All 15 of the participants had access to a computer and the Internet at home. The fact that all the participants have home access to technologies allows for the personal use of technology and the subsequent development of digital skills (Palfrey & Gasser, 2008; Tapscott, 2009). Many argue that home access to technology is a more significant factor than the school access when it comes to school performance (Attewell & Battle, 1999; Lee, Brescia, & Kissinger, 2009). This home access and experience with technology is influential in developing technology fluency (Barron, Martin, & Roberts, 2007).

When asked how important having access to technology is, four students responded that it is very important to their learning, while seven deemed it important and three others, somewhat important. Only one indicated that having access to technology is not important to her learning.

The majority of the participants felt that they were skilled with using technology. Four (26.7%) described their skill as expert and 10 (66.7%) described their skill as good. 1 (6.7%) participant described her skill with using technology as novice.

All participants liked being given the option to use technology while completing an assignment. Seven indicated that they would always choose to use the technology and eight said that they would sometimes use the technology. None of the participants felt that they would never use the technology provided.

Classroom learning. The question of when the students want technology to be used in the classroom was also probed: Twelve participants like the teacher to use it while he or she is presenting, all fifteen like having access to technology when they are working on an assignment

individually, ten like using technology when working on a group assignment, and fourteen like having access to technology to conduct research on a new topic.

When participants were asked how often they like their teacher to use technology for classroom instruction, four indicated daily, eight said a couple of times a week, two said weekly, and one student said monthly.

In terms of classroom technology for learning, ten said they prefer their teacher to use a computer and projector that they can view, three prefer to use their own computers or mobile devices when learning, and two prefer learning through a Google Doc that others are collaborating on.

All the participants indicated that they appreciate when their teacher uses technology. Twelve students like when the teacher uses technology while he or she is teaching. Thirteen students like when the teacher posts the classroom learning in a one-dimensional way that they can access on their own. Ten students indicated that they like when the teacher uses technology in a two-dimensional way that allows the student and teacher to converse back and forth. When the participants were asked to respond to specific statements about engagement, they differed broadly in their responses (Table 2). Technology used by the teacher and technology that is available to be accessed by the students appears to lead to engagement, as indicated in the responses to the first two statements. Participants clearly felt that access to technology helps them learn more effectively and does not pose a great distraction to their learning.

Table 2

Results from Question 8 in the Phase 1 Questionnaire

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I am more interested in what is being taught when the teacher uses technology.	n=3	n=5	n=6	n=1	n=0
I am more interested in what I am learning when I am able to use technology.	n=3	n=4	n=8	n=0	n=0
Access to technology helps me learn more effectively.	n=6	n=5	n=3	n=0	n=1
Access to technology in the classroom results in me being more distracted than if technology wasn't made available.	n=0	n=4	n=3	n=4	n=4

The Conferences

The conferences allowed for individual students to elaborate on the answers they provided in their questionnaire. It was a chance for me to talk about the themes of student engagement and technology as well as to explicitly ask them my research question. This conference also allowed me to get to chance to speak one-on-one with each participant in an effort to better understand their perspective by hearing it explained in their own words.

Introducing the participants. The fifteen participants varied in gender, ethnicity, skill level, and future aspirations. A brief snapshot of each participant is provided below.

Irene. Irene is a female student in Grade 11, who indicates that English is her second language. She appreciates having access to technology in the classroom to help her acquire the language. She says, because "English is my second language, so there's many terms that I may not know. Or maybe [the teacher] talks about somebody who I may not know but everyone else knows . . . I like to go through my phone a little bit just to catch up on what everyone in the class already knows." Irene feels that the access to technology puts her on the "same level" as everyone else in the class because it allows her to "catch up and communicate with everyone else." Irene explains that she could ask a friend, but she worries that she would be distracting. As

such, Irene feels that "going on [her] phone is the best and easiest way to learn" unfamiliar terms or ideas. In addition, because English is her second language, she "[doesn't] feel confident at all with" her spelling and grammar. She "like[s] to use the computer [to] check [her] spelling and grammar."

Irene likes having access to technology for personal language exploration; she does not, however, like it when the teacher relies on technology to teach because "it's not [her] best way of learning." Instead, she prefers when the teacher models and writes information on the whiteboard. Irene believes that constantly using technology for everything isn't beneficial and that she could "get more into [the learning]" if technology was only used periodically.

In sum, Irene says she's okay with technology, but it is "not something that [she] like[s] to use all the time."

Charlotte. Charlotte is a female student in Grade 11. She appreciates having regular access to technology because a computer and the Internet allow her to "find a lot more information," and "that helps [her]." She indicates, however, that she "do[es]n't need it" and she's "okay with [it]" if the teacher says "you can't use your phone or . . . your computer." Charlotte prefers to use technology to research, produce good-copy assignments, and to participate in "fun activities" like *Kahoot!*. She does not really like it for learning new concepts, noting, "If we are doing a lesson, then I don't like the technology." She prefers for the teacher to talk and write out the notes.

Charlotte emphasizes that technology helps her "feel more organized." It allows her to "keep track of everything" when the teacher posts due dates, homework, and classroom notes online. Rather than maintain a binder, she maintains a "digital folder" for all her notes because "if [she] ha[s] papers, [she] sometimes loses them." She also likes the online platform Google Classroom

because “if [she] misse[s] a day of school, [she] like[s] being able to go online and keep track of” what happened in class.

In the end, Charlotte likes technology to be used for classroom activities, review, and for working on individual assignments, but she does not feel that it should be part of teaching or lessons.

Violet. Violet is a female student in Grade 11. Violet thinks that access to technology in the classroom “gives you an edge” because “it’s a great way to access information to further your knowledge” and because it helps her develop “different types of ideas.”

Violet also adds that she likes it when the teacher accompanies her lesson with “a Power Point or something to look at visually in technology.” She explains that she does try to listen to the teacher when the teacher is speaking but, because she “can sometimes miss the important details,” having something to “refer to later” on Google Classroom is a tool “to study later.” Violet likes being able to look at slides and notes again on Google Classroom so that she can “add anything [she missed] to [her] notes.”

Violet recognizes that technology can be a distraction for her, but she has developed many strategies “to get around and avoid the distraction like putting it in [her] backpack or just turning [her phone] over and not looking” at it.

In sum, Violet feels that “technology is engaging” because it allows her to see “many different things.” She can see a movie, talk to an author, and see someone conducting a science experiment. In addition, she likes that technology allows her to “see what’s going on in other areas” of the world so that she can “draw . . . connections” to what she’s learning and doing in class.

Samundar. Samundar is a male student in Grade 11. He was born in Canada, moved to India for seven years, and returned to Canada just under two years ago. In India, Samundar recalls that the learning "was all blackboard and chalk" and observes that the learning "is more interactive here." When technology is used to allow students to interact with other students or the teacher, "it's good" because he finds it "a lot easier to recollect and retain information."

Samundar appreciates having access to a personal computer while working on individual evaluation tasks because it "helps [him] put [his work] in a manner that the teacher would accept." A computer gives him access to a thesaurus so that he can avoid repeating the same words in his work. It also allows him to present his work "in a nice, neat way," rather than submitting paper full of "cat scribbles" and ideas that have been scratched out.

Samundar recognizes that technology is "a privilege," and he does not think that it is necessary for learning to happen. He acknowledges that technology results in him "kind of get[ting] distracted sometimes" because he "get[s] carried away" by going on Netflix. When he does not have technology in front of him all of the time, he has "a better sense of [his] responsibilities and what [he's] got to do." He feels that technology leads to procrastination. Samundar concludes that technology is engaging "if used right." He explains that it is better when it's interactive. He does not like technology to be used in a way where the teacher is "giving information at you" for you to "regurgitate and retain." He thinks that technology should be "two-way" so that "you can talk to [the teacher]" and share ideas, allowing the teacher to "say 'here's my idea and here's what I've put in' to your work." Samundar emphasizes that technology use needs to allow for two-way interaction with the teacher and/or other students.

Nyan. Nyan is a female student in Grade 11 who declares that English is her second language. She shares this because she feels that "as a second language learner, it is really

important for [her] to use [the] dictionary on [her] phone and research some of the words and slangs that are used in English class." She also appreciates having access to a computer because her "handwriting is so bad [that she] can't even recognize [her] own words." She likes to type, after planning on paper, because it is neater and she can access the dictionary easily to use "terms [she] want[s] to use," and she can also translate unfamiliar words. Moreover, Nyan feels that it is difficult for her to recognize her errors on paper. She does indicate that her cell phone is "a little bit distracting." In fact, she says, "it's really annoying" especially when she gets texts during class and she will "keep texting someone, if [she] gets one." She cannot ignore the "box that pops up on the phone"; when she gets a message from someone, she will always respond. Nyan identifies as a visual learner; she prefers it when teachers have a presentation to accompany their teaching. She does find it "a little bit distracting" because she acknowledges that she gets so focused on writing down her notes that she "can't focus on what the teacher is saying." She wishes that the teacher would model "something and let [students] write it and then explain it" because "that's better." Technology forces her to "multitask" and she struggles with this skill.

Nyan also appreciates that she can use technology to share her work with the teacher so that the teacher "can look at it" and give her feedback. Nyan has difficulty identifying all of her errors so she benefits from the ability of technology to offer her ongoing and continued support from the teacher.

In sum, Nyan believes that technology is beneficial in refining her English-language acquisition skills and it engages her visually, but also notes that access to technology results in her being more distracted than if technology wasn't made available

Nasir. Nasir is a male student in Grade 11. He believes that technology is an effective tool while researching and should only be used by a classroom teacher to "gain attention" and to make students "want to learn more." He explains that technology is a great tool for the teacher to show "a video or something . . . that is related to the course." Nasir also explains that "technology should only be used as part of a lesson" and "that technology should not be doing the teaching." Further, he believes that "teachers should be physically teaching" because he "better learn[s] when the teacher is teaching." Nasir believes that it is reasonable for a teacher to show slideshows and videos because it makes the lesson "easy to follow," but feels it is just a way for the teacher to gain student "interest and attention." Once the students are "interested in [the] learning, then the teacher can take over and teach."

Nasir also feels that technology is a "pretty good thing" to have while researching because he can easily access information and type it in to his assignment. The ability to have multiple windows open on a computer allows a student to multi-task.

In the end, the conversation with Nasir focused on technology as a tool in the classroom and not as a teacher. He believes that the teacher needs to be physically involved in the teaching and that technology should simply accompany the teaching. He does not believe that technology should become the teacher.

Skan. Skan is a male student in Grade 11. Skan believes that having access to technology puts him "on a fast track" and that technology allows one to have everything "at your [finger]tips" because "you can write things in your online calendar." "Everyone has their phone. It is like a mini computer." He says, "If I forget something, [my phone] reminds me." He also likes the Google Classroom online platform because he can access it to see "if there is something [he is] missing out on" or if there is "something [he] can catch up with." He believes that when

students are given information on paper, “they put it in their bag and most probably they go home and don’t open it.” In contrast, because he has access to all the notes on Google Classroom, he reviews things “almost every day.”

Skan also views access to technology as efficient because “it saves [students] time.” A computer allows him to have “multiple things open side-by-side” so that he can work on an assignment, research, and listen to music all at the same time. For him, the ability to listen to music while working is essential because it helps him “work faster.” He says, “Listening to music really helps me. It makes me work faster. It motivates me one way or the other.” Skan does indicate that, although he likes using a computer to complete a good copy of an assignment, he prefers to plan on paper first. He states that when he writes things, he sees them better. If it is a task that requires him “to think about something” or to process information, he will usually write it down. He explains that when using technology, he has “so many different windows open,” but when he is writing, he is more focused and, as a result, he is “able to think more openly.”

In sum, Skan believes that technology is a tool teachers can use to keep students from getting bored. It helps everyone focus on something that “you can’t take your eyes off.” It is, however, something that can be distracting. If the teacher is talking while he is reading a slide, he can lose focus because “[he] can only focus on one thing at a time.” He admits that “multitasking is not a good thing for [him].” While he recognizes that technology can lead to distraction, he knows that he can resolve that by just “email[ing] the teacher” to “clear things up.” He likes that technology allows him a way to connect with the teacher outside of class.

Amanda. Amanda is a female student in Grade 11. Amanda sees greater value in having access to technology in classes that have a lot of writing, like English class. She prefers to type,

rather than write, because it "is easier to fix mistakes" on a computer. In classes that involve problem solving, she prefers to work with pen and paper. She explains that, in classes that have a lot of reading, she prefers notes and content to be available online because "it's more clear when things are typed out, as opposed to written down." However, when it comes to reading a book online, Amanda chooses to read the actual book, not the online book. She "feel[s] like the point of a book is to experience the book and turn the pages and you can't do that online."

Google Classroom is viewed as an asset by Amanda, because she can access classroom Power Points and slideshows at home. If she misses a day, she can "grab the slideshow and review it. That way, [she's] all caught up." She does not access Google Classroom unless she is absent because she does not feel the need to see the notes and presentations that she's already seen in class. If she has "already seen it in class, [she] can understand it."

Amanda does not see technology as a distraction to her learning. She always ensures that her phone is put away and muted when she is working, so that it isn't "bothersome" to her. Because she "usually turn[s] [her] phone completely off," the alerts from her phone are not sent to her laptop.

In the end, Amanda feels like she is part of "a generation where technology is very common." Amanda believes that it makes her want to learn more as it "fascinates" her. She says that when technology is used in the classroom, "[she] get[s] more interested in actually learning, as opposed to having something written on the board."

Panda. Panda is a female student in Grade 11 student who indicates that English is her second language. She appreciates having access to technology while in the classroom because it "makes things easier" when it comes to conducting research. Although Panda uses a computer to type up her good copy "because it looks way better," she prefers to "write things by hand," while

working on her rough copy. She explains that when she writes by hand, she feels that she "always ha[s] more ideas" and "is more creative when [she has] a piece of paper and pen. You can draw things out [like arrows to connect ideas and] use that part of your brain."

Panda likes it when the classroom teacher uses technology, particularly a SmartBoard and PowerPoint because she feels that "it is easier and [more] clear to understand the overall idea." It is easier for Panda to learn when she has something to look at because ideas are typed on the slide, so she doesn't have to figure out the teacher's handwriting on the board. She also likes it when the classroom teacher maintains a Google Classroom because "it connects the teacher and the student together."

Overall, Panda feels that using technology allows for "a better way of learning" and believes that technology "makes our learning easier"; the Internet, for example, allows us "to connect with the knowledge" that is accessible beyond the classroom. It is also a tool to connect the teacher and student together; Google Classroom, for example, serves as "a reminder of what is going on."

Sonia. Sonia is a female student taking a Grade 11 English class because she completed the prerequisite class in summer school. Sonia emphasizes that Google Classroom is an asset because she "can look back at what [the class has] already done, rather than having to search though all [her] notes." She says that "it's easier" and it is an asset when she is absent because she can look at missed lessons and projects. It is also useful, because when she needs a particular note, it is easier for her to find it on Google Classroom, "rather than having to search through all of your notes because there are so many."

Sonia believes that when technology is integrated into the classroom, it allows for a "creative way to learn" because "sitting down and writing notes or just listening the entire time

. . . is really boring." Technology allows for a teacher to "put up slideshows," show videos, and play *Kahoot!* games with the students.

In the end, Sonia believes that technology interests her in learning and affords teachers a more creative way to teach. She likes technology because "it is so high tech" and it makes the classroom "more fun."

David. David is a Grade 11 male student. He feels that because he is a visual learner and bodily-kinesthetic learner, technology is beneficial to his learning, because having something to look at helps him focus. He often has his phone out with the Google Classroom open so that he can refer to the notes or look at the slideshow that the teacher is using to teach. He likes to "look and see what they're doing and follow along." This allows him to control the pace of the learning himself. If the teacher moves on while he is "still writing something down, [he] can stay on the slide" to complete his note. David also explains that it is easier to see the slides on his phone, rather than "straining [him]self" to see the screen.

David benefits from Google Classroom because he can access lessons and slides. However, he rarely accesses it outside of class. Because David follows along during lessons and takes notes, he is confident he has all the information he needs. It he feels that he has "miss[ed] something [that he] need[s] a recap on," he will "go back and loo[k] to see what [he] missed" but this does not happen very often.

David admits that "with [so] much social media stuff, the chances of [him] getting distracted are high" but he attributes this to "being a teenager." He explains that he often uses his cell phone as a tool and if "a little message will pop up", then he "will click it and then that just branches off to the next thing and the next thing and the next thing." He becomes completely "distracted from there."

In sum, David believes that when he uses "the technology appropriately, then it is useful but if [he gets] distracted, then [he is] not using it the way [he's] supposed to"; in that case, "it won't be beneficial."

Emily. Emily is a female student in Grade 11. She appreciates having access to technology, because it allows her to easily "look up the concept or themes of some things that you want a more clear view of." She thinks that technology makes it quicker and easier to get information, because "if you have any questions, [you can] use the technology to find the answers to the question." Emily explains that while textbooks are also a resource to access additional information, it is quicker and easier to access the information online.

Emily feels that when the teacher uses technology as part of the learning, the learning is more interesting because it allows for active participation. For example, a *Kahoot!* quiz "motivates [Emily] to read the homework chapter" so that she can aim to "be one of the first top five" scoring students. Emily also explains that when the teacher uses technology in class, it is beneficial to her because she's a visual learner. Being able to see things "helps [her] understand and keep things in [her] mind for a long time."

In sum, Emily is quick to point out that technology is beneficial because it generates interest and engagement in a class, but the most important aspect of classroom engagement is the relationship she has with the classroom teacher. She believes that she performs better in class when she participates and she will only participate in class when she feels that she has "a good teacher" relationship.

Jennifer. Jennifer is a female student in Grade 11. She appreciates using technology for long assignments but, if she has the option to "physically make" something for an assignment, she will always choose that because she "feel[s] more accomplished" when she has a "physical

outcome [that she] can see right in front of [her].” Although creating something on a computer can be faster, a tangible final product is more rewarding. Having something “handmade” is more “appealing” than something “made on technology.”

Overall, Jennifer likes using technology in the classroom for fun game-like activities like *Kahoot!* because “it gets [her] more interested.” She notes, however, that when it comes to teaching or learning, she prefers, what she calls, “traditional” teaching methods that involve the teacher writing on the whiteboard, talking and co-learning with her peers, or engaging in a classroom activity. Jennifer believes that it’s better when teachers teach on their own by explaining the concept and ideas. Alternatively, teachers should “just draw on the whiteboard” or physically teach by encouraging interaction among students. Jennifer does not think that teachers should be dependent on technology because the Internet can sometimes get “laggy” and that slows the lesson and learning down.

John. John is a male student in Grade 11. He has his own laptop that he brings to class every day. He believes that technology allows him to be better organized for all of his classes. He appreciates using technology when doing “research or pretty much anything to do with inquiry [learning] because [he] can find a lot of different perspectives on the Internet . . . and use it to come up with [his] own perspective.”

John also appreciates it when the teacher uses Google Classroom, which he usually checks every night to ensure that he knows the homework and to see if there are additional videos or sources that the teacher has posted as reference tools. John is absent often due to his commitment to sports, so the Google Classroom allows him to stay up to date with the course. John recalls that, in elementary school, students “really didn’t have that much access to technology, while [they] were learning.” John recalls that although he learned effectively, he

thinks that maybe the information was outdated, since the teacher depended on information in a textbook. When the teacher uses timely content from the Internet, it is "current and more reliable."

John emphasizes that he prefers to use the technology for his own work. He only likes it when the teacher uses it to show videos or to play games. He likes the teacher to use technology "more for activities and not for the teaching because [he] find[s] that [he] benefit[s] more from one-on-one time and face-to-face [learning] rather than learning from technology."

