Strategies for Integrating Digital Technology in Classrooms to support English Language Learners’ Learning and Engagements

By

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Abstract

Toronto is one of the most multicultural cities in Canada, and as a result, the population of English Language Learners (ELLs) only continues to grow in its classrooms. In a recent survey done by People for Education on Ontario’s Publicly Funded Schools, 73% of elementary schools reported they have ELLs who require language support (People for Education, 2015). Technology is the mechanism through which current generations of students are growing up and learning, and can be used as a tool for levelling the playing field for ELLs, allowing them to showcase their knowledge through a familiar medium.

This research study focused on learning the different strategies teachers use to integrate digital technology to support ELLs’ learning and engagement in the classrooms. Data was collected through semi-structured interviews with two elementary teachers currently working in a publicly funded school board in Ontario. Participants used technology to differentiate instruction for ELLs in terms of the delivery of material, more time to process information and complete work at their own pace, and offering a different way to demonstrate understanding and learning. Teachers observed increased student engagement as digital technology provided students with opportunities to express themselves in different ways. Recommendations include creating a community network, e-platform, where teachers can mentor each other, share instructional practices, technological implementations, and questions and concerns.

Key Words: Technology Integration, English Language Learners, Strategies, Elementary Teachers, Student Engagement
Digital Technology Integration to support ELLs’ learning and engagements

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Chapter 1: INTRODUCTION

1.0 Introduction to the Research Study

Our Canadian population becomes more diverse and multicultural every day. This brings in more English language learners (ELL) into our schools. In Ontario alone, over 25 percent of students are recognized as ELLs, and that number is looking to increase over the years (Ontario Ministry of Education, 2013). This number has tripled over the past 3 years, as a recent survey done by People for Education on Ontario’s Publicly Funded Schools found that 73% of elementary schools reported having ELLs who required language support (People for Education, 2015). With the commitment by our Canadian government to accept 25,000 Syrian refugees through sponsorship, in Toronto alone, there are approximately 330 Syrian newcomer children who are already registered in either a public or Catholic school, with many more expected (Zilio, 2016). Statistics show that 40 percent of government-assisted refugees under the age of 14 are entering our classrooms without any educational background (Zilio, 2016). Although the Ontario elementary teachers’ union has conducted many acculturation workshops in schools across Ontario, the cuts to educational programs indicate there may be a shortage of English language learner programs available to the students (Zilio, 2016). Especially following a Toronto District School Board budget meeting that took place in March 2015, it was announced that nearly 100 English as a Second Language (ESL) teachers were being cut (Ross, 2015). ELLs already face daily challenges involving language acquisition, social acceptance, loss of identity, low expectations, and isolation (Mohr, 2004; Olsen, 2000). More now than ever, classroom teachers need to find effective strategies to support, engage, and include ELLs in their classroom learning environment.
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This raises questions as to how teachers can support ELLs in ways that align with their interests and identities.