Eliya. Eliya is a female student in Grade 11. She believes that technology allows her to conduct research and look up words that she doesn't know. She also likes that the computer can catch spelling mistakes that she hasn't identified in her work. Eliya used the term "easier" over twenty times when discussing the benefit of technology in the classroom.

Eliya identifies as a visual learner; she, therefore, likes it "when teachers use technology [to show] visuals and pictures" because "when [she] see[s] something, [she] better understand[s] it." She feels that when the teacher uses technology, "it is like double learning" because she can watch it and understand it and she can hear the teacher and understand it too. Also, if she doesn't understand something, "there's always the chance to go back and watch [the video] over and learn again."

Eliya appreciates when teachers use technology while they are teaching. "Visuals and pictures and . . . videos" make the learning engaging; when learning is fun, Eliya believes she can learn more effectively.

In summation, Eliya appreciates it when the teacher uses technology in a way that reinforces what the teacher is teaching. This can come in the form of a slideshow or a *Kahoot!*

game. When technology accompanies the teaching, Eliya believes that it helps her "set in" her mind the information being taught.

Common themes that emerged through conferences. As presented in Table 3, several common themes were identified through the repetitive coding of data (Strauss & Corbin, 1998) that was obtained by engaging in one-on-one conferences with the participants. Additionally, Table 3 shows associated concepts that emerged when the participants discussed the common themes.

Table 3
Central Themes and Indicators That Emerged From Data Coding of the Transcripts From Participant Conferences

Common Themes	Indicators
Technology as hook and energizer	Interest, fun, *Kahoot!*, games
Technology as a teaching tool	Power Point, slideshows, SmartBoard, videos, tools to enhance learning
Technology as a learning tool	Dictionary, thesaurus, editing, research, English-language learners, the writing process
Technology as a way to connect	Google Classroom, email, talking with the teacher
Technology as organization	Google Classroom, alerts, calendars, reminders
Technology as distraction	Text messages, multiple windows

Technology as a hook and an energizer. Many students indicated that technology interests them because it gets them ready to learn. Overall, technology hooks students by grabbing their attention. Nasir explains that "technology should be use[d] in a way that gains [a student's] attention" and "makes you want to learn." David adds that "immediately when [he] see[s] that technology is being used, [he] get[s] really engaged." Samundar feels that technology should only be used at the beginning of a class to grab attention and then, "when the teacher has gained interest and attention . . . the teacher can take over and teach." In the end, the participants' responses indicated that technology hooks them at the beginning of the class. Activities that

involve technology are synonymous with fun for several of the participants; technology, therefore, engages them and gets them ready for the lesson and learning.

Student responses support the finding that when technology is used, learning environments are more exciting and interesting (Duffy & Cunningham, 1996). John indicates that technology "interests [him] just because it is different than pen and paper." Specifically, the students like it when the first task in the class is one that uses technology in a fun way or only for what Charlotte calls "fun activitie[s]." Many of the participants refer to using technology for games, *Kahoot! in particular*. "*Kahoot!* represents a new generation of student-response systems that has a main focus on student motivation and engagement through gamification" (Wang & Lieberoth, 2016, p. 738). *Kahoot!*, on its own, is arguably still using technology in a didactic way. It is, in essence, another way to convey instruction and information. The use of *Kahoot!* generated conversations which allowed students to share, talk, reflect, and question. After a question appeared on the *Kahoot!* screen and students locked in their answers, the correct answer would then appear. After a few seconds of cheer or despair, there was often student-initiated inquiry. Students would wonder why they got a question wrong and then work to understand the correct answer. For example, "chit chat [during the game] centered on the reason why an answer was correct. 'Ugh. I got it wrong. Why is that a metaphor and not a simile?'" When a student realized that had got a question wrong, it was typical for them to explore to understand why. This would generate conversation. "Because a simile has 'like' or 'as' in it. Don't you remember that from last year?" These unplanned conversations actually allowed students to learn and construct knowledge. Although *Kahoot!* as a platform is a didactic use of technology, the way the teacher used it and allowed for conversation to occur meant that it allowed students to construct their own knowledge. In the end, *Kahoot!* hooked students and drew them in. Once the technology

engaged them, they were willing to get involved, which Kuh (2003) suggests that is the first step in student engagement. Appleton et al. (2008) believe that student engagement requires participation, interest, and an investment in learning and using *Kahoot!* created the conditions for these three facets of engagement to occur. As such, the way *Kahoot!* was used in the classroom allowed it to emerge as a tool to allow students to construct their learning.

Jennifer particularly likes playing *Kahoot!* games because "it gets [her] more interested" in learning. Charlotte explains that she likes it when the teacher uses technology for "fun things" and Samundar notes that when something is fun, he can remember it better. Eliya adds that "the games that [they] play make[s] [her] better understand and memorize what maybe [she] forgot." These comments support the findings that students who engage in learning with video games report significant improvement in subject understanding, diligence, and motivation (Coller & Shernoff, 2009; Kebritchi, Hirumi, & Bai, 2010; Squire, 2003). These comments also support the idea that *Kahoot!* can be used in a way to diverge from didactic teaching and learning.

Technology as a teaching tool. Participants have strong opinions about the use of technology as a tool for teaching. Some are of the opinion that technology should be used by teachers, whereas others believe that it limits the teaching approach, and thus, the learning.

Those who advocate for teachers to use technology talk about the benefits. Panda thinks that technology creates a "better way of learning" because it is easier to "understand the overall idea" of the lesson when "they use the SmartBoard or [a] PowerPoint" presentation. John says, "It's different and it is a more fun way of learning" and adds that "everything that is put in technology has a little but more value" because it is "more up to date and current . . . than textbooks." Sonia believes that technology allows teachers to "find a creative way" to teach and Amanda prefers teachers to use technology as part of the teaching because "if they have a Power

Point or slideshow, they can put it online and then when [she's] home . . . [she] can always grab the slideshow and review it."

Several students indicate that technology used during teaching supports them as visual learners and this is why they believe the technology should be used while a teacher teaches. David says that he's a "visual learner" so "if [he] can see something, [he] will have a better understanding" of it. Emily echoes David's sentiment, stating "I'm a visual learner so [technology used by the teacher] helps me understand and keep things in my mind for a long time." Eliya states "I am more of a visual learner" so "when [I] see something [I] better understand it." She adds that it is like "double-learning" because "you watch it and understand it and then [the teacher is] also talking" so it reinforces what you're looking at. Violet explains that although she does try to listen to the teacher, she "can sometimes miss the important details"; when the teacher has something visual to look at, however, it "highlight[s] what is important." Nyan further explains that sometimes the teacher talks too quickly, so having something to look at helps her to understand. However, she and Skan also note that the visual can be distracting at the same time. Skan likes it when the teacher uses a projector to show the class something visual, because it allows him to focus on the presentation; however, because he "can only focus on one thing at a time" he sometimes misses what the teacher is saying. He adds that, "multitasking is not a good thing for [him]." Nyan suggests that if the teacher has a visual to share with the students, it would be better if the teacher shows it and allows the students to "write it [first] and then explain it." These viewpoints support that technology should be used by learners who learn with technology, not from it (Jonassen, 1995).

Conversely, there are several students who would prefer their teacher to avoid using technology while teaching. Jennifer says that "when teachers are teaching the lesson,

[technology] doesn't really help." Jennifer "like[s] hands-on examples so [students] can physically see what [the teacher is] trying to teach." Jennifer prefers "more interaction" and believes that "instead of using the technology, the teacher should get up and do stuff to explain it more." Irene agrees and prefers the teacher to "show [students] and write it down" on the board. Nasir "learn[s] better when the teacher is physically teaching [rather than] learning through technology." He believes "that technology should not be doing the teaching." Charlotte is an advocate for using technology for fun games "but for actual lessons, [she] prefer[s] to not have technology." John agrees, saying, "I benefit more from one-on-one time and face-to-face rather than learning from technology."

One of the students feels that the way the teacher uses the technology while teaching is an important factor to consider. Samundar believes that "if the technology is used to make [students] more interactive, then it's good." He explains that if technology is used to give "information at you" to just "regurgitate and retain" then technology should not be used as part of the teaching process. In contrast, if technology is used by the teacher to create interaction within the lesson, then "it's [being] used right" and it should be included as part of the teaching process.

Technology as a learning tool. Participants indicate that access to technology helps them learn more effectively but the focus of their learning is self-directed. David mentions that he likes having consistent access to his own technology in the classroom because if he does not "know something, [he] can look up something quickly on [his] phone." Panda believes that "having access to the Internet connect[s] [her] with knowledge" and Skan explains that it allows him "to do research and what not." Emily elaborates by explaining that "sometimes when you're doing an analytical question or something like that and you want to look up the concept or

themes of some things that you want a more clear view of . . . [you] can search it up" and that can help you "think more clearly." Violet also echoes this theme by saying, "it's a great way to access information to further your knowledge" and to "come up with different types of ideas." John explains that he likes having access to the Internet for research because he "can find a lot of different perspectives on the [topic], because there's so many different [web]sites" and by reading other perspectives, he can "use it to come up with [his] own perspective." All these thoughts support the notion that a computer helps to build knowledge and is a tool to access information (Jonassen & Reeves, 1996). In addition, the participants validated the idea that the Internet is their "primary source for research" (Lenhart Arafeh, Smith, & Macgill, 2008, p. iv).

Besides research, another associated concept that emerges is the idea of language development and acquisition. Heafner and McCoy (2001) suggest that computers and the Internet have the potential to increase student motivation for studying language, and it appears that several student participants agree that technology allows them to strengthen their ability to acquire the English language. Nyan discloses that "as a second language learner, it is really important for [her] to use [the] dictionary on [her] phone" so that she can learn the "words and slangs that are used in English class." If the dictionary does not provide her with the information she is looking for, she can use her cell phone to "translate to English-Korean to help [her] understand." Irene also discloses that English is her second language. She explains that "there's many terms that [she] may not know" and in the time that the teacher is talking, she can "look through [her] phone a little bit just to catch up on what everyone in the class already knows." For Irene, "having technology is the best way . . . to catch up and communicate with everyone else." The insight of these participants affirm the finding that the use of technology improves English language learners' participation in class (Echevarria, Vogt, & Short, 2013).

The ease of using technology to revise and edit was addressed by several of the participants. Amanda says that when something is typed, "it's easier to correct yourself" and Violet adds that having something typed makes it "easier to edit later on." Several students explain that technology gives them easy access to the dictionary and thesaurus, which makes the process of editing easier. Samundar is "able to search up the thesaurus and find a synonym for" a word he keeps repeating in his work and Nyan can access the "dictionary on the computer to [find the] terms [she] want[s] to use." Irene explains that she likes "to use the computer [to] check [her] spelling and grammar, because [she doesn't] feel confident at all with those things." David said that he uses Dragon Dictate on his phone so that he can "get ideas out quickly so [he doesn't] lose track of them and forget . . . then, afterwards [he] can put that into a document and edit it."

When it comes to the writing process, many students prefer to brainstorm and plan using pen and paper. This is contrary to what Jonassen and Reeves (1996) posit; although they argue that technology tools can enhance the cognitive powers of learners during their thinking and learning, several students find that they are able to generate more ideas and plan more effectively when working with pen and paper. Skan indicates that when he "write[s] things . . . [he] see[s] them better." He explains that "while [he is] writing, [he is] thinking about the other sentence . . . so, that transitioning, that moving on to the other sentence is easier when [he is] writing." Panda "like[s] to write [rough work] by hand because, by hand, [she] always ha[s] more ideas." She believes that "it is more creative when you have a piece of paper and pen" because then you "use [the creative] part of your brain." Jennifer appreciates "having the physical outcome" of written work; she "just feel[s] more accomplished . . . because [she] can see it right in front of [her]." This echoes the idea that many teenagers "do not think that a lot of the material they create

electronically is real" (Lenhart et al., 2008, p. i). Charlotte also does "everything on paper beforehand and then [she]'ll do the final copy on [her] computer so that it's nicely put together." Samundar likes to have his "ideas and thoughts [written] on one side but the technology helps [him] put it in a manner the teacher would accept" because he "can't write cat scribbles and just give it to the teacher." Violet adds that typing the final copy "looks more professional."

In sum, the students' responses demonstrate that they value having personal access to technology in order to explore a topic or question that emerges during a class and to edit their work so that the final product is free of spelling and grammar errors. In terms of brainstorming to develop new ideas and planning out their thoughts, however, the majority of the students prefer not to use technology because they believe it impedes their ability to focus and be creative. This coincides with the work of Lenhart et al. (2008), which states that "teens appreciate the ability to revise and edit easily on a computer, but do not feel that use of computers makes their writing better or improves the quality of their ideas" (p. v).

Technology as a way to connect. Panda, like several participants, likes technology's ability to "connec[t] the teacher and student together." Samundar prefers it when technology is "more two-way"; he likes being able to share his ideas with the teacher and then "[the teacher will] say 'here's my idea and here's what I've put in [to your work]." Nyan says "I can share the GoogleDoc with the teacher and she can look at it" when explaining how technology allows her to get help from the teacher. Skan explains that when he has a question or needs clarification, he can email the teacher and the teacher will "usually" respond. Emily adds that she can use email to tell her teacher, "I can't understand this. Can you please respond?" This ability to connect with the teacher fosters "good teacher interaction" for her.

A Google Classroom was maintained by the teacher who hosted these students; several students saw Google Classroom as a great way to stay connected with the class content and the teacher. All the participants accessed the Google Classroom at some point during the study, with the majority of the students accessing it when absent from class. Google Classroom was useful to "see if there [are] any notes [they have] missed" (Charlotte, personal communication, February 17, 2017) so that they could feel "all caught up" (Amanda, personal communication, February 27, 2017) and "in line with the class" (David, personal communication, March 1, 2017).

Technology as a tool for organization. The idea that technology allows students to "feel more organized" emerged as a theme during data analysis (Charlotte, personal communication, February 17, 2017). Skan uses the online calendar in his phone to keep track of homework and he sets reminders on his phone so "if [he] forget[s] something, it reminds [him]" to do it. Google Classroom was mentioned several times in the context of organization because it is "a reminder of what is going on" in class and it's a place to "check for homework" (Panda, personal communication, February 28, 2017), and a place to "catch up" (Irene, personal communication, February 22, 2017). Several students use Google Classroom to ensure they have not missed any homework. They access it every night to ensure that they have not missed anything. Jonassen and Reeves (1996) affirm that a computer is a tool to organize personal knowledge and the student participants' perspectives reaffirm this belief.

Technology as a distraction. Several of the student participants viewed technology as a distraction. Skan says that it is a distraction because "when using technology, [he] ha[s] so many different windows open." Nyan goes so far as to call the distractions "annoying" because she keeps receiving texts or notifications from Facebook. She says, "There will be a box that pops up on the phone" and she cannot ignore it. David elaborates by saying that "a little message will pop

up and then [he] will click it and then that just branches off to the next thing and the next thing and the next thing." Samundar believes that the ability to access technology causes him to adopt an "Oh, I can do this at home" attitude and then he goes on Netflix in class. He said that free access to technology results in his procrastination and he does better when he is only given access to technology once his rough work has been completed and checked. All these ideas suggest that an off-task activity is not always a conscious choice because the attractive allure of frequently visited websites draws the students in (Aagaard, 2015).

Several other student participants raise the idea that technology can be a distraction but explain that they have strategies to overcome the distraction. Violet puts "it in [her] backpack." Emily will sometimes hear her phone keep "buzzing because [she's] got a lot of notifications" but "because it's just too disturbing" she will turn it off and put it in her bag. Amanda will not even take her phone out when she is trying to focus because she "feel[s] like it is a distraction" so she just "make[s] sure it's put away and on silence so that it will not be bothersome to [her]." All of this supports the idea that digital technologies can result in off-task activities and that this can have a detrimental impact on learning (Wood, et al., 2012). Further, it results in a student needing more time to achieve the same level of performance on an academic task (Levine, Waite, & Gendron, 2010). This is consistent with the cognitive bottleneck theory of attention (Welford, 1967), which posits that only one piece of information can be processed at a time. These observations also corroborate Linda Stone's (2005) concept of continuous partial attention. Stone (2005) describes this concept as trying to follow everything while, in fact, failing to focus on anything. The individual is under a bombardment of interactions; therefore, he or she can only focus partially on each of these interactions (Virilio, 2006). As such, it is important for students to develop strategies to ensure that their personal technologies do not distract them from

being able to use digital technologies as part of their learning process (Nworie & Haughton, 2008).

Data Obtained From Phase Two

Throughout the semester, I engaged in guided conversations (Cole & Knowles, 2001) and cogenerative dialogues and reflections (Roth & Tobin, 2005) with the student participants. The common themes and indicators identified in Phase 1 guided my observations of researchable and serendipitous moments (Cole & Knowles, 2001), my field notes, and the questions I was prompted to ask of the student participants while they were in class. For example, when students were assigned an inquiry task where they were expected to develop a research question, many students appeared to struggle with the task. "There were several blank computer screens. When I approached the students to inquire about what was going on, I specifically asked if logging off the computer and using a pen and paper to brainstorm would be better and, interestingly, many students opted to try it. When they did, they all found the success that eluded them when they had a computer in front of them. They started to generate topics and then refine their interests down in order to develop an effective research inquiry question" (Field note, March 1, 2017). The prompt I offered the students stemmed from the associated concept of technology as a learning tool and from students telling me in Phase 1 that they believed that technology sometimes impeded their ability to brainstorm, plan, and be creative. This series of events is contrary to the notion to that technology is the "pen and paper of our time" (Warlick, 2006, para. 4).

Field Notes

During my classroom observation, I wrote dot-jot field notes to document the things that happened during the class period as well as to note observations I made. Then, immediately after the class, I turned my dot-jot notes into a reflexive journal to try and capture the experience of the class as clearly as possible, as well as to capture my feelings about what had happened that day. Emmerson, Fretz, and Shaw (1995) highlight the importance of completing field notes immediately in order to capture the important nuances. "Over time, people forget and simplify experience; notes composed several days after observation tend to be summarized and stripped of rich, nuanced detail" (Emmerson et al., 1995, p. 40). For example, my dot-jot field notes for May 3, 2017 said "teacher gave feedback on the passage analysis task but nine students playing with their cell phone." In my reflexive journal, I wrote

During this entire discussion, nine students were playing with their cell phone… students struggled to transition from a task that allowed them to use their device to another task where they needed to put it away. I will confess that I too struggled to transition. Because my phone was in my hand and because I saw the alerts on my phone indicating that I had unread text messages and emails, I took a minute or two to read them and respond to one of them that I felt needed an immediate response. If, I has a professional adult, had difficulty disconnecting from my device, I can empathize with students who experienced the same difficulty too.

These field notes were later coded and analyzed to note patterns and themes so that I could construct an overall description of the phenomenon being studied (Miles & Huberman, 1994). The themes that emerged can be seen in Table 4.

Table 4

Emerging Themes From the Field Notes

1. Using technology as a teaching tool
2. The power of explicit instructions about cell phone use
3. Kinesthetic tasks
4. Transitions
5. Critical thinking tasks
6. Technology as a learning tool
7. Technology as a distraction

Using technology as a teaching tool. Although the classroom teacher always used technology as a teaching tool while she was teaching, it was difficult to see a common pattern emerge. Sometimes the technology engaged students and it was clear from the active listening cues they displayed that that (e.g., making eye contact with the teacher, nodding their head in agreement, raising their hand when they needed clarification or had a question), they were paying attention. On a day when the teacher showed a twenty-minute movie clip and asked students to consider how the scene builds tension, all the students in the class watched and "no student was on their device during this video clip" (Field note, February 21, 2017). After the clip, the teacher proceeded to conduct a lesson; she referred to a fill-in-the-blank worksheet on the projector screen. The fill-in-the-blank task required students to connect their thinking during viewing to what was taught. "During this time, no student was on their cell phone and all students chose to fill-in-the-blanks" (Field note, February 21, 2017). On another day, students had an opportunity to walk around the classroom to look at and read different ways to start an essay. Once given the chance to look at five different strategies for starting an essay, students returned to their seats for the lesson. The teacher distributed a fill-in-the-blank handout that had the ideas students had already considered during the walkabout. This handout was projected on the whiteboard and the blanks were filled in. "She quickly went through it because the students

had already seen examples of each technique and already had time to think about it" (Field note, March 28, 2017). Students were engaged and focused. They filled in the blanks and "during this time, few students could be seen on their device" (Field note, March 28, 2017).