Digital technology has become extremely dominant in today’s society and is an important presence in many peoples’ lives. The majority of the population in North America cannot go a day without coming into contact with a piece of technology. Many children, from a young age, now have access to digital technology such as, iPads, tablets, and all the different applications that can have an impact on their lives. For this reason, it is important to incorporate these into their learning and education. Today, nearly 90% of children in Ontario have experience with some form of digital technology, yet only less than half of current educators who have digital technology available to them use it for classroom instruction (Keengwe & Onchwari, 2009). Although a good deal of resources have been put into schools, the technology implementation rate of educators are still fairly low. According to a survey, 62% of teachers said they want to use digital technology more than they currently do (Digedu, 2014). It is important for educators to prepare students for the fast-paced digital world the 21st century has become. Linda Ellerbee, a Journalist and Television Producer, stated, “In the 21st Century, the century our children will live in (the century they will, in fact, shape), media literacy will not be a luxury; it will be a necessity.” There is a lot of pressure on teachers to start using digital technology in their teaching and curriculum, hence the importance to gain a better understanding of strategies that are working in the actual classrooms and its effects.
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Research has shown that integrating digital technology can be a powerful tool for responding to different learning styles of students (Edutopia, 2008; Granot-Gilat & Spektor-Levy, 2012). ELLs benefit from the reinforcement of vocabulary and concepts through pictures, videos, and graphics (Brozek & Duckworth, n.d.). While we know that integrating digital technology can promote more student-centered and individualized learning, more collaboration, and use of critical thinking (Granot-Gilat & Spektor-Levy, 2012; MaRS Discovery District, 2011; Muir-Herzig, 2003), research also suggests that many teachers nevertheless feel anxious and lack the training, accessibility, and support about integrating digital technology in their classrooms. Many educators did not have the opportunity to interact with the digital technologies as a component of their own education (Digedu, 2014; MaRS Discovery District, 2011). Digital technology integration is a multi-faceted journey that requires an understanding of an educator’s motivations, perceptions, and beliefs about learning, teaching and technology (Keengwe & Onchwari, 2009). In this day and age, educators need to redefine their objectives in the classroom and find strategies to integrate technology into the school curriculum (Granot-Gilat & Spektor-Levy, 2012). The Ontario Ministry of Education grasps the importance of investing in more professional development opportunities for educators to make this momentous change to promote and encourage the integration of digital technology into teachers’ teaching routine and to work towards a successful integration of the technology into the curriculum (Granot-Gilat & Spektor-Levy, 2012). In spite of all the technology that is beginning to emerge in classrooms in Ontario, current teachers are facing various challenges and barriers, such as access to resources, funding, lack of confidence from administrators and teachers, unfamiliarity with technology, lack of support, bandwidth and network infrastructure issues, constraints with curriculum, lack of professional development, and
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preparation time (Digedu, 2014; Keengwe & Onchwari, 2009; MaRS Discovery District, 2011; People for Education, 2014) to successfully integrate technology into their classroom instruction. It is crucial to bridge the gap between theory and practice, and there is a need to develop a model or strategies that can help teachers overcome the difficult task of technology use and integration.

The movement towards integrating technology into the classroom and curriculum has been ongoing. The progress is slow amongst educators, and the challenges they encounter may affect a teacher’s motivation and desire to continue pushing the technology integration forefront. Finding different ways to integrate technology into instruction not only helps ELLs develop their second language in English, but also builds up their motivation and confidence (Brozek & Duckworth, n.d.). Technology helps ELLs find their voice, helping them learn as much as they can, and allowing them to express themselves in different ways (Brozek & Duckworth, n.d.). It is important the practical strategies are accessible to educators, in order to stimulate that drive for change, which could be the strengthening component to our educational system and teaching for future generations.

1.1 Purpose of the Study

The purpose of this study was to learn how a sample of teachers are integrating digital technology in their teaching, and to learn what outcomes they observed from their ELL students. I was interested in interviewing teachers with a demonstrated commitment to integrating digital technology in their classrooms in order to learn about their instructional practice to share with the broader educational community. This study is important to the educational community be-
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cause technology is the way of the present and it is important for the educational field to generate
a new vision of how digital technology can and will change the way we define teaching and how
learning can take place (Keengwe & Onchwari, 2009).

1.2 Research Questions

The main question that guided my research was: How do a sample of teachers purpose-
fully integrate digital technology in the form of iPads, tablets, and SMART boards into their
teaching, and what outcomes do they observe for ELL students’ learning and engagement?

Subsidiary questions include:

1. What does purposeful technology integration mean to these teachers and why?

2. What factors and resources support these teachers in the integration of digital technology in
   the classroom to support ELLs?

3. What hinders these teachers’ commitment to integrating digital technology to support ELLs
   and how do they respond to these challenges?

1.3 Background of the Researcher

I have always found myself to be fairly technologically oriented and have always had an
interest in how technology could be integrated into different components of my life. As an ELL
myself, I know how isolated, disconnected, and difficult it can be in the classroom, and the learn-
ing curve is like climbing Mount Everest without any gear. I remember feeling invisible in the
classroom, not understanding anything that was going on, and being left alone by the teachers as
I wasn’t seen as one of the trouble makers. At the time, technology was not as prevalent as it is
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now. I got by independently, following my teacher around for almost a whole year, without being an actual participant in my classroom. It was a tough year as I was a talkative child at home, but couldn’t figure out how to communicate with my teachers at school, and they didn’t seem to care much about that fact.

Growing up, I attended a Montessori school and had access to technology both at home and at school. I believe growing up constantly using technology in different ways allowed me to not only be comfortable using it, but sparked my interest as to how it could be used in various aspects of my life. Whether now it is for personal, productivity, education, utilities, I am always curious as to what new applications or devices are created and how it can be used. It wasn’t my own bringing up in schools that caused me to wonder how technology could be used to better support students, but my experiences in classrooms as a student teacher and teacher candidate that really made me wonder why technology wasn’t being used productively to support our students. It needs to be acknowledged that not all students may have access to technology at home, which is why having access to technology at school really allows students the same equity in being able to access, use, and learn how to be a 21st century learner. Their experiences at school will not be any different than anyone else, as every student deserves the same education and learning experiences, no matter their race, gender, social economic status, and so on.

I was fortunate enough to go to Switzerland for my international practicum for school, where I was able to see how digital technology was being used in ways I have never seen before. Students were doing KWL charts independently in small groups, recording their voices and
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drawing pictures for each section. Students were also making their own e-books, completing the
text, editing, and pictures to go along with their story, without much guidance. Those are just
a few examples of what the students were capable of, in this kindergarten classroom, and their
engagement and learning levels were through the roof. At this same practicum, a new student
from Japan came halfway through the year with no understanding of the host language, German,
or English. Through the use of iPads, this student could learn at his own pace, teachers could as-
sess his knowledge, and as a result his language acquisition grew extremely quickly. The learn-
ing environment was extremely welcoming, with all the students helping when they could, sup-
porting this new student and making him feel safe and that he belonged there; the student adjust-
ed to the new school faster than I have ever seen. Observing the use of technology in this learn-
ing environment allowed for a whole different capacity of learning and broadened the spectrum
for targeting different learning styles in the classroom. Teaching and learning became more in-
quiry-based and collaborative between students and their peers, as well as between students and
the teacher. Technology was not dominant or overbearing in the classroom, but intertwined with-
in the teacher’s curriculum. This study is important for me because I want to be the type of edu-
cator that is at the forefront of technology integration in classrooms. I have seen too many educa-
tors take a backseat to technology integration with no good reason. The challenge for educators
now is understanding how often children are engaging through and on technology at home, and
how they are bringing a whole different experience and knowledge capacity in regards to tech-
nology, when they enter the school system and classroom. Teachers need to understand that to-
days students are different from a decade ago. When teachers are unaware of childrens' home
experiences with technology and new media devices, they are unable to optimize their learning
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and build upon it (McPake, Plowman & Stephen, 2010). It is important to show educators the steps necessary for integrating digital technology in meaningful ways.

1.4 Overview

This Masters of Teaching Research Project includes five chapters in total. Chapter 1 includes the introduction and purpose of the study, the research questions, as well as how I came to be involved in this topic and study. Chapter 2 contains a review of the literature on English Language Learners (ELLs), specifically its definition, what barrier and challenges are encountered, and the recommended teaching strategies. Next, I review relevant literature on digital technology integration into the classrooms, the benefits, the challenges, and recommended strategies. Finally, I examine the relevant literature on how digital technology can impact and support ELLs’ learning and engagements in the classroom. Chapter 3 describes the methodology and procedures used in this study including information about the sample participants and data collection instruments. In Chapter 4, I report the research findings and discuss their significance in light of the literature. In Chapter 5, I discuss the implications of the findings, and make recommendations for practice and further study. References and a list of appendixes follow at the end.
Chapter 2: LITERATURE REVIEW

2.0 Overview

Canada is an extremely multicultural country and students in our schools speak in the region of more than 200 different languages (People for Education, 2012). It is important to establish the difficulties in the approaches and methods to teaching ELL students and find strategies that uses digital technology to support and fulfill those gaps to enhance and individualize the ELL students learning and engagements in the classroom. This study explores the question of how a sample of teachers integrate digital technology in the classroom and to learn what outcomes they observe from ELL students. In this chapter, I begin by reviewing the relevant literature on English language learners (ELLs). More specifically, I look at literature focused on terminology and defining “ELL”, and I review what research has learned to date about known barriers and challenges ELL students face. I also review the literature on recommended teaching strategies for supporting ELLs. I move on from there to look at the literature on digital technology integration into classrooms, including the benefits, the challenges and barriers faced by both teachers and students, and the recommended strategies that can better support teachers to integrate the digital technology within their classrooms. Finally, I synthesize the literature from the two distinct areas (technology integration and supporting ELLs) together. As educators, it is important to continually reflect and update our own practices to address the needs of our changing classroom population, and to find effective ways to arrange their learning to help them achieve.
2.1 English Language Learners (ELLs)