During the reading of Shakespeare's *Othello*, there were times when rather than reading an entire scene, students were shown the movie; the movie was used to supplement the reading and, at other times, to take the place of reading. Each time the movie was shown, "students were engaged by watching the screen" (Field note, April 24, 2017). "During the movie, students were raising their hands a lot and asking questions. I had to pause the movie several times to answer questions. This demonstrated that the students "were watching the movie and asking clarification questions" (Field note, April 26, 2017). On another day when the movie was being shown, students' "heads could be seen bobbing back and forth from the movie screen to their text and back to the movie screen. Their expressions showed widened eyes, open mouths, and hands on their head. At the end of [movie], the students applauded" (Field note, May 9, 2017). I believe that "this combination approach" of using technology to teach students Shakespeare was effective because it was clear that students understood "the plot, character relationships and [the] characters themselves" (Field note, April 25, 2017). In fact, the students indicated that "watching the movie is helpful in understanding the text" (Field note, May 1, 2017). This validates the idea that showing students a movie can improve the conception and clarity of a text (Kaufmann, 1987).

At other times, when the teacher used technology as part of a lesson, students could be seen only quasi-listening because they were often distracted by their personal devices; they checked their social-media accounts, watched videos on YouTube or browsed the Internet. During a lesson on the cultural impact of a course text, "four students were on their cell phone or

computer" (Field note, February 18, 2017). Another time, after a short lesson that employed a brief slideshow, the classroom teacher gave instructions about an activity. This activity was an opportunity for students to apply the learning that had just taken place during the lesson on quote integration. As students moved into groups, two "students who were on their cell phones during the lesson and during the time instructions were being given appeared to be confused about what was happening. One student even said, 'What's everyone doing?'" (Field note, February 22, 2017).

This behaviour was also evident when someone other than the classroom teacher was giving a lesson. In order to begin an inquiry research project, "students moved to the library where the teacher–librarian gave a lesson on how to develop an effective inquiry question. The teacher talked as she was guided by a slideshow being projected for the students to see. Several students during this time were "on their computers working on [a] paragraph that [was] due [the next day], looking at YouTube, checking in to their Instagram accounts, and searching things on Google" (Field note, March 1, 2017).

As students worked on developing a topic sentence and three points, they raised their hands to have their classroom teacher or me check their progress. *Click. Snap. Click*. The teacher took a picture of everyone's work and then projected some of it onto the whiteboard. I remember, as different students' work was projected, it was interesting to watch how different students reacted. Some were visibly embarrassed and horrified. Flushed cheeks, widened eyes, and heads down on desks made this clear. Other students smiled and appeared to be proud of their work. The purpose of showing the pictures was for the classroom teacher to highlight "for the class what was done well and what needed more work. This immediate feedback appeared to help students, as I saw several students erasing their own planners to edit what they had written"

(Field note, February 22, 2017). The way the teacher used technology to help students with the writing process was helpful in teaching students about how to begin the process of writing a paragraph. There were some students who then raised their hand to ask the teacher or I for support in applying the feedback that was suggested to them.

These contrasting observations were consistent and ongoing for the duration of the semester. At the beginning stages of data analysis, it was difficult to ascertain how the teacher could use technology as a teaching tool in order to consistently engage the students. I even wrote, "I find it so overwhelmingly confusing. Why is it that sometimes the teacher uses technology while she is teaching and students are attentively engaged and other times the students are distracted and disengaged?" (Field note February 28, 2017). On deeper analysis of specific incidents noted in my field notes, however, a pattern emerged. It appears that when technology is used as a "technical procedure of transmitting knowledge to passive learners," the technology does not engage the students as evidenced by several students often choosing to do something other than paying attention to the teaching (Somekh & Davis, 1997, p. 15). This may be because the teacher is using technology to present "ready-made information" which continues to put the teacher in the "traditional role" of presenter of information (Somekh & Davis, 1997, p. 15). When teachers use technology in ways that afford students autonomy to synthesize, interpret, and hypothesize, students appear to be actively engaged. If technology is used as a teaching tool to allow students to generate their own knowledge, the technology garners the students' attention more effectively.

The power of explicit instruction about cell phone use. When students are explicitly told to put their cell phones away, they typically follow the instruction. For example, during one class, the teacher turned on a ten-minute film for students to watch and consider the active-

viewing questions she had put on the board. As the film started, the majority of the students were on their cell phones. "When the teacher said, 'the film is subtitled so your eyeballs need to be on the screen,' everyone put their phones away. I found this interesting. It seemed that once the teacher told students why they needed to watch, rather than only quasi-listen, they saw the importance of putting away their devices. During the ten-minute film, I didn't see a single student look at their cell phone even once" (Field note, February 14, 2017).

On another day when the teacher was teaching a lesson, "three students were extremely loud and distracting" (Field note, April 4, 2017). The teacher individually called out the three student's names and said, "We seem very attached to our cell phones. Is there something happening in the world of social media that we should all be aware of?" (Field note, April 4, 2017). All three students replied "no" and they "immediately put their cell phones away. They stayed on task for the rest of the lesson and never again looked at their cell phones" (Field note, April 4, 2017).

In fact, I recall a time when I felt guilty about using my own personal device while the teacher was teaching. I could hear whispers of, "why does she always have her computer out?" and I heard another student say "I've seen her on her phone." I immediately felt my cheeks flush with embarrassment and I quickly put my device away. Although I use my device to keep track of observations and to make field notes, the students saw it as me breaking the classroom etiquette rule. From that day forward, I always took my participant observer field notes in a notebook and then typed them into a reflective journal later in the day. I share this story because the teacher's explicit instruction had a powerful effect on me. It created self-policing among the students who then noted people who weren't following the "rules" and saw it as disrespectful. In

a sense, the explicit instruction was a reminder about what is socially acceptable classroom behaviour.

Explicit instruction about putting away a personal device not only impacts the student being spoken to, but also other students in the room. For example, the classroom teacher was leading a critical analysis of an essay the students had read. A student was on his cell phone and the buzz of headphones could be heard. The teacher asked him politely to put his phone away. "He did put his phone away, as did the student sitting next to him who was also on her phone" (Field note, March 28, 2017). It seems that a prompt to refocus that is directed at a particular student impacts the other students as well.

Kinesthetic tasks. Kinesthetic students "learn best with an active 'hands-on' approach" (Gilakhani, 2012, p. 106). Kinesthetic learners like to do (Vaishnav, 2013), experience (Kharb, Samanta, Jindal, & Singh, 2013), and "do something active while learning" (Felder, 1988, p. 676). Activities that allowed students to leave their seats, move around, and talk with other students consistently resulted in students ignoring their personal devices to participate in the task. It is these sorts of tasks that I identify as kinesthetic tasks. Icebreaker tasks, done in the first five minutes of the class, allowed students to be social and resulted in students disconnecting with their technology and connecting with their peers. It was often a time when cell phones could be found face down on student's desks. A number of times notations like "every single student actively participated" (Field note, February 8, 2017), "a cell phone was nowhere to be seen in a student's hands" (Field note, February 8, 2017) and "I never saw a student interact with his or her device" (Field note, February 16 2017) can be seen in my field notes.

A number of times during icebreaker tasks and other kinesthetic tasks, I joined in and embraced the participant part of my participant observer role. These tasks were always fun and

engaging. While I was participating in kinesthetic tasks, "I kept trying to make observations to write in my field notes later but it was difficult because I wanted to remain engaged in the activity [because it was fun to] mov[e] around, engag[e] with each other [while] laughing and maintaining focus" (Field note, February 6, 2017). I recall one of those times below:

> "Mrs. Sharma. Take the shot. You've got this."
>
> My heart speeds up as I feel the pressure of this team of students. I feel like if I miss this shot for them, I've let them down.
>
> "Miss it. Miss it. Miss it."
>
> As another student chants for me to miss the basket, my heart begins to race. "Come on Sunaina. Show them you can do this."
>
> I begin to perspire now. I feel like everything is in slow motion. Oh my gosh. Everyone is looking at me. "Come on Sunaina. You can do this."
>
> I get into position. Nope. That doesn't feel right. I readjust to aim better. I take a deep breath in and I shoot. The paper ball floats through the air. 'Oh no! It's going to miss. I've let everyone down.' I cringe at the thought and then it happens . . .
>
> SCORE.
>
> The students high-five me and keep on playing. In that split second, I personally felt the joy, fun, and engagement of a kinesthetic task. The camaraderie and competition were intoxicating. I wanted to take another shot and keep playing (Field note, February 16, 2017).

During a game of "trashketball," a review game that has students shooting a ball into the garbage can, everyone participated. "For the entire period, every student was engaged, involved, and on task. I did not see any students interacting with their devices. One student had a

headphone bud in his ear, but there was no music on" (Field note, February 16, 2017). At other times, when I did observe students with their devices during a kinesthetic task, the device appeared to be used effectively. For example, to "take pictures" of drawings during a walkabout activity so that the student could "access quotes when she's writing her paragraph" (Field note, February 15, 2017) or to "look at how to draw something" to complete a group character drawing (Field note, February 14, 2017). On a day after a long weekend, students were moving at a "slower pace and there appeared to be less chatter among students" (Field note, May 23, 2017). The teacher asked students to stand up and tuck in their chairs to participate in an activity. "Normally, kinesthetic tasks generate enthusiasm but the overwhelming groan that resounded supported the idea that students [were] tired. As the task [progressed], however . . . laughter and excitement could be heard . . . everyone participated and no one could be seen playing with their device" (Field note, May 23, 2017). This highlights the power of kinesthetic tasks in engaging students who not only detach due to their personal devices but who feel disconnected because they are tired.

Kinesthetic tasks help to refocus student attention and improve social skills (Lengel & Kuczala, 2010). My observations confirm these findings. Whenever the classroom teacher initiated a kinesthetic task, all students focused for the entire duration of the task. Not only were they participating in the task, but they were also talking, smiling, and laughing, which are all indicators that they were enjoying the task. Moreover, for the entire duration of the kinesthetic task, they did not lose focus and detach by playing with their personal technology devices.

Transitions. Transitioning from a task that allowed students to use their cell phones or other personal-technology device to a task that required students' devices to be put away proved challenging for several students almost all of the time. On several occasions, the teacher started

the class with an online quiz game called *Kahoot!*. During *Kahoot!* games, all students always choose to participate and the students' competitive nature emerges. Students vie to get on the winner's podium. It is always a time of noisy engagement; however, when the following portion of the class requires students to put devices away, students have great difficulty transitioning. Often, "many students continu[e] to play with their cell phones" (Field note, February 7, 2017), particularly if the next task is a pen-and-paper task. "Perhaps when [students'] brains are activated with technology, it's difficult to put it down" (Field note, February 7, 2017). Students were "extremely distracted by their cell phones" (Field note, February 13, 2017) and "the majority . . . continu[e] to play with their cell phones (Field note, February 14, 2017). Even while the teacher is giving instructions, "students [are] still playing with their cell phones" and they didn't "appear to be attentively listening" (Field note, February 22, 2017).

A field note captures this observation in detail:

> Then the teacher initiated a *Kahoot!* to review the different sentence types students have been learning about. There was hurried excitement as students took out their devices, with which they were going to use to participate. I heard a student say, "We haven't done a *Kahoot!* in so long." She appeared to be excited to be able to play the game. Every single student present in the class participated. One student stood up during the game so she could move around and jump up when she got an answer correct. During the game, students were very competitive. When one student got an answer wrong, a student said "Who is the idiot who got that wrong?" Other things heard during the game were: "Shhh. I can't hear," "I need to win," and "Ugh, I got that wrong."
>
> After *Kahoot!* the teacher explained that students need to trade their homework with someone and give feedback. She engaged the class in a discussion about the criteria to

> look for, yet students continued to talk loudly and play with their phones. The teacher said "Shhh" four different times. She continued to move forward with listing criteria on the board but very few students were paying attention. The teacher said, "Dylan, can you share an idea." Dylan responded with "What are we doing?" He didn't know because he was talking with the person next to him and showing that student something on his phone. Three minutes into the discussion, seven students were still on their personal devices and not paying attention to the list on the whiteboard. Four students were on their device for the entire discussion and never even looked up at the list on the board. (Field note, April 3, 2017).

In contrast, when students engaged in a task that allowed them to use their cell phones moved to a task that caused then to engage enough to put their cell phones down, the transition was less challenging. On a day when students were peer-editing each other's work, "the majority of students who did not complete their homework didn't use their time effectively. Instead they played video games, played with their cell phone or talked (Field note, March 30, 2017). The task students were expected to do following the peer editing required students to fill in a chart and "many students lagged in filling in their chart because the continued to play with their personal devices" however, interesting conversation ensued as students tried to understand the new vocabulary word (Field, note, March 30, 2017). "This conversation caused those who were [playing] on their cell phones to engage in the conversation" by putting their personal devices away (Field note, March 30, 2017). It seems that when students are using their cell phones, they can transition effectively to the next task, if the task allows them to engage in conversation. This was also seen when students completed a *Kahoot!* game to review for a test and the teacher then transitioned to taking up a practice test. When the classroom teacher was explaining the correct

answers, “all students were focused and on task and no one was still playing with their cell phones” (Field note, April 6, 2017). The transition was smooth because, rather than the teacher simply talking and sharing the correct answers with students, the students were involved in the conversation. For example, “one of the questions on the review was ‘What type of essay is this?’ The teacher indicated the correct answer . . . then a student asked ‘why is it [that type of] essay?” (Field note, April 6, 2017). It appears that transitioning from a task that allows students to use a cell phone to another is simpler when there is teacher involvement.

A field note of mine confesses that

> I too struggled to transition from times when I was using my cell phone to times when I needed to put it away. I was able to put my cell phone away but only after I was able to quickly check my email and text messages. Because my phone was in my hand and because I saw the alerts on my phone indicating that I had unread text messages and emails, I took a minute or two to read them and respond to one of them that I felt needed an immediate response. If I, as a professional adult, had difficulty disconnecting from my device, I can empathize with students who feel the same difficulty too. (Field note, May 3, 2017)

The struggle to transition from one task to another is not an uncommon one (Monsell, 2003) but it seems to be more challenging for students when they are transitioning from a task that allows them to interact with their cell phones to one that requires them to put their cell phones away. The lure of “this seemingly indispensable piece of technology” (Roberts, Yaya, & Manolis, 2014, p. 254) appears to be addictive (Takao, Takahashi, & Kitamura, 2009). It appears that students are able to resist the addictive nature of their technology when they are able to

engage in "collaborative conversations [that] allo[w] [them] to experience many different points of view and stretch [their] thinking" (Katrein, 2017, p. 20).

Critical thinking tasks. Critical thinking involves the use of cognitive skills required for "solving problems, formulating inferences, calculating likelihood, and making decisions" (Halpern, 2009, p. 6). When assigned tasks that required deep critical thinking, students typically began work as required; I did observe, however, that each time there was an individual critical-thinking task, within five minutes a handful of students would be playing with their cell phones. Whenever I, or the teacher, redirected students back to their work, they would return to the task for a few minutes, or sometimes only for a few seconds, before returning their attention to their cell phones. "Having access to personal cell phones during a task that students viewed as challenging because it requires critical thinking leads some students to easily opt out when something is difficult. It seems that those students who don't use their personal cell phones persevered . . . thus, their worksheets showed analytical depth whereas those students who played video games just completed the task to get it done" (Field note, February 8, 2017). "Playing with their cell phones [may be] a student's way to disengage when a task is too difficult for them or when they hit a struggle or obstacle" (Field note, February 8, 2017). If, however, students were allowed to work with a partner or in a group during a task that required critical thinking or group analysis, students were rarely seen on their personal devices. On another day, when the teacher was re-teaching a writing skill that was taught in Grade 10, several students were on their cell phones. When students had to practice their formal paragraph writing skill, several students struggled with the lesson but "once in groups, everyone was engaged in the task and everyone ignored their devices" (Field note, February 22, 2017). When working in groups on critical-thinking tasks, personal devices were used only to support the completion of the task. For

example, on a day when students had to create cartoon panels to accompany a script, "students were on task and engaged. . . . I saw students looking up how to draw something, looking up different ways to do a thought bubble and looking at different font options" (Field note, May 23, 2017).

On another day, the students read a variety of powerful quotes taken from literature. They were then asked to apply previous classroom learning by identifying various sentence types, and to share their ideas. My field note recalls that

> some of the sentences were difficult to identify and even the teacher struggled with a couple of them. At one point, she said, "I don't know. I'll have to ask some of the other teachers in the English department about what they think." Several students smiled when the teacher said this and those who were paying attention to their cell phones suddenly refocused and looked away from their devices. I think it was powerful for students to see that the teacher didn't know everything and that even she needed more time to think. For the remainder of the analytical discussion, students were not on their devices. (Field note, March 27, 2017)

On another day, students were sharing their ideas after analyzing their peers' work:

When one [group of students were] sharing, the teacher said, "I don't know if I agree with you. What do you all think?" Several students raised their hands to share their ideas. The teacher said "Hmmm . . . I'm still not sure. This is harder than it looks." When the teacher said this, the 6 students who were playing with their cell phones looked up. (Field note, April 4, 2017).

These observations suggest that students' cell phone use is fueled less by their captivation with their devices than by their disengagement from challenging and difficult tasks. When the

complexity of a task is affirmed by the teacher, however, students are more inclined to re-engage with the task, persevere, and challenge themselves.

I recall a time when students were learning iambic pentameter, prose, and verse. It was a time of concentrated confusion. Students were trying hard to understand the terms, but they were struggling with the concept of iambic pentameter. "Some students quickly grasped it and others struggled" (Field note, May 2, 2017). The classroom teacher and I tried to explain and re-explain but struggled to help the students seek clarity. Then the classroom teacher tried another way to teach the same concept. "She asked ten students to come to the front of the room. Each student represented a syllable in the line 'Shall I compare thee to a summer's day.' Each student said their line loudly or softly depending on whether they were a stressed syllable or unstressed syllable" (Field note, May 2, 2017). This demonstration re-engaged students who were disengaging and giving up. While working to identify iambic pentameter lines in Shakespeare's work, "students remained engaged and persevered to try. They clapped syllables out loud, talked with each other and asked for help. I didn't see any student give up and turn to their technology" (Field note, May 2, 2017). I recall clapping along too. Students would call me over to ask, "Is this line iambic pentameter?" and I would clap it out loud and answer "yes." This kinesthetic strategy not only helped the students overcome a critical-thinking challenge, it helped me, too. Moreover, it was a time of engagement. Some students were clapping and others were listening. As I look back at this event, it was a time of literal and symbolic harmony. Anyone in the hallway, walking past the classroom, would have heard the harmony of students clapping. It would have likely sounded like an acapella band trying to come together. It was also harmonic in the sense that all students were working together to come to an understanding of a classroom concept. I look back at this event and smile. It was a beautiful harmonic moment.