2.1.1 Definition

This research study identifies English Language Learners (ELL) according to Ontario’s language-acquisition policy (Ontario Ministry of Education, 2007). The policy states that ELL students may be either Canadian-born or newcomers from another country. A student who is attending a provincially funded English Language school is defined as an ELL if they have any one of the following characteristics: a first language other than English, a dialect of English that may be considerably different from the English used for instruction in classrooms, or they need educational supports to support them in achieving proficiency in English (Ontario Ministry of Education, 2007). It is important for society to realize that even children who are born in Canada can be considered an ELL, as their family could be speaking to them in a different language at home. In 2013, it was reported that one in five Ontario students do not speak English or French as their first language (People for Education, 2013). Not only are some ELLs Canadian-born, but research has found that this group of students is academically underperforming not only compared to English-speaking students, but also when compared to recently arrived immigrant students (Coelho, 2007; Jang, Dunlop, Wagner, Youn-Hee Kim, Zhimei Gy, in press; Ontario Ministry of Education, 2008, as cited in Ontario, 2013). It is important for society to note the broad spectrum of students that are considered to be ELLs and what they need to best support their learning.
2.1.2 Barriers and Challenges Encountered

English Language Learners are seen as an at-risk population in schools and they are being underserved (People for Education, 2013; Thompson, 2000). They face a wide range of challenges, apart from struggling with their language proficiency, which may be the most apparent one (Thompson, 2000). Not only are language minority students going through “language shock”, they are struggling socially to be accepted in a completely new environment (Olsen, 2000). Their sense of identity is on a roller coaster ride and they are trying to figure it all out, as fast as they can, under the tough circumstances. Unfortunately, we live in a society that is sometimes not open and accepting to all, which makes it even more difficult for ELLs to feel welcome and safe. Educators understand that in an unwelcoming and threatening environment, students cannot achieve up to their potential level. It is vital for educators to realize that learning and growth in student’s education occurs in the context of a social climate (Olsen, 2000). School climate is a significant factor impacting the quality of learning for ELLs and how well they learn the English language. ELLs commonly have limited interactions in social settings with their English speaking peers because they are in and out of the classroom, and may have difficulty learning social English or so called “slang” because of the learning environment they are in (Olsen, 2000).

In Ontario, it is often found in schools that ELLs are typically removed from the students in the regular classroom for brief periods to potentially further develop their language proficiencies in a smaller group setting (Mohr, 2004). Although the intentions are to give students more of a one-on-one environment and attention, it is doing more harm to their learning and progress.
than good. Research has found, however, that these type of pull-out programs are not cultivating the student’s English oral language proficiencies or scaffolding the appropriate level of reading and writing (Fitzgerald, 1995; Romo, 1999; Slavin & Calderon; 2001, as cited in Mohr, 2004). It has been shown that there is greater success when students are not removed and are instead supported by a range of classroom climate conditions and strategies implemented in the classroom on a daily basis (Brice & Roseberry-Mckibbin, 1999).

It is common for teachers to believe that ELL students who do not speak English at home need to feel good about themselves while learning English at school (Mohr, 2004). Although well-intended, teachers then allow students to not participate in group discussions, provide them with less work than their peers, and expect them to do less in general (Mohr, 2004). But although ELL students may be quieter than other students or seem less participatory, what they do not need is to be excused from all expectations. Research has shown that this only allows the prolongation of the silent period, communicates low expectations that the teacher has for the student, but can also reinforce further passivity and apathy in learning (Mohr, 2004). ELL students bring in such diverse experiences into the classrooms and have so much to offer, however, their experiences are too often neglected as a result of these kinds of practices. It is unfortunate that our schools tend to label these students based solely on their inability to speak the English language (Olsen, 2000). As George Eliot (1860) first stated in The Mill on the Floss, “Don’t judge a book by its cover.” ELLs can be compared to an onion; it may be a challenge to initially peel all the layers back, but little by little, layer-by-layer, you come to discover something beautiful and unexpected. It is crucial to put oneself into an ELL’s shoes; in many situations, they are going
Digital Technology Integration to support ELLs’ learning and engagements through an identity struggle between abandoning their native language and never learning the English language (Olsen, 2000). That is a tough spot to be in, especially during their early, primary, or junior years of schooling.