In sum, critical thinking is challenging (Kemp, 1985); when students are able to collaborate with their peers through structured student interaction, however, they are better able to persevere through the challenge that the critical-thinking task requires (Adams & Hamm, 1996). When the complexity of the task, or difficulty level, is affirmed by the teacher, students are more likely to persevere.

Technology as a learning tool. Participants had regular and consistent access to personal devices. On numerous occasions, students used their personal technological devices to assist them in meeting classroom expectations. For example, students used their phones to take pictures of resources posted around the classroom so that they could be referred to at another time. One chose to take pictures of student drawings posted around the classroom so that she could "access [the] quotes when she's writing her paragraph" (Field note, February, 15, 2017). Students also took pictures when asked to "write [the information] down because it may help [them] with [their] paragraph (Field note, February 15, 2017). "One student just thoughtfully listened to the discussion and observed the teacher make notes on the whiteboard" (Field note, February 15, 2017); she then took a picture of the whiteboard. When I asked her about her decision to use this method, she indicated that, "it was easier because she 'loses stuff' and it was better because she could 'just listen' to what everyone was saying, instead of trying to write it down" (Field note, February 15, 2017).

Having devices that put Internet access at their fingertips was also helpful to students. On a day when students were asked to trade their writing with a partner and offer assessment feedback, one student "us[ed] her phone to translate the entire piece to Korean" first and "then she was able to provide assessment feedback" (Field note, March 30, 2017). On another day, students were asked to read an excerpt of an essay and then answer the questions provided.

"After reading the essay excerpt, a student was fixated by his phone. I inferred that he was off task and I attempted to redirect him; he explained that he was reading the original essay online because he "needed more" after reading the excerpt provided by the teacher" (Field note, March 28, 2017). "He thought the essay was so well-written and interesting" and he wanted to "go beyond the material given by the classroom teacher" (Field note, March 28, 2017). These two examples demonstrate that personal devices connected to the Internet allow students to effectively meet teacher expectations and complete assigned tasks.

Access to devices connected to the Internet was indispensable for several students while they were reading Shakespeare. The students had been directed to an online source that translates Shakespeare's plays, line by line, into modern-day English. For several students, this tool was a daily resource that allowed them to make sense of what was being read in class. Often, as the teacher was leading the class in an oral reading of scenes, many students were following along in the book as well as following along on the translated version on their cell phones. "On one day, while reading the text and watching the movie, several students were looking at their phones. As I walked around to see what they were doing, students were on their phones and following along by referring to the [online resource]. They were using their devices to help them with the classroom learning" (Field note, April 25, 2017).

"The use of technology to help support students with understanding the text was helpful. One student even said 'it makes so much sense when I . . . read it on my phone' because she was reading the [translated] version on her phone" (Field note, April 25, 2017). On another day, while students were reading assigned parts out loud for the class,

> I noticed that two table groups had a laptop open and positioned in a way that the entire table grouping could see. When I walked around the room to see what they were looking

at, I saw that it was the translated version of the play [displayed on the screen]. (Field note, May 8, 2017)

In a class discussion about strategies that have helped students in understanding Shakespeare, several students noted that the online, translated text was "helpful in understanding the text because it makes way more sense" (Field note, May 1, 2017).

Today's smartphones allow for constant connectivity (Gikas & Grant, 2013); therefore, they allow students to access information and knowledge anywhere and anytime (Traxler, 2007). In my observations, this connectivity often allowed students the opportunity to access information to help them fulfill classroom expectations including providing assessment, reading critically, using effective voice and tone in their writing, and editing to avoid spelling errors. However, there were a number of times when the technology was a hindrance to students' learning. It was an overwhelming hindrance when students used technology as part of the creative brainstorming process or idea generation portion of a task. Often when students accessed technology during the start of a task, "there were several blank computer screens" (Field note, March 1, 2017). When I encouraged students to log off their computers and use "pen and paper to brainstorm," "many students opted to try it and found success" (Field note, March 1, 2017). On another day when I encouraged a student to "close their screen and just use a pen and paper," the student didn't want to because he said 'I'm good. I'll come up with an idea'" (Field note, May 15, 2017). At the end of the class, he "still had a blank screen" and did not have any ideas on what to do (Field note, Mar 15, 2017). My observations showed that students needed concentrated focus during the start of a task; if access to a technological device was available, the student would browse the Internet, watch videos, or listen to music and these activities would prevent the student from being able to start a task.

Technology as a distraction. Access to personal devices was also observed as a distraction that interfered with task completion. Students would often be motivated and driven to start a task, but when they had access to personal devices, they would often use them to check their social-media accounts, take selfies, browse the Internet, watch movies, or play video games. Students often had good intentions in working on a task, but then "they would veer off task" (Field note, May 15, 2017). This reinforces the idea that students are "more likely to respond to stimuli outside of their immediate task" and the result is that they "sacrific[e] performance on the primary task to let in other sources of information" (Ophir, Nass, & Wagner, 2009, p. 15585). This "start and stop process" of working on a task would often lead to students not finishing the task they were expected to (Field note, May 24, 2017). As an aside, one must wonder if this is any different from the doodling and daydreaming of yesteryears. The bursts of starting and stopping that I witnessed supports Friedman's (2006) notion that access to the Internet has led to greater interruption. He says, "all we do now is interrupt each other or ourselves with instant messages, email, spam or cellphone rings" (Friedman, 2006, n.p.). This overabundance of information had resulted in attention becoming a scarce resource (Goldhaber, 1997; Lanham, 2006) because the computer is "a gateway" to activities that will lead to distraction (Foehr, 2006, p. 15).

In summation, my research demonstrates that access to technology can be both a benefit and a hindrance, as it supports the dichotomous finding of Lavoie and Pychyl (2001) who observed that the Internet leads to procrastination but is paradoxically also an important tool.

Data Obtained From Phase Three

All fifteen participants completed an exit questionnaire, which was followed by a focus-group conversation that enabled them to share their ideas about technology use in the secondary

classroom. The data obtained from the questionnaire and from the focus-group conversation is shared below.

The Exit Questionnaire

Participants were given two weeks to complete the questionnaire in an effort to provide time for them to think and reflect on technology use during the semester. All participants successfully returned the completed questionnaire within the allotted time. As I began to analyze the data from the questionnaire, I followed up with individual students to clarify and understand the information they shared.

Relationship between technology use and performance in class. When responding to the relationship between technology use and interest in class, five students strongly agree that classroom technology use leads to greater interest in class; another nine students offer agreement, while one student was neutral. As clarification for her neutral stance, Emily feels that her level of interest varies with the way that technology is used; sometimes it leads to her to be more interested and sometimes it leads her to lose interest.

Six students strongly agree that access to technology helps them learn better, with another seven students agreeing, and two students offering a neutral stance. The neutral stance was further explored: both students feel that access to technology does not help them learn more effectively but that it helps them learn differently. They think that whether the technology is used or not, they both would have learned the same.

When given access to technology to produce a final product to be submitted for evaluation, all the participants believe that technology helps them produce a better final product than they would have without technology. Eight strongly agree, with another six simply agreeing. One student was neutral; she explained that when she uses technology, she feels that

her product benefits from the technology but that even without technology, she can find another way to make it great.

Students differ in their views of technology and its potential to distract them: Three students agree that it was a distraction and five disagree. Seven students were neutral, suggesting that it was a distraction at some times, but not at others.

Student recommendations. Students were asked to make general recommendations with regard to technology use and technology access in the classroom. Recommendations fell into two categories: teacher use and student use.

With regard to teacher use, a few students felt that the teacher should not use it while teaching. One student suggested that teachers should only use technology in moderation, and two students thought that the teacher should only use technology to post notes online for students to access at a later date. One student indicated that when the teacher uses technology to show a video that reinforces a concept taught in class, she better understands the concept or idea. Another student explained that the teacher should only use technology to show a visual to accompany the ideas and concepts being taught. One student emphasized that the teacher should never use technology while teaching. He feels that the teacher should be physically teaching and not relying on technology to teach. Another student felt that the teacher should not use the technology personally but that a teacher should use it to facilitate interaction between students and their classmates.

With regard to student use, all the participants view technology as a useful tool that makes tasks more interesting, allows them to research new ideas, and facilitates correction of errors. Two students thought that the use of technology should never be mandatory but should always be an option. Not every student owned a device; as a result, several students felt that it

was the teacher's responsibility to ensure that each student has a device to use, such as a Chromebook. This data reminded me of a time when students were playing a *Kahoot!* game. "One student didn't have a device so I let him borrow my cell phone, so that he could participate. It was the first time I saw him make eye contact with me and he smiled. I think it helped me build a connection with him" because if it wasn't for me, he likely would not have been able to engage in the activity when he clearly wanted to (Field note, February 14, 2017).

Focus-Group Conversations

Thirteen of the fifteen participants participated in the focus-group conversation. One student did not participate because he was on a vacation. He was, however, given the opportunity to share his thoughts and ideas in a one-on-one conversation with me; he chose to decline and, instead, wrote his ideas on back of his exit questionnaire. Another student was unable to participate in either of the scheduled focus-group conversations; a one-on-one conversation was scheduled with him. These two students' insights are below alongside other student perspectives.

Technology use during lessons. Many of the students in the focus groups highlighted that they appreciate it when the teacher shows a visual to accompany what is being taught in class. Examples of a visual that they referenced include a movie, a TED Talk, a mind map, or a video clip. One student explained that visuals are "really good," because it is nice "to be able to see something while working on it at the same time." The students were quick to point out that they would prefer to watch the video and think about it on their own rather than having to fill in a worksheet or answer questions; one student explained that he "like[s] to just watch it and focus on what they are saying and not have to worry about thinking about it until later." Another added that "it's hard to watch and listen and answer questions because [then] you're trying to listen to answer a question and you're not paying attention to the actual message it is they're saying."

Students recommended that teachers periodically pause during a video to allow them time to think, reflect, and talk before continuing with a video. Once the focus-group conversation ended, as we were packing up, one of the participants said, "Remember when you showed us that video about the inmates reading Shakespeare? You just let us watch it and then we had a discussion later. That was good because we could just watch it and form our own ideas." These thoughts echo the idea that although computer technology is a tool to "engage learners in academic discourse for knowledge construction," it can lead to information overload (Chen, Pedersen, & Murphy, 2012, p. 325)

The focus groups also highlighted that students often find it difficult to keep up with the pace of the information during slideshows, because they do not have enough time to write notes before moving on to the next slide. Although the teacher always says "focus on certain things" or "look for big ideas," students cannot pick out the key points unless they are given enough time to read the entire slide, think about it and then identify the main idea. This often results in students giving up and doing something else instead. This sense of being lost is also symptomatic of information overload (Hiltz & Wellman, 1997). One student said that he believed that teaching new concepts or ideas using a slideshow often meant that teachers were moving through content much quicker than if they were teaching without it. Students recommended that when the slideshow is projected on the board, the teacher should write the main points and big ideas on the board space next to the slide. Another suggestion was that the teacher should post a slide and let students copy the notes down first. After the slide notes have been taken, then the teacher should explain it and provide examples. The concern is that if the teacher talks while students are copying the notes down, the students are "not really paying attention because [they are] trying to write it all down before [the teacher] moves on." A final suggestion that emerged was that if

there is an important concept being taught and it is projected on a slide, the teacher needs to "ask the class if everyone's got it or if anyone needs more time [before moving on because the student] can ask right then instead of getting lost." Another student suggested that the teacher should "teach in an interactive way" rather than relying on the slides to do the teaching. Finally, one student felt that if a teacher "gave [students] an example from real-life, [students] [w]ould relate to that too and then [they] would remember it. That would make [student engagement] better."

Technology use to work on assignments. Focus-group conversations reinforced that students appreciate having the option of using technology to complete assigned tasks. They emphasized that everyone learns differently, so it is important to allow technology to be used. However, the use of technology should always be optional rather than mandatory. One student felt that "when something is made mandatory, it becomes a little boring and then no one is intrigued." One student said that she does not like drawing, so being given the option to use technology to create her graphics made the task more interesting for her. Another student said, "I'm the opposite of that." He explained that he tried an online platform to create his graphics but "what [he] had in [his] head wouldn't end up on the screen," so he ended up drawing it instead. The larger idea that emerged was that each task should allow for students to do "what [they] need." If students "want to write, [they] should be able to write and if [they] want to be able to use technology, [they] should at least have that option available [so students] can make decisions based on how [they] learn best."

Several students acknowledged that they do get distracted by technology but that gentle redirects from the teacher are helpful. One student explained that for "the kids who want to do well," this would work "but for kids who don't really care," they are just going to be distracted

regardless. Another suggestion was that the teacher should always establish a goal to be met by the end of class. “If you know what you have to do each day, you can balance your time better.” Having daily goals would “keep you on track” and “help [you] gauge what [you] need to do” in the day. Although “that doesn’t necessarily mean [students are] going to get it done,” at least then they know how much homework they will have. Another suggestion was for teachers to plan classes that are engaging and active because that would “prevent people from using their phone that much during class.” Another student added, “We need more interactive things to make us pay attention more.” *Kahoot*! was mentioned a number of different times as an example of the teacher designing an interactive activity that allows all students to engage effectively. One student explained that *Kahoot!* is so well liked because it allows everyone to “interac[t] as a class” instead of “just watching something.” A few students felt that teachers should encourage planning using pen and paper; if they don’t have immediate ideas, this would allow them to draw and doodle to prompt their thinking. Once ideas have been generated and a plan has been developed, students can access technology.

Common Themes Across the Phases

Once my time in the field was complete, I could identify common themes that emerged across all phases. These are summarized in Table 5.

Table 5

Common Themes Across the Phases

1. Technology as a teaching tool
2. Technology as a learning tool
3. Technology as a distraction

Once these common themes were identified, I could also identify the subtle differences that emerged, largely as a result of students' inability to gain perspective about their behaviour. For example, Phase 2 identified a particular theme of transitions, that fell in under the heading of distraction. Students did not self-identify transitioning from a task that allowed them to use their device to a pen and paper task as difficult; once mentioned, however, they came to the realization that was the case. For example, Charlotte said, "Ok. I'm going to put my phone away now Mrs. Sharma because you told me that I can't seem to put it away after a *Kahoot!*" Once she had put it away, she said, "See. I can put it away."

Concluding Remarks

In conclusion, this study was driven by the primary research question: How does the use of digital technology in the secondary classroom engage and/or disengage students? The responses from the fifteen participants indicate that technology is both a tool to engage and a tool that leads to disengagement. When students have access to technology while in the classroom, it inspires them to pursue new information and resources, prompts them to edit more thoroughly, and, particularly, supports English-language learners in meeting classroom expectations. Students cite that it helps them stay organized and work faster. When students have access to their technology while in the classroom, they may browse the Internet, take selfies, check their social-media accounts, watch videos, and play video games, which may lead to procrastination. The result may be failure to complete an assigned task in the class time given. When teachers use technology in a way that allows students to form their own opinions, conclusions and ideas, students tend to be more engaged. When the teacher uses technology to transmit information to students, it has the potential to disengage students. Didactic teaching coupled with opportunities to connect with previous learning, collaborate with others, and opportunities to construct

thinking does engage students. Didactic teaching is also, at times, necessary in order to teach students when and how to use technology effectively so that students can become responsible users of technology.

Despite the challenges that come with using technology in a secondary classroom, participants feel that technology is a tool for engagement, particularly when it is used as a tool that allows students to construct their own knowledge.

Chapter 6

Recommendations and Conclusions

> *Students quickly grabbed the graphic novel and a Chromebook but it took them a long time to settle in to listen to and read the text. Most students talked. Some of the conversation was social and some was centered on their books. Other students browsed the Internet a little bit and others read. After about 15 minutes, most students were on task—watching the companion video and reading the graphic novel. The students who had brought headphones to class were able to stay engaged with the graphic novel from beginning to end. Those students who didn't have headphones would watch and listen for a little bit and then pause the video to do something else. They would then spend some time talking or browsing the Internet before going back to the graphic novel. This start-and-stop process continued for the duration of the class and many of these students did not finish reading the text or watching the video. (Field note, May 24, 2017)*

This chapter begins with a discussion of the formal research question and addresses the micro-questions that emerged. I then connect the most salient literature to the findings of the research, before proceeding with a discussion of the complexities of this inquiry. Suggestions for future implementations of technology and future research are offered. I conclude by extending the conversation that began in Chapter 1, offering new insights for those who would like to understand the relationship between digital technology and student engagement.

Research Questions Revisited

The findings of this study connect strongly with the literature presented in Chapter 2 in the area of digital technology and student engagement. In particular, many of the findings of this study were consistent with the literature that pointed towards the dichotomy of technology in the classroom—that it is both an asset to engagement and a hindrance to engagement. I have also come to understand in even more depth the struggle to observe, assess, measure, and interpret student engagement, particularly as it relates to the use of technology. Even with the behavioural,

cognitive, affective/relational attributes/dimensions provided by Appleton et al. (2008) and Davis et al. (2012), there were still times when the identification student engagement was entirely subjective. While talking with students did help, I recognize that in a busy classroom, this level of deep conversation is not always possible.

Research findings have been described in length in Chapter 5 and Chapter 6. In this chapter, I revisit the original research question and micro-questions alongside research that helps contextualize and make sense of the findings.

Overall Research Question: A Matter of Engagement

How does the use of digital technology in the secondary classroom engage and/or disengage students?

Questions of engagement are what inspired my doctoral work. There is a "commonplace assumption . . . that all learners are excited" when using technology but, I often found myself trying to understand the complex relationship between student engagement and digital technology (Gibson, 2001, p. 38). There is a belief that "active teaching . . . results in active learning" (Oberman, 1991, p. 198). My research supports this belief, suggesting that when teachers use technology as a way to disseminate information in a one-dimensional way, students do not pay attention or pay only partial attention. Maddux (1986) refers to this type of technology use as Type I because the application of technology is teacher-centred. An example of this would be a lesson using a "PowerPoint presentation for the day's lecture" (Maddux & LaMont Johnson, 2005, p. 53). In this inquiry, when the teacher used technology to show a slide show or to show notes, several students could be seen doodling, socializing, or using their technological devices to disconnect from the classroom learning. Yes, "didactic sequencing may reduce teaching complexity," but teachers should focus on designing learning environments that

are interactive and engaging, not just easy (Solvberg, Rismark, & Haaland, 2009, p. 2794); Solvberg et al. (2009) refers to this as "didactic competence in the use of technology" (p. 2794. When the teacher moved beyond didactic competence and used technology in a way that allowed students to construct their own knowledge, she captured their attention, and this was appreciated by participants. Samundar said that technology should not be used for "giving information" or to "regurgitate and retain." David said that technology should allow students to construct their own ideas. Without realizing it, these two participants echoed Taylor and Parsons's (2011) conclusion that technology should move teachers from "didactic to constructivist pedagogy" and should "encourage knowledge construction" by allowing students to co-construct their own learning through interactive learning (p. 18). This also echoes the literature reviewed in Chapter 2. Technology contributes to the creation of more complex and dynamic learning environments, and my time in the field supports this. TED talks and other videos allowed the teacher to integrate traditional lecture with videos that acted as a demonstration of classroom concepts or skills (S. Young, 2006).

Technology that allows students to construct their own knowledge is categorized as Type II, where technology is considered as "an essential component" and an "essential resource that makes the learning event possible" (Maddux & LaMont Johnson, 2005, p. 53, 54). Technology in the classroom can "help students to become deeply involved in manipulating information into their own knowledge bases" (Gibson, 2001, p. 42). Technology is a tool that "provides learners with access to information, expert communications, opportunities for collaboration, and a medium for creative thought, expression, and knowledge construction" (Gibson, 2001, p. 42).

When the teacher used technology to show a video that required student application or to test student knowledge or assess learning, full engagement and participation were observed.

When the teacher used technology to deliver a lesson, rather than as a way to allow students to apply a lesson, students lost focus and retreated. Students engaged with the teacher's use of technology when it allowed them "to create meaning [and] make connections" (Singer, 2014, p. 173). A single word— *Kahoot!*—would bring a palpable excitement to the classroom. Students expressed that they liked the online, interactive quiz because it allowed them to compete and connect with their peers (relational) while determining if the knowledge the student had acquired was enough (cognitive). Students explained that if they did poorly on a *Kahoot!* quiz, they knew that they had more work and learning to do (cognitive). This singular example of technology in the classroom, coupled with the participants' explanation of why they are engaged by it, is at the core of constructivism. Duffy and Cunningham (1996) believe learning is facilitated through tools and *Kahoot!* is a technology tool that fosters constructivist learning. Downes (2007) believes that learning occurs by communicating with a network of people who support autonomous knowledge development and *Kahoot!* was one such tool that enhanced the "cognitive, affective and operative aspects of the classroom learning" (Callow & Orlando, 2015, p. 367).

With this finding, we can reconnect with the fundamental principles of engagement theory that suggests that students must be meaningfully engaged in learning activities (behavioural) that allow them to interact with others (affective/relational) in a way whereby students can reason, make decisions, and evaluate (cognitive) (Kearsley & Schneiderman, 1998). We can also reconnect with the definition of engagement that guided this inquiry. *Kahoot!,* for example, allowed students participate in learning activities (behavioural), ask questions (affective/relational), respond to other comments (affective/relational), debate (cognitive, behavioural, and affective/relational), bring up questions (cognitive) and engage in discussions

with their peers (affective/relational) (Garrett, 2011). The way the teacher used *Kahoot!* in her classroom highlights how didactic teaching with technology that allows for construction of knowledge and collaboration with others can engage students.

Koehler and Mishra (2009) advocate that technology should be used by teachers to encourage learning through exploration, skill development, problem solving, and engagement in critical thinking. When students or the teacher use technology in a way that allows students to construct their own knowledge and create personal meaning, engagement occurs. When students watched a movie in class, their engagement was dependent on the task required of them while watching. If students were given a handout to fill in while watching the movie, they quickly disengaged by playing with their own personal devices. If students, on the other hand, were asked to watch the movie and consider its larger themes or to make connections to previous learning in the course, (cognitive) a marker of real world relevance, they remained engaged in watching the movie (behavioural). During a focus-group conversation, several students reflected back on a time when the class had to watch a TED Talk and answer questions on a handout; they struggled to keep up and even understand the video, because they were so focused on looking for the answer to specific questions (cognitive). David said, "I like to watch [a video] and focus on what they are saying and not have to worry about thinking about it until later." Sonia added, "it's hard to watch and listen and answer questions because you're trying to listen to answer a question and you're not paying attention to what the actual message is they're saying." This frequent observation further highlights the importance of students being active participants in their learning (Anctil, Hass, & Parkay, 2006), thereby bringing constructivism to the forefront once again. When students are given the freedom to explore their own ideas and draw their own conclusions (cognitive), they were engaged by the classroom technology. Samundar observed

that if technology is used by the teacher to create interaction within the lesson, then "it's [being] used right" so, in the end, it is not the technology that engages students. It is the outcome of the technology that engages students.

Although "emergent technologies . . . are changing us, our culture, and our schools" (Wehrli, 2009, p. 3), most teachers continue to employ traditional approaches to instruction (Palak & Walls, 2009). This research reinforces that when students are part of a classroom that combines didactic teaching and learning activities with 21st-century skills and technology, the result is a learning environment that lures the students into engagement and thus, learning. Learning, according to Duffy and Cunningham (1996), is facilitated through tools, and technology is simply one learning tool.

As educators, we must adapt our teaching methods to best implement them in the classroom. "Students have changed over the last twenty years; perhaps as a result of a technology rich upbringing. . . . We must better understand these youth to determine how to best engage them in learning" (Taylor & Parsons, 2011, p. 6). Perhaps the most effective classroom for "optimum technological benefit . . . is . . . a *mixture* of instrumental and transformative purposes" (Gibson, 2001, p. 56), what I view as a solid foundation in the creation of a more complex and dynamic learning environment.

Gibson (2001) states,

> The central issue in this debate is not whether one form of learning environment is more supportive of technology use, or whether effective use of technology is more compatible with a certain style of teaching. The issue is, and always should remain, the learner and the learning objective that is to be accomplished in a particular learning environment. This imposes upon teachers the responsibility to be aware of their students and of what

> they are trying to accomplish with their students—to reflect upon the goals they have established and the tasks they have set for learners—and to select learning strategies (and appropriate applications of technology) that best accomplish those objectives. (p. 58)

It is, therefore necessary to allow the perspectives of our most powerful stakeholders— the students—to emerge. This was the core belief that initiated this research, and it now brings us full circle.

Micro-Question 1: A Matter of Perception

What do secondary school students believe about the use of digital technology in the classroom?

This research demonstrates that when students have access to personal technology, there a paradoxical relationship between distraction and engagement emerges. On one hand, technology can be a distraction. "The allure of the online environment" can lead students to go off task and disengage from classroom learning (Oberman, 1991, p. 200). Although students themselves (4 students in this inquiry) do not believe that access to technology in the classroom is a distraction, my observations in the field contradict this. I observed that students with access to technology were often observed checking into their social-media accounts, watching videos, or playing games (behavioral). I remember a student who was playing a video game in class; when I attempted to redirect him to focus on the classroom task, he said that he couldn't stop playing until his video-game character died. Once that happened, several minutes later, he put his device away and turned to his papers on his desk. Students are often faced with the distraction of computers and cellphones "and the constant stream of stimuli they offer" (Richtel, 2010, p. Go6), leading to "'infomania,' a condition of reduced concentration and mental performance" (Rose, 2010, p. 42); there are times when they are not even aware of the distraction.

On the other hand, access to technology allows students to effectively learn by constructing knowledge so that they can meet classroom and curriculum expectations. Classroom technology generates interest, with 4 of the participants agreeing and another 3 strongly agreeing with the notion that they are more interested in the classroom learning when they are able to use technology. Technology serves as a "gateway to learning material" (Kennedy et al., 2008, p. 118). Students benefit from using the Internet to answer their questions (cognitive), look up examples of work before beginning their own work (cognitive), or expand their knowledge about a topic of interest (cognitive). When given the statement, "Access to technology helps me learn more effectively," six participants strongly agreed with the statement and 5 agreed. For example, a number of times, students used technology to explore the classroom learning in a different way. When students were given an excerpt of an essay to read in class, after a few minutes one participant began using his cell phone (behavioural). Although I assumed he was off task, since the classroom task did not require using a cell phone, I inquisitively asked what he was doing. He said, "I needed more." He thought the excerpt showed a well-written, cohesive argument, and he wanted to find the original essay on the Internet so that he could read the entire piece (cognitive). Another time, students were given a list of 51 of the most beautiful sentences as ranked by *Buzzfeed*, but the list was missing some; there weren't actually 51 sentences on the handout. For one student in the classroom, this was bothersome; she used her personal laptop to find the original article, so she could read all 51 sentences (cognitive). These anecdotes underscore the importance of checking in with students and not incorrectly making the assumption that they are disengaged because they are using their technology. This research corroborates that technology gives students control and responsibility, which emerged a review of the literature in Chapter 2. If a student had a question that needed to be answered, they could

"do it on their own" (Grandberg, 2000, para. 12). Students could use the technology to facilitate their thinking and construct knowledge (Jonassen, 1995). However, because students get distracted by the online environment, I am reminded about the importance about guiding and training them in effective use of technology (Dahlstrom, 2012), despite that fact that the students themselves do not think so.

In addition, using technology to construct knowledge was notably present among English-language learners. This research noticed that English-language learners particularly benefit from access to online dictionaries, thesauruses, and Google to help them define and understand new terms or phrases. In addition, technology was used as a tool to translate text into the language in which they are fluent; in this case, technology was a tool to access a modern-version of Shakespeare's text *Othello*. At another time, one student was asked to read a peer's paragraph and provide assessment feedback. Nyan was struggling with understanding the words her peer had written. After struggling to understand the writing enough to provide effective feedback, Nyan copied the entire piece into an online translator in order to translate it into Korean (cognitive). After reading the piece in her first language, Nyan was able to provide constructive feedback to the original author (affective/relational). She identified that some ideas were not proven effectively and one paragraph did not fit and should be moved to maintain flow. Nyan explained that she would not have been able to offer this peer assessment without translating because it would have taken her the entire class period to just read and understand her peer's paragraph. These observations reinforce Ilter's (2009) conclusion that technology motivates English language learners in reading, listening and writing. The Internet "afford[s] [English language learners] opportunities for successful use of English through technology" (Chapelle, 2003, p. 12).

The literature reviewed in Chapter 2 suggested that classroom technology opened up opportunities for communication and collaboration. In this inquiry, English language learners used online tools to become active learners (Hung, 2014). This allowed them, and students who are not English language learners, to communicate through different modes (Leu et al., 2004). Finally, technology facilitated timely and meaningful feedback both peer to peer and student to teacher (Gibbs, 2010).

Engagement theory (Kearsley & Shneiderman, 1998) believes that students are "motivated to learn due to [the] meaningful nature of the learning environment" (p. 20). Allowing students to use technology to engage in learning by constructing their own learning enables students to create meaning for their individual lives (Dewey, 1915; 1938).

This study supports the belief that when technology is used in a way that fosters independent construction of meaning, students are engaged and stay focused on classroom learning and the task at hand regardless of whether the teacher is using the technology or the students are using the technology (cognitive).

In the end, Kearlsey and Sheiderman (1998) and Dewey (1938) remind us that it does not matter who is using the technology, what matters is the outcome that the technology allows—the individual knowledge that is constructed through the tool of technology.

Micro-Question Question 2: A Matter of Availability

How do secondary school students engage with digital technologies available to them in the classroom?

When students are given the choice, they overwhelmingly choose technology. When, however, students encounter a barrier trying to complete a classroom task using technology, they elect more traditional methods of fulfilling the classroom expectations. Struggles due to software

applications, slow Internet connectivity, or lack of familiarity with a website often lead students to set aside their original choice to use technology, and they instead choose to complete the task without technology. They employ a paper-and-pen method involving drawing, writing, or creating. Samundar, for example, wanted to use an online program called Pixton but he "couldn't really get a hold of how to use it." He said, "What I had in my head wouldn't end up being on screen. That's why I ended up drawing it (cognitive)." Violet echoed this sentiment. She said, "I was going to use Pixton but what I was kind of thinking in my head wasn't really coming out. I couldn't find what I wanted. It was easier to draw out what I was thinking (cognitive)."

Some students articulated that while technology was useful, writing was a better tool (behavioural). Violet "prefer[s] to type" her notes, but at the same time she knows that it is "easier to remember things, if [she] write[s] them down (cognitive)." Skan likes using computers to get his work done faster but he knows that he should "always write [his work] out because when [he's] writing, [he can] start to come up with more and more ideas (cognitive)." Then, "later on, [he] can type it out." These participants both highlight that while they may be enticed to use the technology made available to them (behavioural), it may not be the best learning tool for them.

When students were required to independently complete a challenging task that required critical thinking, they would often "choos[e] to text or visit Facebook and Instagram" (Field note, February 13, 2017). This detachment from the classroom task would often result in many students falling behind or "just complet[ing] the task to get it done"; the result was that the final product demonstrated a lack of depth, critical thinking, or analytical thinking (cognitive) (Field note, February 8, 2017). The work completed by students who took on the challenge to persevere would often show "analytical depth" (cognitive) (Field note, February 8, 2017). When I

approached the students who opted to engage with their devices, they would often admit they were struggling. I wondered if this was an indicator of a student struggling with a task (cognitive), seeing others around them working through the task and then feeling alienated because they were struggling (relational) and then choosing to play with their phone, rather than work on the assigned task (behavioural). When I would encourage them to disconnect from their devices and work with a partner or in a small group during a challenging task that required critical thinking, they would often "persever[e] through the task" to attain completion success (Field note, April 4, 2017). Despite the struggle with the critical thinking task, students [would] remain engaged and persever[e] to try. . . . They talked with each other and asked for help. I didn't see any student give up and turn to their technology" (Field note, May 2, 2017).

My observation highlights the importance of talk in our daily lives, as described long ago by Aldous Huxley (1958):

> Language permits its users to pay attention to things, persons, and events, even when the things and persons are absent and the events are not taking place. Language gives definition to our memories and by translating experiences into symbols, converts the immediacy of craving or abhorrence, or hatred or love, into fixed principles of feeling and conduct. (p. 168)

Language, in other words, is how we think, process information, and remember, and there are times when technology renders students isolated and disconnected, without the relational dimension of student engagement. Talk is relational and the foundation of how we learn and construct meaning. Vygotsky (1962) suggested that thinking develops through phases, moving from imagining, to inner speech, to inner speaking, to speech. Tracing this idea backwards, talking is the representation of thinking. As such, it is reasonable to suggest that students are able

to persevere through a challenging task when given the opportunity to talk and work with others. In other words, it is essential for students to talk with one another in purposeful ways (Fisher, Frey, & Rothenberg, 2008). Opportunities for dialogue are needed to learn (Cazden, 1988), and while we consider technology in the classroom, we must conceive of ways to use technology that foster opportunities to communicate, to collaborate, and to relate to one another in creative and purposeful ways (Kearsley & Schneiderman, 1998). This would allow students to hear different perspectives and to connect with the global world.

Those who advocate for using less technology in the classroom or even eradicating the use of technology in the classroom believe that it increases the cognitive load of students (Moreno, 2013). Students are constantly interrupted by their personal technology and it "chip[s] away [their] capacity for concentration and contemplation" (Carr, 2008, p. 57). The outcome is that students are only paying partial attention to their surroundings (Stone, 2005), rather than immersing themselves in their learning. Stone's (2005) notion of partial attention was observed when students were asked to transition from a task that allowed them to use their personal device to a task that did not require technology. It was almost as if disconnecting was not a choice; students literally could not resist the lure of their technology (behavioural). One time, when students were required to move from a cell-phone task to a pen-and-paper task, I attempted to redirect a student who was playing a video game, and he said, "I can't stop until I die" (Field note, February 7, 2017). I wondered, "Perhaps when their brains are activated with technology, it's difficult to put it down" (Field note, February 7, 2017).

The data from this research also affirms that students do get distracted by digital technology and, the result is, they lose focus (cognitive). Moreover, they not only lose focus, but they struggle to avoid the lure of their technology and they have great difficulty refocusing to

re-engage in their learning. In the end, it seems that students will instinctually choose to use the classroom technology, if given the opportunity, even when it may not be the best choice for them. Therefore, technology is not a panacea to education, but it can enhance students' learning experiences, provided that there is still face-to-face contact with the teacher (Saunders & Gale, 2011). It is the teacher who can help support students in learning when to use technology and when to put it aside and pursue classroom learning activities that include writing with pen and paper, talking with peers, reflecting on the knowledge that has been acquired, or using a combination of all of these. As discussed in Chapter 2, technology is a tool to use to prepare students for the future (Dagget, 2010). It also allows students to control their learning but the teacher does, at times, need to assist students about taking responsibility with what they will learn and when they will learn it (Dror, 2008). It is in these instances when the teacher needs to take a didactic approach to teaching. Students sometimes struggle with making the right decisions when it comes to when and how to use technology. The teacher's gentle prompting and suggestions for what the student should do next in the learning process can help students learn the responsible use of technology. It allows the teacher to act as a "guide on the side" (King, 1993, p. 30).

This brings us back to the critical role of the teacher in any classroom, but particularly one that embraces technology in the learning process. Dewey's (1897, 1915) did not believe in simply allowing students to do whatever they wanted, but rather advocated for the teacher to use professional judgment to shape this process. Further, he felt that a child's education would be lacking without the teacher shaping the educational environment so there is an emphasis on learning and on the needs of the student. Students, therefore, benefit from gentle encouragement

and redirection to help them make the best decisions for their own learning and this is most definitely true in a technology-infused classroom.

Where Do We Go From Here?

This research may have concluded, but it does not mean the end of the journey. A journey begins with one step and this research represents a step. There are other directions to move forward with respect to classroom practice and future research.

Implications for Classroom Practice

Schools, classrooms, and districts are moving towards implementing instructional technologies (Alliance for Excellent Education, 2013). Computer technology is one of the most important resources available in the 21st century (Okwumabua, Walker, Hu, & Watson, 2010); if, therefore, we are going to use it as part of the classroom experience, we need to have a better understanding of how it can be effectively used to engage students. This inquiry offers the following implications for classroom practice, all of which are contextualized within existing literature:

Invite students to share their thoughts and ideas about how technology engages and disengages them. This research took an ethnographic stance to develop a greater awareness of patterns and practices within classrooms (Frank, 1999), stemming from Leonard's (1994) belief that, "To understand a person's behavior or expressions one has to study the person in context: (p. 51).

This research presents a greater awareness of the complexities of engaging students with digital technology and demonstrates that there are different paths to engagement when using digital technology in a classroom setting. Newmann, Whelage, and Lamborn (1992) believe that,

> Learning can be hard work, but to sustain engagement, the tasks should also provide opportunities for lighthearted interaction, for play-like and imaginative activity. Fun reduces the distress of intense pressure to succeed and the boredom of unchallenging, but perhaps necessary, routines. (p. 27–28)

"Figuring out what motivates and engages individual students is essential" (Toshalis & Nakkula, 2012, p. 29), and including the voice of the learner should be part of the process of curriculum design and implementation (Jagersma & Parsons, 2011). Milner (2010) believes that educational technology may provide solutions to gaps in achievement as a result of students disengaging from classroom learning; however, the notion of how digital technology is used in the classroom to engage students may be worth revisiting.

Recognize the role of the teacher in student engagement with technology. Students engage with classroom technology when it allows them "to create meaning [and] make connections" (Singer, 2014, p. 173). Teachers play a major role in how successful the use of technology will be in the classroom (Yildirim & Kiraz, 1999). This research confirms that we need to move from "didactic to constructivist pedagogy," if we want to engage our learners (Taylor & Parsons, 2011, p. 18), which returns us to Dewey's (1915, 1938) theory of education. Dewey saw the teacher as significant to promoting interest in students. He believed that students must be engaged with activities that have meaning for their individual lives. When students are allowed to create their own meaning with technology, they are engaged. Thus, if we want to increase student engagement, we need to invest time, money, and technology resources in educators, because they have the greatest impact on students (Fabry & Higgs, 1997).

Recognize the link between pedagogical beliefs and the use of technology in the classroom. Many teachers use technology to design instructional materials or deliver lessons, but

do not effectively integrate technology into teaching and learning (Gorder, 2008). Specifically, Skutil, Maněnová, and Čermáková (2013), found that when most teachers use technology, it "plays a fundamental didactic function," because teachers use "technology to extend visual perceptions" in an effort to make the lesson have an "aesthetic sense" (p. 286).

Teachers often integrate technology by adding it into what they are already doing, rather than changing their practice (Cuban, 2001; Means, Roschelle, Penuel, Sabelli, & Haertel, 2004). Technology use should be defined by the activity technology enables, and not the actual technology itself (Oblinger, 2004). A technological tool needs to be guided by sound pedagogy and not used as technology for technology's sake (Bull & Bell, 2008). My research supports the notion suggesting that technology used by the teacher should result in "individualized learning experiences or differentiated learning" (Maddux, LaMont Johnson, 2005, p. 54). This observation validates the constructivist learning theory that students should be active participants in their own learning and that they should be able to construct knowledge (Anctil et al., 2006).