2.1.3 Teaching Strategies Suggested for English Language Learners

As our Canadian population becomes more diverse and multicultural, teachers need to know the best practices for ELLs in the classroom. There is a need to provide better instruction for ELLs to make ample progress and to have access to all the opportunities that are out there for their English-speaking peers. Implementing strategies based on social interactionist theories, such as Vygotskys, creates a classroom environment that can promote learning through modelling, scaffolding students to make meaning and understanding of concepts, with the ultimate goal of becoming independent thinkers and problem solvers (Meyer, 2000). All students need that learning environment, but ELLs cannot do without it. The barriers they face need to be lowered through effective strategies to support their learning.

When educators are teaching a lesson, sometimes there may be a number of new concepts that are embedded in it. It is essential to assess students’ prior knowledge on a daily basis, ELL students in particular, to have the ability to identify what the students know and do not know. Allowing sufficient response time provides students time to not only think in their first language, but compose a response in English as well (Early, 2005). By having a grasp of this knowledge, educators will be able to fill in any conceptual gaps by making the information relatable with a supporting tool or to ELLs’ real life experiences (Meyer, 2000). When teaching ELLs, clear in-
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Instructions are crucial; number and label steps, always reinforcing oral instructions with written outlines (Early, 2005).

There is a certain amount of language and cultural knowledge that is needed to understand meaning and participate in activities (Meyer, 2000). Educators often wonder why ELL students are distant and do not try to participate from the get go of entering the classroom. They make assumptions on it being solely on language proficiency, but forget that ELL students may not be aware of simple interactions in the classroom such as, when to speak, when to stay silent, when to raise their hands, and when and what to write (Meyer, 2000). Those all seem like common sense knowledge and ELL students are generally expected to determine these classroom behavioural norms independently. However, these expectations differ from one culture to the next and teachers need to help lighten this load for students. Having visuals, gestures, and concrete materials are important as it helps to get a meaning across (Early, 2005). Whether that includes using simple diagrams or using our hands to speak, these small actions can support ELLs in their transition into the classroom. Tools such as word-walls, alphabet displays, big books, anchor charts can help create a supportive environment for the ELL student to feel included in the classroom learning (Early, 2005). Meyer (2000) stated that by treating ELLs without judgement and building that personal relationship with them and their families, they are able to use that information gained to develop activities that help ELLs understand the new culture they are embedded in, while still respecting the culture they are coming from. Imagine yourself entering a new culture where you knew and could not understand anything, learning to trust another person is crucial in building one’s self-confidence and independence.
As language is a tremendous barrier for ELLs, rewriting or explaining learning material lightens the language load students encounter in the classroom (Meyer, 2000). There are many things that may be out of the control of the teacher, but having various different versions of texts that covers the same content but for different ability levels is not. This includes the breaking down of elaborate sentences, highlighting key vocabulary, and modelling the appropriate use of both academic and social language, while scaffolding ELL students’ usage and acquisition (Meyer, 2000). The use of games, puzzles, chants, and songs are helpful because they usually require little to no language and are repetitive (Early, 2005). All cultures appreciate music and rhythm, thus having ELLs sitting in front of the teacher provides them an opportunity to hear his/her own voice in unison without any risk of being embarrassed (Early, 2005). Seating students with similar background near each other gives ELLs additional support with instructions and understanding (Brice & Roseberry-McKibbin, 1999). Students who are acquiring the English language do benefit from the support of a bilingual same-language peer (Early, 2005). Not only can they communicate in their first language, ELLs feel more welcomed and at ease when they have a direct support system with them at the beginning of their transition. Buddies and peers benefit from this partnership as well as they have an opportunity to develop their own social and leadership skills, enhancing their own understanding of concepts after explaining it to someone else (Early, 2005). Researchers also recommended the use of seating arrangements, such as round tables or quads to encourage social interaction. Positive social interactions help students recognize the classroom as a welcoming and safe place, where they will not be judged for using their new language skills (Beckett & Haley, 2000). Cooperative learning is another way to encourage social interaction among students and to help ELLs develop confidence in their language skills.
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Through participation, ELL students will have an opportunity to speak and listen, and that is vital when learning language and content (Boothe, 2000). There are simple things that teachers can do to enhance ELL students’ academic achievement such as, having various digital media devices available for student use, labelling everything to build ELLs’ vocabulary and make connections to their native language, have multicultural literature within the curriculum, and even invite families into the classroom to share their culture with the rest of the class (Beckett & Haley, 2000). Every component is connected in a way that in the end, ELLs’ peers will realize and value them for who they are and not see them as a burden in the class.

A common activity to implement when beginning a lesson or unit is for teachers to ask their students to complete a brainstorming activity. Brainstorming is generally fast-paced, either oral or written, with minimal guidance, visual examples, and clarification (Meyer, 2000). It is commonly used to gain an idea of what student’s previous knowledge of the topic is. ELL students can have difficulty following along, let alone participating in such an activity. Teachers must reflect on what is expected of each student when planning a lesson, making sure to have the appropriate adaptations and supports available. Language bath is a specific strategy that entails the teacher talking about the topic and the students listening, before any brainstorming activity is assigned (Meyer, 2000). This allows students to familiarize themselves with specific vocabulary and give them time to develop their own thoughts on the topic before having to begin. Although this is not inquiry-based and may give students some idea of the topic, it provides all students, especially ELLs, the support needed to feel comfortable and included in the learning environment.
2.2 Digital Technology Integration into Classrooms

2.2.1 Digital Technology Integration and their Benefits

We are living in a digital world and digital technology is not outside of our students and fellow teachers everyday experiences anymore. Students do not see iPads, laptops, and tablets as technology, but a part of their everyday life. Integrating digital technology into the classrooms is a way of making learning relevant to our students and their generational times. Edutopia (2008) states it is a way to make learning more fun and meaningful for the students in our classroom today. Digital technology integration in classrooms are fairly prevalent as a survey showed that 90% of teachers stated they used some form of digital technology in their classrooms (Digedu, 2014). Accessibility to digital technology in schools were always a huge barrier to implementation and equality, but Ontario’s Ministry of Education had announced in September 2014, that they were funding one hundred and fifty million dollars over the next three years to invest in technology, specifically iPads, for our classrooms (Rieti, 2014). It takes a big move from the top to get the ball rolling in the changes we want for our classrooms and children. Although it will be a process, no longer will schools not have the equipment available for their students to access. Ontario’s Minister of Education, Liz Sandals, made a great point in stating that with this access to technology at their fingertips, schools become a great equalizer to give all students an equal opportunity to not only use technology, but to acquire the necessary skills they need to survive in a complex, highly technological, knowledge-based society (Edutopia, 2008; Rieti, 2014). Other school boards have also taken other options to provide affordable technology for families to use at school and at home. Peel Region District School Board have tablets for fifty five dollars to
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lend to students to bring home to bridge that digital divide gap between the privileged and underprivileged in our society (People for Education, 2014).

Research has shown that the use of digital technology in the classroom has promoted more student-centered and individualized learning, more collaboration, use of critical thinking, and finding alternative solutions to problems (Granot-Gilat & Spektor-Levy, 2012; MaRS Discovery District, 2011; Muir-Herzig, 2003). The online world provides students with an abundance of resources, connecting students with real-life experts, providing many opportunities for understanding through text, visuals, and sound (Edutopia, 2008). It allows for learning opportunities that extend beyond our classroom walls (People for Education, 2014). In Barone & Wright’s (2008) article, it outlines a typical literacy day in Mr. Wright’s 1:1 laptop classroom as a student: Students automatically pick up files from the school server to learn what the learning and expectations of the day will be. He syncs his calendar with the teachers so he has the most updated version of the homework and day schedule. He checks into the morning sponge/activity to keep students engaged while the teacher is checking in with individual students if necessary. When completing a pair-share during the reading of a story, students use instant messaging to do so with their clock partner; the teacher has a clock for each student with a different peer’s name near each time, therefore when the teacher says a time, each student knows who their partner is automatically. Articles are assigned at each student’s reading level, so the entire class is reading similar articles but at different ability levels (Barone & Wright, 2008). Students join in on a blog where students who are reading the same book comment on each other’s posting. Everything the student’s need can be found on the classroom website. The above mentioned details from Mr.
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Wright’s classroom is only one real-life example of how digital technology integration can foster independence, collaboration, confidence, critical thinking, problem solving, and differentiated instruction. Quillsoft is another program that provides prompts when students face writing difficulties on the computer. This kind of program allows for individualized learning and assessment, giving the teacher more free time to support students who may need more attention in the classroom (MaRS Discovery District, 2011). Research has shown that students who learn with laptops in a 1:1 class for two to four years develop better learning skills and information literacy than students who learn with no ICT (Granot-Gilat & Spektor-Levy, 2012). The study showed that it is definitely beneficial in the long run for students to be in a 1:1 classroom with personal laptops and is worth the current investments (Granot-Gilat & Spektor-Levy, 2012). The sky is the limit when digital technology is used effectively in a classroom, not just for the sake that it is technology, but as a tool for learning. It is interesting that play is a concept that has been recognized as significant in our learning environments, yet the use of technology and games has yet to fill part of that void (MaRS Discovery District, 2011).