Use technology in ways that allow students to construct their own knowledge. When the teacher uses technology, it should be as part of the process of "knowledge creation rather than the mere consumption of instructor-supplied information" (Lambropoulos, 2009, p. 9). As such, rather than using technology to adopt a didactic approach to teaching, technology should be brought into the teaching process only when its use allows students the freedom to construct their own knowledge. Didactic teaching interwoven with technology use that allows for construction of knowledge and collaboration with others engages students.

In addition, Hembrooke and Gay (2003) found that students who use their laptops to browse the Internet or communicate with others during a lecture recall significantly less than those students who keep their laptops closed. When the teacher is actively teaching, students

should keep their personal devices away, negotiating procedures, policies, and consequences for acceptable use with students.

Find a healthy balance of technology use that supports, but does not detract from, student learning and engagement. "Constant connectivity has undeniable advantages," but it also results in "continual distraction" as a result, we need to develop ways to help learners control and redirect their attention, and we need to give "very serious thought to finding ways to use the technology to minimize distraction and support people in developing their own strategies for finding focus" (Rose, 2010, p. 45). As well, we need to give students opportunities to pause "to reflect, focus, think a problem through" and then give them the opportunity to take "steady steps forward in an intentional direction" (Maxwell, 2002, n.p.). In sum, rather than "decid[ing] *for* our students; we must decide *with* them" (Prensky, 2001, p. 3)

Teach effective and productive use of technology. Reading and writing have traditionally been the benchmark of literacy but, to Selber (2004), literacy includes the ability to use today's technologies. Internet literacy involves integrating reading and writing with technology, navigating through information sources, discriminating between important and unimportant information, and responding to email (El-Hindi, 1998). With this broadened definition of literacy, we need to teach students how to use the Internet effectively and how to manage its use. Teachers need to offer structured and directed learning situations to develop functional Internet-literacy skills (Johnson, 2007). These situations should emerge from an understanding of what students want and need. This can be discovered by listening in to what they have to say. Students need support to become strategic learners who are able to access information when it is needed and process the information to construct knowledge (Weinstein, 1994).

Find a balance between the use of technology and tasks that do not use technology. Technology is not a one-size-fits all purpose tool. Different students require different tools. When technology is offered, students often choose to use it, but there are times that its use detracts from the learning situations, pulling students off-task, for example, during the creative brainstorming stage of a task. When students access technology during the brainstorming and planning stage, they are more likely to get distracted by the technology and detach with the task they are supposed to be working on. This conclusion is contrary to the notion to that technology is the "pen and paper of our time" (Warlick, 2006, para. 4). Spring's (2010) research study with post-secondary students enrolled in class that took place in a computer lab, derived from class observations, field notes, questionnaire data, and analysis of student writing samples led her to conclude that technology actually inhibits creativity.

Recognize that technology supports behavioural, cognitive, and affective/relational engagement. "Despite the type of technologies available to improve student learning, technology is merely a tool to accomplish such goals" (McDowell, 2013, p. 15). If students believe that they need access to technology, the classroom teacher should be diligent in ensuring that the technology is being used appropriately, in a way that supports the student's learning. We need to understand fully the behavioural, cognitive, and affective/relational dimensions of student engagement with technology to fully understand how technology can be a tool to support engagement.

Explore a different model of learning. People learn in a variety of different ways, so the challenge for teachers is to discover what works to help students learn most effectively. Research suggests that some forms of pedagogy are more successful than others because they support deeper learning through personalized learning strategies, collaborative learning, and

informal learning (Leadbeater, 2005; Redecker & Punie, 2013). "When students are engaged in actively processing information by reconstructing . . . information in such new and personally meaningful ways, [students] are far more likely to remember" the learning (King, 1993, p. 30). Ultimately, participatory learning results in the co-creation of knowledge and this experiential learning fosters *understanding*. "Effective twenty-first century teachers cultivate learners' individual sense of wonder and inspire them to explore different applications for the knowledge and skills they have learned" (Scott, 2015, p. 4). We need to foster a model of learning that allows students to engage in experiences to help them explore and apply their learning. Only then can we truly foster understanding, which is the crux of learning.

Recommendations for Future Research

This research provided a snapshot of the experience of a particular group of students in one class in one school. A similar ethnography in a different school with different students and a different teacher would help to broaden our understanding of how technology engages students. This would begin to help us answer a more in-depth question: *What is the best way to use technology to engage students in a secondary classroom?*

The school in which this research was conducted is a fairly new school where each classroom is equipped with a whiteboard and projector that the teacher can connect with her or his computer. There are numerous class sets of Chromebooks for teachers to sign out so that students can use the technology. The result is that as you enter the school, you get the sense that technology use is promoted and advocated. It would be interesting to engage in a similar ethnography in a school that is not equipped with so much technology. *If students and teachers use technology less often, would the technology heighten their engagement?* On the other hand, there are schools whose pedagogy is self-directed, online learning. *If students and teachers use*

technology as the main forum of teaching and learning, what impact does technology have on student engagement? It would be interesting for future research to explore some of these questions.

Future inquiries could be designed to observe students over a longer period of time, perhaps over years. Following students over the course of their secondary-school experience—from entering to graduating—would allow a researcher to see how student engagement with technology potentially changes over time as students mature, develop, and grow. As students enhance their digital footprint, become more involved in a global community, and become more adept at using technology, it would be interesting to observe their patterns of access and engagement.

Complexities of Qualitative Research

Any type of research with human participants is complex. The complexities of this inquiry were also its greatest strengths of this inquiry.

Because students decided whether or not to participate, the number of participants could not be fully controlled. The students who did consent, however, engaged in open and purposeful conversation for the purposes of inquiry or for work they were completing in the classroom or decisions they were making. For example, Jennifer, pre-empting my question about her graphic-novel assignment, asked, "I'm going to draw my novel. What do you think about that?" Participants in this research shared their perceptions and viewpoints, advocating for their own education, affording them a meaningful voice in the classroom, which is a necessary step toward empowering them in their own education (Prensky, 2005).

Classroom ethnography methodology is emergent and reflects the needs of the participants, the other students, the teacher, and the school. This was a real classroom in a real

school, so interruptions due to assemblies or field trips, adolescent pressures stemming from relationship woes, part-time jobs, personal mental health, and individual academic skills all impacted the teacher's plans and interventions. This makes it challenging to replicate in other research sites and even more difficult to draw precise conclusions or generalizations.

Revisiting My Original Stance

I began this journey because I wanted to learn, improve, and change. I wanted to become a better educator. The information I have gained through this research will allow me to fulfill my primary goal. But I am now positioned to explore a new question that has surfaced: What is the purpose of education? As I browsed the Internet and got lost in white space, I stumbled upon some interesting views of the purpose of education. Dewey (1934) said that "the purpose of education has always been . . . to give the young the things they need" (p. 12). Martin Luther King Junior (1948) believed that "the function of education . . . is to teach one to think intensively and to think critically" (para. 3). Margaret Ammons (1964) thought that the purpose of education was for schools to teach students "to learn independently" and "to enjoy learning" so that we can work to "produc[e] a *learning* society" (p. 15). Bearing these views in mind, I have come to the realization that the best way for me to become a better teacher is to change my stance, experience the classroom from multiple points of view, and remember that I am always a learner.

> Students will see classrooms one way, teachers another, and ethnographers a third way. In juxtaposing these views, we come to see what is real from a variety of perspectives. To understand that there is never a completely objective account is to realize multiple perspectives. (Frank, 1999, p. 4)

By seeing things from these multiple perspectives, I will be able to "encompass all the dimensions of human experience" so that all the individuals in the classroom are constructing knowledge and meaning together, thereby engaging everyone (Foshay, 1991, p. 277).

Concluding Remarks

When I first entered the classroom that I would make my home for the next several months, I was scared and nervous. I wondered if students would talk to me or if they would always consider me to be an outsider—a stranger. I remember telling myself to "Relax. Breathe. Students sense fear and if I want them to open up to [me], I cannot fear them" (Field note, February 6, 2017). Over the course of the semester, I connected with the students and became someone who belonged there. I was no longer a stranger. On my last day in the field,

> many students had been asking to see what my dissertation looked like so far so since this was my last day of data collection, I printed what my dissertation looks like at this stage and brought it in for students to look at. Many students grabbed it and flipped through it and then had a number of questions so, during today's class, I spent much of my time answering questions about my PhD journey and talking about post-secondary, in general. As such, today's data collection was a little sparse, but I made the decision to engage in conversation with students rather than take observation notes. Part of respecting participants is to engage with them and to be responsive so if my participants wanted to just chat with me, I thought it was the right decision to engage in this manner with them. (Field note, June 5, 2017)

I look back at these opposing moments in the field and I have come to the conclusion that technology is *only* a tool to engage; it is not *the* way to engage. Knowing who your learners are, knowing what tools engage them, and then differentiating your instruction for them is the best

way to engage students in today's classroom. Each student is individually different; therefore, it is absurd to believe that each student can always be engaged by using technology.

Eliya,

Skan,

Emily,

Sonia,

Amanda,

Irene,

David,

Panda,

Jennifer,

Samundar,

Nasir,

Charlotte,

Violet,

Nyan, and

John.

Their presence was as learners, but they were my teachers. Their perspectives will forever remind me about the importance of listening to students. If we want to engage students, we should ask the students themselves what engages them. Several researchers believe that the most important skill to foster in today's 21st-century learners is the ability to effectively communicate and collaborate (International Society for Technology in Education, 2007; Jerald, 2009; North Central Regional Educational Laboratory & Metiri Group, 2003; Organization for Economic Co-

operation and Development, 2005; Zhao, 2009). What better way to foster these skills in today's learners than to model it ourselves, as educators, as collaborators, as co-learners? So, let's talk, observe, listen to, and reflect, all in an effort to engage.

Chapter 7 captures my full experiences as ethnographer and leaves me with many lessons to teach by as I continue to work with the current and next generations of learners.

Chapter 7

My Experience as Ethnographer

> *Today was a day for reflection. Many students talked to me about different things that happened in the semester and it led me to laugh with them and reminisce with them. It brought up fond memories of previous students I've taught. It also made me critically examine my own teaching style. I was forced to look back at lessons that I've proudly taught, believing they're cutting edge and engaging only to now realize that there's maybe a better way to do it. This reflection has changed the lens from which I view myself as a teacher. (Field note, June 5, 2017)*

While functioning as a participant observer, I often found myself thinking about my own classroom practices. I would witness the classroom teacher introduce a concept that I have taught a number of times, and I would wonder if her way or my way was better. I would hear a snippet of conversation between two students, and it would take me back to a long-ago conversation I had with my own students. The exploration of observations, as recorded in my field notes, intertwined into my own personal exploration of what I wish I had known to create a list of lessons to teach by. Presented in a creative way, the data may appear "as a jumble of field observations" (Wolf, 1992, p. 9), as ethnography typically displays the researcher's point of view. In this chapter, you will hear my voice both as participant observer and ethnographer. These multiple perspectives are woven together to create scenes that authentically replicate what it looked like, felt like, and sounded like to be in the field. Through these scenes, lessons to teach by emerge, and it is these lessons that allow me to fulfill my primary goal through this research: to learn, improve, and change to become a better educator.

Lessons To Teach By

Like many teachers, receiving the teaching timetable for September brings a multitude of feelings. It marks the end of carefree summer days because it is time to start planning for your new courses, new students, and new lesson plans. For many, it is a time that brings a sigh of sadness because it is time to get back to work again. For me, my new timetable fills me with excitement for a new beginning. It is a chance for me to take all that I have learned and observed in the field and apply it to my teaching practice.

This entire journey began with me wanting to understand how to better engage my students and now, with all that I have learned, it is time for me to apply it in an effort to further engage my students. There are a few poignant ideas that I need to remember when September comes around. I call these lessons to teach by. While they arose during my research of student engagement with technology however, these lessons do not centre solely on technology. Researchable moments are serendipitous (Cole & Knowles, 2001), and, as a result, lessons that emerged from the research were "happenstance" (Cole & Knowles, 2001, p. 78). The lessons I learned were often more about student engagement and less about using technology as the tool to engage. The examples and discussions of these lessons are provided in the following 14 scenes.

Scene 1: Recognize That Students Are More Than a Number

"Lady Gaga music [played] in the speakers to start the morning off. [The classroom teacher] was singing along" (Field note, February 6, 2017). Students walked into class and their reactions ranged from confusion, surprise, and shock to excitement, joy, and anticipation. I even caught myself bobbing my head and singing along to the lyrics that, upon reflection, may be an odd choice of music to play for high-school students:

Don't call my name

Don’t call my name, Alejandro

I’m not your babe

I’m not your babe, Fernando.

Don’t wanna kiss, don’t wanna touch

Just smoke my cigarette and hush

Don’t call my name

Don’t call my name, Roberto

Alejandro

Alejandro (Lady Gaga, “Alejandro,” 2009)

As the music stopped, it was time to transition to an icebreaker activity. A large school means many students don’t know each other, so this was opportunity for students to get to know their classmates. For me, it was an opportunity to get to know the students. The teacher gave instructions and the students engaged in the task. My first reaction was to emphasize the observer in my role as participant observer, but as students played, laughed, and engaged, I was drawn in. I played, too and I became a participant. I kept trying to make observations to write in my field notes later, but it was difficult because I wanted to remain engaged in the activity. At the end of the activity, I sat down, took out my notebook, and wrote, “activity had us all moving around, engaging with each other, laughing, and maintaining focus” (Field note, February 6, 2017). This is a thread that I saw, felt, and experienced while in the field for the entire semester. Students enjoyed participating in activities, and whenever they were given the opportunity to talk and move around, they ignored their personal devices and engaged in the assigned task. Even I could not resist the allure of a task that invited socialization.

Scene 2: Make Them Think, Invite Connection

Oh no. I forgot my coffee in my car. Did I have time to run back and grab it before class starts? Looking at the clock, I realized that I didn't have time. Ugh. I would just have to push through without the caffeine boost. Class began and we went through routine procedures. Students had a paragraph due, which the teacher had them submit via Google Classroom. Afterwards, the teacher gave a lesson using a Google slideshow. My eyes became watery and I kept yawning; my body was really missing the coffee that had long gone cold sitting in my car. I thought to myself, "I wonder if I can run down to the cafeteria to purchase a coffee." As soon as this thought fluttered into my mind, I was drawn back into the moment by the sound of the teacher saying, "We are going to go out into the hall to do an activity. This activity may make you feel uncomfortable, so if you choose not to participate, you do not have to" (Field note, February 28, 2107).

I was personally curious and interested by the prospect of this potentially controversial activity, but I was more focused on looking at the students through the lens of an observer. Immediately, students seemed interested. We moved into the hallway. The teacher explained that everyone would start at the end of the hallway in a line and as she read a variety of statements, students would step forward or backwards depending on the statement. Since the hallway was so narrow, I had a choice to make: stand with the teacher or stand with the students. I stood with the students. "Take a step forward if you live in a home that has a front door, a roof and a kitchen with a refrigerator." All the students took a step forward. "Take a step forward if both your parents have a job." Some students stepped forward while others stayed where they were. "Take a step forward if the colour of Bandaids match your skin colour." A few students stepped forward, while most stayed where they were. As the activity progressed, the line of similarity

that the class stood in at the beginning had become jagged. Students were scattered throughout the hallway with some students halfway down the hallway and other students still close to the beginning of the line. In fact, I stood in my position and realized that I had only taken three steps from the start. In that moment, I felt proud. I came to the realization that despite the seeming racial, social, and economical privileges that I did not have growing up, I still had attained what I considered to be educational, social, and economic success. I wondered how other students were feeling as the teacher gave us a moment to look at our place in the hallway and take a moment to reflect. While I was intrigued, and wanted to talk to students, I realized that it was a highly personal activity and I didn't want to make anyone feel uncomfortable. I do remember, however, the pride I felt when a student whispered to me, "And look at you now Mrs. Sharma. You're about to be a doctor."

This story has stuck with me. I vividly recall the day. I remember what I was wearing, where exactly I stood in the hallway, what I was feeling, and what I was thinking. Why, I wonder now. Perhaps it has to do with the fact that every participant was fully engaged. Not one of us exercised the option to not participate, and "no student was seen on their cell phone" (Field note, February 28, 2017). Perhaps it has to do with the fact that I was so alert and engaged. The glassy eyes and perpetual yawns to which I had succumbed to earlier in the class had been replaced by genuine engagement. The chance to move around awakened me and allowed me to reflect and think at a time when my mind was disengaging. After the activity though, I was awake—wide awake and had forgotten about my coffee sitting coldly in my car.

Scene 3: Allow for Comfortable and Legitimate Movement

Read-an-essay. Three words. These three words, said by the teacher, generated a resounding sigh of grief from the students, but they settled in to read the short essay. Once they

were finished reading, they needed to form a group and create a mind map to represent the main ideas of the essay. They chose to work on lined paper, chart paper, or whiteboard. Coloured markers and pencil crayons were offered. Multiple spaces were encouraged. Thought maps (and students!) were scattered in various places in and out of the classroom: in the hallways, on the floors, and on the walls. During this time of collaborative thinking, students wandered from their group to other groups to talk, and socialize, but ultimately returned to their own group to work on the task. "Students liked being able to stand at the whiteboard, [and] move into the hallway" (Field note, April 5, 2017). Like the students, I wandered to see the ideas that were being generated and articulated by students. I grabbed markers to colour in images that students had drawn on their mind maps. I laughed at snippets of conversation I overheard. The maps were as diverse as each group: some were artistically beautiful, making use of colour to demonstrate relationships between ideas; some had intricate doodles; and others used images to symbolically represent thoughts. "The dreaded task of reading an essay [concluded] with beautiful pieces of analytical art (Field note, April 5, 2017). I questioned whether it was the freedom to move that allowed students to be more creative and critical; was it movement that provoked a higher level of engagement? What it that simple? And I then I recalled the fears faced each time I allowed myself the freedom to move away from didactic teaching: Will they be too noisy and disrupt other classes adjoining the hallway? Will they leave without telling me where they're going? Will they even get the task done without my constant supervision? Did I opt for individual paper and pen, desk, or listening style activities because they were easier to control and because there was a concrete paper for each student to turn in at the end of the period? What is this type of activity that disengaged students and had them turn to their technology?

I could hear Sonia, who told me that students "will always pick interacting with people rather than using [their] phone". And I heard David who reminded me that humans "want to be interactive and do things with their friends" and that giving students the opportunity to do this in a constructed and intentional way will engage them in the classroom environment.

What I realized and took away is that while physical opportunity to move is important, it is greater than that. It is about moving along our comfort zones and co-constructing knowledge with others who can push us to learn just a little bit more in a group than we might be able to handle on our own (Dewey, 1915, 1938)

Scene 4: Build Anticipation, Grow Interest

"Finally! The weather is so beautifully warm, after a wet weekend. Yesterday's delightful conversations were amazing" (Field note, May 16, 2017); these were the thoughts as I left home that morning. I recalled yesterday's initial conversations as students met with others who had selected the same text and had "a chance to talk about their initial reaction to the book and to clarify any confusion" (Field note, May 15, 2017). I recalled how they joyfully talked about their books. I remembered trying to remain a passive observer, and how I just could not help myself. I had read many of the same books and, as such, I frequently found myself participating in their conversations. Sonia declared that "Jeanette's parents are terrible parents," to which I responded by gently encouraging her to keep an open mind as a reader and recognize the privilege and freedom Jeanette had to explore to learn what she wants. Emily was "shocked at Amir's behaviour towards Hassan." I encouraged her to keep reading to see what happened next; this led to a conversation about how much we love the character of Hassan.