Digital technology has shown to allow teachers to change their roles from standing in front of the classroom and lecturing, to being a facilitator and encouraging students to explore and problem solve (Granot-Gilat & Spektor-Levy, 2012). It changes the way teachers’ teach and is an alternative way to reach different types of learners, effectively address their needs, and assess student understanding through multiple means (Edutopia, 2008; Granot-Gilat & Spektor-Levy, 2012). As every student learns differently and is unique in their own way, digital technology is a way to differentiate instruction within the classroom and provides a way to allow each
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student to work at their own pace (Granot-Gilat & Spektor-Levy, 2012). No longer will a one-size fits all model work in our 21st century classrooms where there are multiple intelligences (MaRS Discovery District, 2011). According to a survey completed by over 600 teachers, they reported using digital technology in their classrooms had positive effects on their student’s engagement and participation (Digedu, 2014). In Warschauer’s (2006) research, he observed increased student engagement in wireless classrooms as they participated in more writing activities, analysis of reading, and use of media-production software. Students in his study quickly realized that there was more to a computer than playing games, and gained practice in reading, interpreting different elements in a document, and learning how to research and find information (Warschauer, 2006). With digital technology and a project-learning approach, students are more likely to stay on task, which has shown to minimize behavioural problems in the classroom (Edu-topia, 2008). There is data suggesting that digital communications can also improve the home-school relationship and communication. This could vary from a blog, e-newsletter, website, social media accounts, and other mediums to keep parents involved and informed about the daily and upcoming activities that are occurring in the classroom and at school (People for Education, 2014). There are specifically some forms of technology that allow two-way communications between home and school, that may make it easier for some families that cannot get to school on a regular basis to access information easier and at their own convenience (People for Education, 2014).

2.2.2 Barriers and Challenges Faced by Schools and Teachers

Although technology integration is pushing to be at the forefront of all schools nowadays, dropping off these digital technology devices into the schools, and giving the teacher a taste of
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how it could be with a small professional development workshop to get them started, just isn’t enough. According to Hoffman (1997), there are still various barriers between the vision of digital classrooms and making that a reality within schools. Many of these barriers surround teachers and not having the support to use the devices in a meaningful and successful way in which it is enhancing and supporting the student’s learning, and not just consist of playing free games on iPads during free play time. In a survey, 62% of teachers said they want to use technology more than they currently do (Digedu, 2014). Research suggests that the barriers to technology integration are not foremost about the use of technology, but more so on the integration, accessibility, training, and pedagogical direction (MaRS Discovery District, 2011). Surveys show that 46% of teachers report lacking adequate training on technology use, 51% of teachers report lack of adequate support, 48% report a loss of class time due to technology issues, and 33% of teachers report lacking adequate visibility into what students are doing when using technology (Digedu, 2014). Other studies found that even when teachers are well-prepared by pre-service education, they still face the same barriers mentioned above when it comes to the integration process, including constraints with curriculum, access, lack of technical support and preparation time (People for Education, 2014). Surprisingly, those are actually only second-order issues, as there are more pressing, fundamental problems that teachers cite as barriers preventing them from using technology more often: 43% of teachers report there are bandwidth issues in the school (Digedu, 2014). Principals in Ontario schools were excited about the changes digital technology brought to their schools, however lack of network infrastructure and unstable or slow wireless access were among a few of the challenges they faced (People for Education, 2014). It is difficult for schools and administrations to be on board with such big changes, when basic components like
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the network’s infrastructure isn’t acting as a strong base and cannot support the school’s internet activity. Schools have also commented on the frustrations for teachers and administration of using out-of-date digital technology, the expense of staying current, and the expectations of being technologically savvy when the infrastructure is not there to support them (People for Education, 2014). These barriers start with poor integration of digital technology in the sense of the set-up, and on top of that, lack of training and support. All of this combined prevents teachers from using digital technology to its fullest potential in the classroom, allowing for new learning experiences, having the tools to improve student achievement, and giving teachers the opportunity to better track their students’ progress (Digedu, 2014). Schools should not be expected to be current and use tools that our students nowadays connect with, when they are not set up for success.