My mind wandered and I realized how much I missed having these conversations about literature with my students; I was eager to get to class, to see what came next. As a result, I

found myself driving too quickly to get to my field school quickly, and, I was pulled over by a police officer for speeding. The excitement quickly dissipated with this turn of events, and I was less enthusiastic on the remainder of my journey. “When class started, the teacher said ‘Today we are going to watch a movie’ and immediately students’ attention was captured. They put their phones away, asked ‘What movie?’ and moved their chairs to where they could easily see the screen” (Field note, May 16, 2017). Feeling much like a student, I, too, was curious about the movie we were going to watch; at the same time, I was saddened because I anticipated an entire class period with limited student interaction. I wondered if the students shared the same concern, and a little frustration about my morning rush started to settle in. “Once everyone’s attention was captured, they teacher mentioned that they would first start with a note [and lesson] on motifs” (Field note, May 16, 2017). My bubble burst, and my anticipation immediately deflated. Once I had gotten over the initial disappointment of limited interaction, I had allowed some intrigue and excitement about the movie to settle in. And now, I thought, “Ugh, we have to do a lesson.” It’s as if getting pulled over for speeding was an omen of the dark cloud that would taint today’s class. Looking back at this recollection, it’s funny how adolescent my thoughts and behaviours were. As it turned out, we did watch a movie . . . a sixty-second video that explained what a motif is. We “watched the brief video and laughed along, since it was slightly silly” (Field note, May 16, 2017). I found myself giggling a number of times and literally bursting out in jolly laughter at one point. This introduction set the tone for the lesson, and I thought to myself, “Maybe this won’t be so bad.” The teacher projected a slideshow and the first slide had a formal, dictionary definition of *motif*. Students began writing and copying it down, and I immediately judged that this *was* going to be *that* bad. As the slideshow progressed, however, “there was a lot of opportunity for students to think, discuss, and share their ideas because the teacher kept asking

questions to check for understanding" (Field note, May 16, 2017). The teacher was explaining and providing concrete examples from well-known movies and previous books the students had read. For example, she talked about the motif of isolation in *Of Mice and Men* and the motif of blood in *Macbeth.* These examples got me thinking about other books I had read and movies I had seen, and I revisited these pieces to look for motifs. I had just watched *Gnomeo and Juliet* with my daughter over the weekend and realized that the garden was a strong motif. I wondered if students were understanding the abstract concept; by eavesdropping on their conversations, I confirmed that they did, as evidenced by comments such as "It's like the motif of the colour blue in *Breaking Bad"* and "The show *13 Reasons Why* has a motif of secrets." This lead to a lengthy conversation about the new must-see series *13 Reasons Why.* The teacher finally interrupted and said, "Okay friends. Let's refocus." I remember thinking, "Note to self . . . watch *13 Reasons Why.*"

My morning anticipation almost did me in. I almost prejudged to the extent that I missed the lesson. My overwhelming desire to engage in conversations about the books students were reading lead to overwhelming disappointment when I realized that we weren't going to have those conversations. Luckily, I was able to refocus and bounce back, because if I hadn't, I would have missed the lesson, and I wouldn't have known that I was missing out on a must-see series on Netflix.

Looking at my highs and lows from this day, I wonder if, after experiencing anticipation followed by disappointment, students can recover enough to focus on the lesson. It's a strong reminder to me that personal feelings can weigh heavily on how students receive classroom content. A number of times I've had students literally miss an entire lesson, although they were

present in the class. I've often wondered, "What is wrong with them? Why don't they listen?" yet I understand that personal highs and lows impact that way we hear.

Scene 5: Step Away From the Slideshow

Today's lesson focused on different layout options for a graphic novel. The teacher transitioned to the next slide on her Google slideshow "in an attempt to move on in the lesson, but students protested because they had not finished copying all the information down that they needed to" (Field note, May 23, 2017). One student pleaded, "Slow down," while another hollered, "I wasn't done yet." I even saw one student dramatically throw his pen down in exasperation, saying, "There's no point in even trying."

The teacher's forehead wrinkled, and she stood up. She chose to move away from her chair and walk around and explain the concepts to the students. The lesson became more a conversation than a lecture, and students began to "no[d] to show understanding" (Field note, May 23, 2017). When the teacher stepped away from her slideshow and wandered the room, student engagement intensified. Students were less concerned with trying to write it all down; they looked away from their papers and looked up to watch the teacher. Some sat up straighter, some demonstrated a relaxed confidence. Pencils dropped down, audible sighs of relief could he heard. One student rubbed her wrist, relieving her writer's cramp. The teacher's voice became more enthusiastic and animated; she came to life. I looked around. I was intrigued. It seemed that her movement and voice engaged the students more than her use of technology. I was interested. I wanted to hear the teacher's unscripted talk because about her favourite superhero and her husband's favourite. When she asked if anyone has seen the new *Lego Batman*, students joined the conversation, referring to their favourite parts of the movie. Those students who had not yet

seen the movie plugged their ears to avoid the plot. The following weekend, I sat down with my daughter to watch . . . wait for it . . . the movie *Lego Batman*.

Reflecting back on this moment made me smile because it reminded me of all the times that my well-planned lessons and slideshows were not met with a receptive, engaged audience. The next time I encounter the wrath of students' despair, I need to take a deep breath and literally walk away from the script. Sometimes, the best lessons are those that are casual, conversational, and unscripted.

Scene 6: Recognize That It Is Alright to Be Vulnerable

Today, we learned about privilege; we were asked to consider how race, gender, class, culture, and ability put us in a position of societal privilege. The teacher explained, "this activity may make you feel uncomfortable. My goal is not to do that. No one will read what you write and you don't have to share anything if you don't want to." As the activity began, we wrote slowly. We seemed to hesitate to put our pens to the paper and some just looked around the room, hardly writing anything down. As time progressed, more students engaged in the quick write; the pages were so full that students were writing in the margins of the paper. The teacher then asked if anyone wanted to share his or her ideas. "No one volunteered. The teacher [then] asked me to share my story about crossing the border in 2012" (Field note, February 28, 2017). All eyes were on me and as I read; "you could hear shocked gasps come from some students" (Field note, February 28, 2017). I felt exposed and nervous sharing and reliving my story. It was a traumatic experience for me and I felt slightly traumatized again by sharing it with these students. My voice quivered, and my mouth was dry. The story itself is not important. What is important is that my risk of vulnerability prompted three others to share their stories. No technology was used today; not by the teacher and not by the students. We willingly set aside the

privilege of technology in favour of what might be considered more traditional: a discussion, a quick write, and sharing.

I realize that there is a notion of the classroom as "obsolete and that many view it as a time for something new"; I however, believe that didactic teaching has a place in today's classroom (Nair, 2011, p. 29). There are times, while learning new skills or concepts, when we benefit from lecture discussion, design activities, and note taking.

Scene 7: Don't Give Away Too Much

Today, the teacher gave a lesson to explain to us why we continue to read the novella *Of Mice and Men*. Not only did I feel that I already knew this information, but I had already previewed the slideshow on Google Classroom and the slides were comprehensively packed with information. This was a prime moment for me to check my phone for any missed messages, look around the room to observe the students, and open a new window on my computer to explore the Internet. Midway through the lesson, the teacher asked, "What do you think Mrs. Sharma?" I froze. I didn't know how to answer the question. I had no idea where my mind had gone, but I had definitely tuned out of the lesson. I didn't have any idea how to answer the teacher's question, and I didn't know how to cover it up so the students wouldn't become aware of my predicament. Beads of sweat accumulated above my lip, and my eyes darted around the room searching for someone to help me. I literally felt sick to my stomach. I was so embarrassed. I felt my cheeks grow hot when I had to confess, "I'm sorry. I was noting something down in my notes so I missed the question." I knew that I was lying, but I was relieved that I sounded believable. Again, I found myself acting and thinking like an adolescent. After the teacher backtracked a bit, I was able to answer her question and contribute to the classroom learning. Through my re-engagement in the classroom learning, I actually learned some new things. I had not known that

the character Lennie was actually a real person, and I had not known about the numerous pop culture references to the novella. It was interesting to know that even *Looney Tunes* has made several references to *Of Mice and Men*. At the outset of the lesson, I thought I knew it all and I acted accordingly, but as the lesson progressed, it was obvious that there was still more to learn. I needed to keep an open mind.

David's and Irene's advice surfaced in my mind. They said that slideshows should act as a visual for students and a memory cue for teachers. For optimal engagement in class, the slides should not have text. They suggested that teachers talk, explain, and make notations on the whiteboard, next to each slide as it is projected. I could hear Charlotte as she supported this approach, keenly aware that some students learn from visuals and some from reading. I realized how incredibly perceptive this type of thinking really was. Perhaps if the slideshow I'd previewed last night had only displayed images, I would have come in to class with a different perspective. I would not have rested comfortably with knowing it all. I might have had expectations, but chances are I would have walked into the classroom ready to pay attention and listen.

Scene 8: Allow Students to Talk With Purpose

Students were working on their essays, and many of them "immediately grabbed a Chromebook, although they had yet to have a thesis approved" (Field note, April 11, 2017). They were listening to music or literally staring at a blank Google Doc screen.

I was curious. "Why would anyone stare at a blank, white screen?" I wandered, trying to support students, and spotted a student on a social-media site. I asked what she was doing on Facebook, and she responded, "'I'm looking at my posts to come up with an idea for my narrative essay.' She giggled a little bit . . . and turned her cell phone over" to not get distracted again (Field note,

Aril 10, 2017). I smiled, knowing that this playful banter demonstrated the kind of relationship I had built with her. These playful interactions made me feel like I belonged—like I was just one of the students.

Days later, students continued to work on the essay assignment. I intentionally observed that there were students not using technological devices to work on their essay. "I noticed that most students looked off into the air, wrote things on a piece of paper, or engaged in conversation with me or their peers" (Field note, April 13, 2017). "Have you seen *13 Reasons Why* on Netflix yet?" "Where is a good place to get my hair bleached? I want to go blonde." Are you working tonight?" "How old is your daughter, Mrs. Sharma?" On first glance, it appeared that students were getting nothing done. But looking deeper, I began to wonder whether "these are acts the students engaged in so that they could figure out what to write" (Field note, April 13, 2017). By the end of these class discussions, many knew what they wanted to write about but just needed to get it down. Was this small talk necessary to the process? Would it have been the same had they grabbed a technological device?

Scene 9: Be Flexible and Invite Students to Explore Their Own Unique Paths

Readying myself to exit the classroom as a researcher, I sat down at my kitchen counter to write this set of scenes; memories of the classroom and all that I've learned from students struck a chord with me. I thought I had come to understand how technology hinders the ability to get a task done, not just for my students but also for myself. I thought I had realized how my expectations and my mindset influence how tasks get done and how easy it is to disengage and retreat into the world of technology. I thought I knew the importance of having a solid sense of direction and of knowing what I want to say and do when I sit down at my computer.
But just yesterday, I opened up my computer to write.

I browsed the Internet. I justified it to myself as looking for inspiration but, in fact, it was just a time waster. The result was that I got lost in Internet browsing, and time slipped away.

After two hours, I had written nothing.

But I did find a new recipe I wanted to try for dinner tomorrow.

I responded to all emails that required my attention.

I paid some bills.

And I ordered a piece of furniture for my daughter's bedroom.

What this reinforces to me is that there are times when we may not be ready to work on the task planned. In this scenario, I do not believe that I was unproductive; I did, in fact, get a lot done. But, I did not complete what I had intended to. My scenes eventually got written, in part due to my supervisor's gentle encouragement. I take from this the need to remember that there are times when students need the space to explore their own paths, and that I, as a teacher, can act more as a "guide on the side" (King, 1993, p. 30).

Scene 10: Use Technology in Meaningful and Authentic Ways

In the late spring, the classroom teacher took a one-week vacation. Lucky me. I knew the students, and I was offered the opportunity to replace her. She left me her lesson plans behind with freedom to modify them to match the students' pace and my teaching style. Knowing what I had learned, I took the liberty of enhancing the lesson plans and experimenting with engagement with technology and engagement in kinesthetic and social activities.

Music was playing as students entered the classroom. This was my attempt to maintain some of the rituals initiated by the full-time classroom teacher. The music was upbeat, fun, and perky—a tune that made students smile and wiggle in a dance-like way as they took their seats:

I got this feeling inside my bones

It goes electric, wavy when I turn it on

All through my city, all through my home

We're flying up, no ceiling, when we in our zone

I got that sunshine in my pocket

Got that good soul in my feet (Timberlake, "Can't Stop the Feeling," 2016)

The song had been playing on the radio as I drove in that morning and was, therefore, stuck in my head. At the time, I thought it was a random choice but now, reading the lyrics, I'm thinking that the song captures how I felt about the week. Teaching is my passion and that week offered me the opportunity to become a teacher again. While the opportunity was temporary, but the anticipation of the week made me feel like I had "sunshine in my pocket" (Timberlake, 2016). Not putting the lessons in place personally, I had some trepidation at my ability to implement them with students.

We settled in. Students were required to read Act 1, Scene 2 in *Othello*. In my experience, Shakespeare is often a tough read. I needed to find a way to engage students and draw them into the text. I decided to divide the scene into four segments and invited students to form small groups to perform their assigned segment, as supported by props and action. I noted that the classroom was buzzing with "excitement and willingness to participate. The students were particularly enthusiastic about going through the prop box to choose a costume or prop" (Field note, April 24, 2017). Swords, wigs, swords, crowns, swords, and a cape. Swords. They were definitely the magnet that attracted everyone's attention. I wandered from group to group and was delighted to hear students reading and re-reading the Shakespearean scenes until they understood them. There were conversations about what the lines meant and collaboration about the performance. Oh yes, and did I mention the swords. Throughout their planning, students

playfully jousted with the foam swords. I know it is a cliché, but it was a beautiful moment—high-school students reading Shakespeare and actually having fun with it. Maybe it was the swords?

The performances were followed by a screening of Act 1, Scene 2 from the movie *Othello.* I believe strongly "if a student is lost at the beginning of Shakespeare, they will be lost for the entire text, so by showing the movie, my goal was to clarify any confusion that students may be feeling about the play" (Field note, April 24, 2017). After the movie, we engaged in a critical conversation about the character Othello. "Look at the animal motif used when describing Othello?" "Look at the actor who plays Othello. Look at his mannerisms, facial expressions, and voice tone in the movie. How would you describe him?" Once students were guided to the understanding that Othello is depicted in a villainous way, we began to wonder why Shakespeare chose to depict him in this manner. I asked students. Given the number of students who raised their hands to share an idea, and the insightful ideas that they generated, it appears that the idea of letting students move and using snippets of technology worked to effectively engage the students.

Scene 11: Recognize That Technology Has Limitations

Today began with an odd choice of music: "Hi Ho Hi Ho, It's off to work we go." Yes, today, I played the song from Snow White and the Seven Dwarfs. Students looked confused as they walked in. I said nothing. Once class started, I said, "Today you're going to need to think hard to attain success. So, it's off to work we go." I paused for emphasis. I thought it was funny, but there was an awkward silence. I could actually hear crickets chirping through the walls. Pausing again for emphasis, I was relieved when I heard a few giggles as the joke finally settled in. I asked students to work on a paragraph analysis task. "The assignment and a template to be

filled in had been posted on Google Classroom, so students had access to a Chromebook to start the task. However, several students didn't use a device. They chose to spend their time flipping through the text to select a passage to analyze" (Field note April 26, 2017). Although not visible to students, I was doing the teacher happy dance. I was pleased to see actual engagement with the task rather than engagement with technology. Of course, I had to ask why technology was avoided by some. Irene said, "I'd rather write my ideas down first and then type them"; Samundar explained, "If I get a Chromebook, I'll just get distracted. You know that. So, I'm just going to write my ideas down." I gently suggested that the Chromebook could be used to view the assignment and the template and then stored away. I shared my budding observation about technology interfering with the thinking process. As a result, more students put their devices away and began to flip through their text to locate a passage to analyze. I was pleasantly surprised. By the end of class, every single student had chosen a passage to analyze. Every single student had accomplished what needed accomplishing and that made me smile.

Scene 12: Use Content That Has Real-World Relevance

It was the end of the week, and students needed to learn about ethos, pathos, and logos. These are techniques to persuade someone to agree with you. Ethos is an appeal to someone's ethics by convincing someone of your character or credibility. Pathos is an appeal to someone's emotion, while logos is an appeal to logic; it is a way to persuade someone by way of reasoning with them. It is what the teacher had identified in her lesson plans. Like the student who wants to please, I wanted to get the students to where she wanted them to be. Beyonce's song "Single Ladies" greeted students today. I let the music get their brains thinking about persuasion.

'Cause if you liked it, then you should have put a ring on it

If you liked it, then you should have put a ring on it

Don't be mad once you see that he want it

If you liked it, then you should have put a ring on it (Beyonce, 2008)

I was convinced that Beyonce was using logos to persuade the man in the song to realize that he was wrong for not proposing.

I distributed the fill-in-the-blank handout left by the teacher, but I intentionally did not project it on the screen; from previous observations, I knew the students would hurriedly fill in the blanks without truly processing and learning. Instead, I encouraged students to use their personal devices to develop their own, personal definition of the three terms. I walked around the room, lectured, talked, and provided everyday examples of each type of persuasion. Once I felt that students had a strong foundation of ethos, pathos, and logos, "I showed them a clip from *The Big Bang Theory* and asked, 'How does Sheldon's mom get what she wants?' Students were able to apply their learning and identify how she used ethos, pathos, and logos to persuade Sheldon" (Field note, April 27, 2017). Finally, I asked students to apply their learning to the following scenario: A student asking for an extension on an assignment has a choice of which method of persuasion to use in their request. How would they phrase it? Sonia remarked, "Ah. That's the trick I need to use when I need to convince my parents of something. I need to use all three of those" referring to the three methods of persuasion. In the end, I felt that I had taught something important, although I'm not sure that the student's parents would agree.

Scene 13: Listen Actively to What Students Say (and Don't Say)

"The classroom teacher was back, tanned, and refreshed" (Field note, May 1, 2017). She gathered the students in a circle to talk about the previous week in an effort to gain a sense of where they had been and where they needed to go. I wondered to myself if this was a healing circle in which students could recuperate from having me as a teacher, but then I smiled and

pushed that thought away. I stayed on the edge of the circle; this was my opportunity to re-establish myself as a participant observer, rather than as teacher. "I wanted to take the lead [in this discussion] but I need[ed] to get back into my role . . . [so] I took my usual seat on the side of the room (Field note, May 1, 2017). I realized that it was going to "take me a day or two to transition" back to my role as a participant observer (Field note, May 1, 1017). Students were invited to share a high and a low from the week. A high was something positive that happened in the class and a low was something that was a challenge or struggle. What emerged was that students had a strong sense of the play's plot and characters but still struggled to understand specific lines. This was the dominating low for many students. The predominant high was that they enjoyed acting out the play because it helped them better understand the text. Watching the movie helped them solidify their understanding of the play, but this was only after having the opportunity to read it and discuss it. The teacher recapped the concepts of ethos, pathos, and logos, and I was impressed that students clearly understood the terms. I had one week to put it all in place, one week to persuade myself: My observations in the field have proved credible and reliable. I've taken the time to build, foster, and form relationships with the students. I have pages of data to support my findings. I am someone who is a knowledgeable informant about how technology engages students.

Scene 14: Take Time To Reflect, Make Connections, and Make Improvements

My journey began with the intention of understanding how and why technology engages and/or disengages students. The goal was to listen to what students had to say (and not say) in a way that would help me to deepen my teaching practice. This tale would not be complete without an account of how I implemented these lessons when I returned to my own classroom in September and how students responded.

I allowed students to tell me what they wanted to learn, how they wanted to learn it, and the type of support they wanted from me. I turned on the data projector only if what I was going to show students allowed them to construct their own knowledge, and I encouraged students to have a plan before they grabbed technology to start the task. Paper and pencil planning, collaborative work, and oral conferencing and sharing became part of the process, as I moved away from didactic teaching and adopted constructivist-learning principles. And I fostered a classroom filled with legitimate opportunities to move and to engage in purposeful talk. In sum, my research taught me that technology requires meaningful and authentic intentional learning that is grounded in real world relevance, and I used this learning to inform my classroom practice.

Now that the semester is over, I find myself reflecting on whether this change in teaching style was successful. I can respond with an unequivocal, "YES!" The casual conversations I had with my students, the academic successes of my students, the feedback I received from other teachers and my vice principal, and the information students provided in the course reflection support this response. The students overwhelmingly stated that they felt that I "got" them. They felt respected for who they are and valued for what they had to say. They felt understood.

What's the marker of success? "Can you be my teacher next year?" is one marker that I heard time and time again from my students, even the ones who had been disengaged and withdrawn from school.

"What you did with those students this semester was magic," my vice-principal stated.

What I did with those students this semester was not magic, I know. It was careful and respectful listening, it was validating and respecting, it was being willing to collaborate and co-

construct knowledge, and most importantly, it was my ability to practice and put into place the lessons learned throughout this inquiry.

Concluding Remarks

These scenes represent the rich experiences I had while in the classroom as well as the lessons I will teach by. Our life experiences change who we are, and my experiences with this teacher and this group of students have changed me for the better. I have come to understand that when it comes to student engagement, it is the teacher's responsibility to plan for and invite student engagement. I hear Nasir's words in my mind: "Teachers should be the ones teaching . . . technology should not be doing the teaching."

Nair (2011) suggests that the classroom is increasingly viewed as "obsolete and that many view it as a time for something new" (p. 29). I, however, believe that today's classrooms require all forms of teaching, including methods considered to be more traditional. It is all about balance.

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Appendix 1

Introduction Script

Hello. Thank you for having me here today.

I am Sunaina Sharma and I am a student of Nipissing University. I am currently working on my Doctoral Degree in Education. Specifically, I am interested in looking at how digital technology use in the classroom by students and by teachers engages and interests students.

I would like to now hand out information letters and consent forms.

[I will hand out participant information letter and consent forms as well as parent information letter and consent forms to each student in the class.]

I am going to read through the information letter with you all so that you understand what I would like to do, how I will do it and why I am doing it.

[I will read the participant information letter exactly as it is outlined.]

Does anyone have any questions?

[At this point, I will answer any questions students may have.]

If you would like to participate, you need to complete and sign the consent form at the back of this package. You also need to have your parent complete and sign the consent form at the back of the package I have also given you to give to your parents. The only way to participate in the research study is to submit both of the consent forms. Not submitting the consent forms does not imply that you are participating.

Once this is done, please return both consent forms to me.

All consent forms need to be returned by February 17, 2017. After this date, recruitment for this research study will end. If I have 5 participants the study will continue and if I don't have 5 participants, the research study will end.

I thank you in advance for your consideration.

Appendix 2

Phase 1 Questionnaire

1. What grade are you in?
   a) 9
   b) 10
   c) 11
   d) 12

2. What is your gender?
   a) Male
   b) Female
   c) Other
   d) Prefer not to Disclose

3. Do you like having regular access to technology in the classroom?
   a) Yes
   b) Sometimes
   c) No

4. Do you have access to the following technology at home? (select all that apply)
   a) A computer
   b) Internet (wired)
   c) Wireless Internet
   d) Printer
   e) Something to film video with
   f) Something to record audio with

5. How often do you like your teacher to use technology for classroom instruction?
   a) Daily
   b) A couple of times a week
   c) Weekly
   d) Monthly
   e) Never

6. How important to your learning is having access to technology is?
   a) Very important
   b) Important
   c) Somewhat important
   d) Not important

7. How would you describe your skill with technology?
   a) Expert
   b) Good
   c) Novice

8. How strongly do you agree or disagree with the following statements?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a) I am more interested in what is being taught when the teacher uses technology.					
b) I am more interested in what I am learning when I am able to use technology.					
c) Access to technology helps me learn more effectively.					
d) Access to technology in the classroom results in me being more distracted than if technology wasn't made available.					

9. What technology do you learn from best in the classroom?
   a) A computer/mobile device that I'm using on my own
   b) A computer/mobile device that I am using with other students
   c) A computer and projector that the teacher is using and I can view
   d) A GoogleDoc that we are using together (e.g., peers and teacher)

10. When given the option to use technology while completing an assignment, what do you choose?
   a) I always choose to use technology
   b) I sometimes choose to use technology
   c) I never choose technology

11. How do you like technology to be used in the classroom? (check all that apply)
   a) When teachers are presenting
   b) When I'm working on an assignment individually
   c) When I'm working on a group assignment
   d) When I need to research something I don't know
   e) I don't like using technology

12. How do you like teachers to use technology? (check all that apply)
   a) While teachers are teaching
   b) As a way to communicate in a one-dimensional way: when teachers post information I need access to
   c) As a way to communicate with the teacher in a two-dimensional way: we can converse back and forth through technology

d) I don't like it when teachers use technology

Appendix 3

Phase 3 Questionnaire

1. How would you describe the amount of technology use in the classroom during the semester?
   a) Too much
   b) The right amount
   c) Not enough

2. How strongly do you agree with the following statements?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a) The classroom technology caused me to be more interested in the class.					
b) The access to technology helped me learn better.					
c) The access to technology helped me produce a better final product.					
d) The access to technology distracted me.					

3. What recommendations do you have for me with regard to technology use/access in the classroom?

Appendix 4

Phase 3 Focus Group Questions

1. The classroom teacher used technology during lessons multiple times through the semester. Tell me what you liked and what you didn't like.
2. During the semester, you, as students, used technology to create media. Tell me what you liked and what you didn't like.
3. During the semester, you used technology to work on assignments. Tell me what you liked and what you didn't like.

Appendix 5

Course Learnings as Decided by the Teacher

ENG3UI: The Influence of Power

"Nearly all men can stand adversity, but if you want to test a man's character, give him power" - Abraham Lincoln

Unit	Key Tasks	Texts
1) The Value of Justice *Novella Study* What is the true nature of friendship? What is the nature of a community? How does isolation affect people? How does power impact relationships and self-esteem?	- Quiz - Formal Literary Paragraph - Inquiry Project	*Of Mice and Men* Research materials
2) Breathing Life into Essays *Essay Unit* How can we use the power of words to effectively persuade people? What different organizational structures are available to build an argument?	- Essay Analysis Test - Write your choice of essay - Essay Reflection	Various Essays (Compare/Contrast, Narrative Essay, Cause and Effect)
3) Jealousy and Betrayal *Othello* by William Shakespeare Is Shakespeare relevant in the modern world? What's the value in relating to the human condition? How do the characters use power or the illusion of it to influence others?	- Vlog or Creative Writing Assignment - Passage Analysis	*Othello* Film adaptation
4) The Balance of Power *Book Club Unit* How does power affect people who have it, wish they had it, and/or abuse it? How does the graphic novel form communicate meaning?	- Book Club Discussions & reader notes - Graphic Novel Carousel Pitch	*The Kite Runner* *The Road* *The Glass Castle* *Feed* *Indian Horse* *The Great Gatsby* *Q & A* Other supplemental readings including *Pride of Baghdad* (graphic novel)

Appendix 6

Teacher Information Letter and Consent Form

You have been invited to participate in a research study entitled: *An Examination of Digital Technology and Student Engagement* conducted by Sunaina Sharma (PhD candidate) under the supervision of Dr. Michelann Parr, Schulich School of Education, Nipissing University. Questions or concerns can be directed to [redacted]

What is the research about and why are you interested in it?

With the emerging prevalence of digital technology use in the classroom by students and by teachers, I am interested in understanding how the use of digital technology in the classroom engages students.

Why are you asking me?

Much of the existing research captures the voices of administrators and teachers; and the research that currently does include student voice centers on the voices of elementary students. I am interested in hearing about how secondary students view technology and its potential to engage and disengage them in their learning. Having the opportunity to interact with your students and see the way they engage with technology in the classroom will help me understand what engages secondary students.

What impact will this have on my classroom instruction?

You are the classroom teacher. You will continue to teach the course as you have planned. I will ask participants to complete an entry and exit questionnaire and periodically engage in a class discussion. As this time, I will ask that you leave the room so that the identities of the research participants aren't known to you. In addition, I may take pictures of the work they submit. All of these activities will occur only after I've spoken to you to arrange an appropriate time. Although uncertain at this time, none of these data collection procedures should take longer than 20 minutes.

What's in it for me as a teacher?

You may be interested in hearing what the students say during the data collection phases to not only inform your own classroom practice but to help you differentiate the course based on their feedback. If you choose to have me share preliminary observations, I will only reveal broad, generalizable comments so that you are not made aware of who the research participants are.

What are you asking me to do?

I am asking you to allow me to be a participant observer in your class every day for the entirety of semester 2.

Will people know who I am? Is what I say private?

I will treat what you say as private and confidential. I will change your name to protect your identity in any resulting presentations and publications.

What will you do with all the information?

The data collected will be used to complete my dissertation. Upon defence, it will be published in academic databases. The results will also be shared with the Halton District School Board. In addition, the data may be used in other studies and publications beyond this dissertation as well as presented at conferences.

Electronic data will be stored on a computer that requires a secure password to log in to. In addition, individual data files and data folders will have an additional layer of security that will require an additional password to access. Electronic data will be backed up on a USB key that is encrypted with a secure password that is required to be able to open any information on the USB key.

All data will be kept for five years post publication, as per APA standards. At that point, all paper data will be shredded by my research supervisor and all electronic data will be removed from the computer by me, as supervised by my research supervisor. If the computer needs to be disposed of, a hard-drive cleaning will occur before the computer is disposed of. In addition, all data stored on a USB key will be destroyed by reformatting the key.

What if after reading this letter, I still have questions?

[redacted] if you have any questions or concerns about this study. Additionally, you can contact my research supervisor, Dr. Michelann Parr, via telephone at [redacted]

What do I do now?

Active consent is required to participate in this research. If you agree to participate, please complete the consent form on the next page, and return it to me. If you choose not to participate, you don't have to do anything.

Statement of Informed Consent to Participate in Research

As a participant in this research project, I clearly understand what I am agreeing to do and that I am free to decline involvement or withdraw from this project at any time, and that steps are being taken to protect me. I have read this *Teacher Letter and Consent Form* and have had any questions, concerns, or complaints answered to my satisfaction. I have been provided with a copy of this letter.

_____
Name of Teacher (printed)

_____ _____
Teacher's Signature Date

If you are interested in receiving an executive summary of the research study once it is published, please provide your email address below:

_____
Participant's Email address

This study has been reviewed and received ethics clearance through Nipissing University's Research Ethics Board as well as the [redacted] School Board's Research Advisory Committee. If you have any questions regarding your rights as a research participant, please contact:

Ethics Administrator, Nipissing University, 100 College Drive, North Bay, ON P1B 8L7 or [redacted]

Appendix 7

Participant Information Letter and Consent Form

You have been invited to participate in a research study entitled: *An Examination of Digital Technology and Student Engagement* conducted by Sunaina Sharma (PhD candidate) under the supervision of Dr. Michelann Parr, Schulich School of Education, Nipissing University. Questions or concerns can be directed to [redacted]

What is the research about and why are you interested in it?

With the emerging prevalence of digital technology use in the classroom by students and by teachers, I am interested in understanding how the use of digital technology in the classroom engages students.

What impact will this have on your classroom instruction?

Your classroom teacher will continue to teach the course as they have planned. I will ask you to complete an entry and exit questionnaire, perhaps have a conference with me, and perhaps engage in group and /or class discussions. The conferences will occur at a mutually agreed upon time before class, during class or after class. These conversations will be audio recorded so that they can be transcribed at a later date. In addition, I may take pictures of work you submit and the feedback you provide on the last day of class. Some of the questions I may ask include:

- Do you like having regular access to technology while in the classroom?
- How important to your learning do you feel having access to technology is?
- How do you like technology to be used in the classroom?
- How do you like the teacher to use technology?

What's in it for me as a student?

Much of the existing research captures the voices of administrators and teachers; and the research that currently does include student voice centers on the voices of elementary students. I am interested in hearing about how secondary students view technology and its potential to engage and disengage them in their learning. Because your voice is valued, you can feel empowered in knowing that you're helping contribute to a gap in the educational research.

Will people know who I am? Is what I say private?

When participating in a conference with me or in a focus group discussion, privacy/anonymity cannot be guaranteed because others in the room can potentially hear your thoughts. However, I will treat what you say as private and confidential. I will change your name to protect your identity in any resulting presentations and publications. If at any time during the data collection process, you share comment(s) or work that can be attributed to you, the data will be excluded from the research and you will be excluded from the research study.

What will you do with all the information?

The data collected will be used to complete my dissertation. Upon defence, it will be published in academic databases. The results will also be shared with the Halton District School Board. In addition, the data may be used in other studies and publications beyond this dissertation as well as presented at conferences.

Electronic data will be stored on a computer that requires a secure password to log in to. In addition, individual data files and data folders will have an additional layer of security that will require an additional password to access. Electronic data will be backed up on a USB key that is encrypted with a secure password that is required to be able to open any information on the USB key.

All data will be kept for five years post publication, as per APA standards. At that point, all paper data will be shredded by my research supervisor and all electronic data will be removed from the computer by me, as supervised by my research supervisor. If the computer needs to be disposed of, a hard-drive cleaning will occur before the computer is disposed of. In addition, all data stored on a USB key will be destroyed by reformatting the key.

What if after reading this letter, I still have questions?

You can talk to me while we're in class. If you would prefer, I can also be reached by email [redacted] if you have any questions or concerns about this study. Additionally, you can contact my research supervisor, Dr. Michelann Parr, via telephone at [redacted] nezavdalf@hdsb.ca

What do I do now?

Active consent is required to participate in this research. If you agree to participate, please complete the consent form on the next page. If you are under the age of 18, parental consent is required. Please attach the signed form on the next page to the *Parent Consent Form* your parent has completed and return it to me. If you are 18 or over, you can sign the consent form on the next page yourself. If you choose not to participate, you don't have to do anything. If you choose

to be removed from the research study after consent has been given, please tell me or email me indicating such and you will be removed and all data destroyed.

Statement of Informed Consent to Participate in Research

As a participant in this research project, I clearly understand what I am agreeing to do and that I am free to decline involvement or withdraw from this project at any time, and that steps are being taken to protect me. I have read this *Participant Letter and Consent Form* and have had any questions, concerns, or complaints answered to my satisfaction. I have been provided with a copy of this letter.

_____
Name of Participant (printed)

_____ _____
Participant's Signature Date

If you are interested in receiving an executive summary of the research study once it is published, please provide your email address below:

_____
Participant's Email address

This study has been reviewed and received ethics clearance through Nipissing University's Research Ethics Board as well as the [redacted] School Board's Research Advisory Committee. If you have any questions regarding your rights as a research participant, please contact:

Ethics Administrator, Nipissing University, 100 College Drive, North Bay, ON P1B 8L7 or [redacted]

Appendix 8

Parent Information Letter and Consent Form

Your child has been invited to participate in a research study entitled: *An Examination of Digital Technology and Student Engagement* conducted by Sunaina Sharma (PhD candidate) under the supervision of Dr. Michelann Parr, Schulich School of Education, Nipissing University. Questions or concerns can be directed to [redacted]

What is the research about and why are you interested in it?

With the emerging prevalence of digital technology use in the classroom by students and by teachers, I am interested in understanding how the use of digital technology in the classroom engages students. Much of the existing research captures the voices of administrators and teachers; and the research that currently does include student voice centers on the voices of elementary students. I am interested in hearing about how secondary students view technology and its potential to engage and disengage them in their learning.

What impact will this have on the classroom instruction?

There will be little or no impact on the teacher's classroom instruction. The classroom teacher will teach the course as he/she has planned. I will ask your child to complete an entry and exit questionnaire, have a conference with me, and engage in focus group discussions. The conferences will occur at a mutually agreed upon time before class, or after class. The focus group discussions may occur at a mutually agreed upon time outside of class time. These conversations will be audio recorded so that they can be transcribed at a later date. In addition, I may take pictures of work your child submits and the feedback he/she provides on the last day of class. Although uncertain at this time, none of these data collection procedures should take longer than 20 minutes. Some of the questions I may ask include:

- Do you like having regular access to technology while in the classroom?
- How important to your learning do you feel having access to technology is?
- How do you like technology to be used in the classroom?
- How do you like the teacher to use technology?

Are there any risks or benefits to my child?

The names of students who have chosen to participate or who have chosen not to participate will not be shared with the classroom teacher. This is to ensure that your child doesn't feel like their participation or lack of participation might impact the way their classroom teacher perceives

them. Their participation or lack of participation does not impact the way your child is evaluated. The potential benefit for your child is that they may feel empowered that knowing that their voice is valued and it is contributing to a gap in the existing research.

Will people know who my child is? Is what they say private?

When participating in a conference with me or in a class discussion, privacy/anonymity cannot be guaranteed because others in the room can potentially hear your child's thoughts and/or others may see your child speaking with me. However, I will treat what they say as private and confidential. I will change their name to protect their identity in any resulting presentations and publications. If at any time during the data collection process, your child shares comment(s) or work that can be attributed to them, the data will be excluded from the research and/or your child will be excluded from the research study.

What will you do with all the information?

The data collected will be used to complete my dissertation. Upon defence, it will be published in academic databases. The results will also be shared with the Halton District School Board. In addition, the data may be used in other studies and publications beyond this dissertation as well as presented at conferences.

Electronic data will be stored on a computer that requires a secure password to log in to. In addition, individual data files and data folders will have an additional layer of security that will require an additional password to access. Electronic data will be backed up on a USB key that is encrypted with a secure password that is required to be able to open any information on the USB key.

All data will be kept for five years post publication, as per APA standards. At that point, all paper data will be shredded by my research supervisor and all electronic data will be removed from the computer by me, as supervised by my research supervisor. If the computer needs to be disposed of, a hard-drive cleaning will occur before the computer is disposed of. In addition, all data stored on a USB key will be destroyed by reformatting the key.

What if after reading this letter, I still have questions?

I can be reached by email [redacted], if you have any questions or concerns about this study. Additionally, you can contact my research supervisor, Dr. Michelann Parr, via telephone at [redacted] or you can contact [redacted] District School Board's Department of Research and Accountability [redacted]

What do I do now?

Active consent is required to participate in this research. If you agree to have your child participate in this research study, please complete the consent form on the next page, attach it to the *Participant Consent Form* your child has completed and have him/her give it to me. If you choose not to participate, you don't have to do anything. If you choose to have your child removed from the research study after consent has been given, please call email me indicating such and he/she will be removed and all data destroyed.

Statement of Informed Consent to Allow My Child to Participate in Research

By having my child be a participant in this research project, I clearly understand what I am agreeing to do and that I am free to decline my child's involvement or withdraw my child from this project at any time, and that steps are being taken to protect my child. I have read this *Parent Information Letter and Consent Form* and have had any questions, concerns, or complaints answered to my satisfaction. I have been provided with a copy of this letter.

_____
Name of Child (printed)

_____
Name of Parent (printed)

_____ _____
Parent's Signature Date

If you are interested in receiving an executive summary of the research once it is published, please provide your email address below:

_____
Parent's Email address

This study has been reviewed and received ethics clearance through Nipissing University's Research Ethics Board as well as the [redacted] School Board's Research Advisory Committee. If you have any questions regarding your rights as a research participant, please contact:

Ethics Administrator, Nipissing University, 100 College Drive, North Bay, ON P1B 8L7 or [redacted]