When it comes to teachers’ attitudes on the topic, many teachers may not be motivated to take it seriously; they look around and observe their colleagues teaching fine without any changes or digital technology, so they question why they should spend extra time and efforts to learn and implement something completely new (Hoffman, 1997; Smart, 2008). Teachers are worried about how to integrate it with their current style of teaching methods and strategies and how it may not combine well (Hoffman, 1997). Many teachers are not comfortable with using digital technology in their personal lives, let alone take charge and use it throughout their lessons. As all educators know, time is extremely limited in classrooms. In a blink of an eye, the forty minutes one had for a lesson is gone. Where are teachers supposed to find the hundred of hours it may take to learn and become comfortable with effective digital technology integration into classrooms? It may have to begin with only the teachers who aren’t afraid of change or risk,
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and then once they jump on the train, they will share and promote it to other fellow teachers, and that is how it starts and spreads (MaRS Discovery District, 2011).

2.2.3 How teachers can be better supported for successful technology integration

To successfully integrate digital technology into our schools, teachers and administrations have to be on board. Administrators must provide a strong leadership to start the ball rolling in the right direction. It is the administrators that have the ability to control the incentives that can motivate teachers to start and continue integrating digital technology in their classrooms. They also have the ability to pay educators to attend professional development and allocate school hours for them to attend conferences. Two key components to a successful technological integration consists of distributing the resources for technology and staff development, both of which administrators are responsible for (Hoffman, 1997). The end goal consists of building the use of digital technology into the school’s culture, and that goes beyond just buying and giving schools the materials (MaRS Discovery District, 2011). Many principals in Ontario schools have noted in a study some strategies that was observed to be a difference maker such as, support of resource staff at the board level to help identify ways to use digital technology, and mentorship programs between teachers within the school (People for Education, 2014). Teachers need to feel like they are supported and are not tackling this huge change on their own.

Another effective strategy that was noted was to provide opportunities for teachers to make half-day visits, either within the school or to another school, to observe what other teachers are doing to successfully integrate digital technology in their classrooms (Hoffman, 1997). This
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will ideally help teachers see what is practically being done and for visual learners, it may help teachers understand why it is important for digital technology to be used as a tool in classrooms and how the students respond to it. Although availability and access to technology is important, having user friendly hardware and software, as well as information on how to use it, for all parties, is even more crucial (Hoffman, 1997). If it is too difficult for users to use, students will not be excited and teachers will not think it is worth their time. Especially when schools are at the beginning stages of implementing digital technology into their classrooms, leadership through a technology coordinator is essential. The coordinator can influence other teachers to have a greater use of digital technology, suggest software and applications that promote higher-order thinking skills, as well as create a digital technology learning environment that promotes activities other than the typical drill and practice (Hoffman, 1997).

Overall, it is important to start looking at building digital learning into students’ education in Ontario schools, and less as where can we use it just for the sake of it. Educator’s need to understand that technology is not a requirement to effective teaching, however, digital literacy is a requirement for students’ participation in adult life (People for Education, 2014).

2.3 How Technology can impact and support English Language Learners’ (ELL) learning and engagements

As ELLs make up a significant amount of our population in schools, educators are looking for effective ways to teach them a variety of different skills. Digital technology plays an essential part in providing ELL students the structured one-on-one English practice they need and
Digital Technology Integration to support ELLs’ learning and engagements acts as a supplemental teaching tool (Green & Ybarra, 2003; Smart, 2008). Students need to be able to learn through communication with one another, and digital technology can act as that tool to increase the amount of verbal exchange occurring in the classroom environment (Green & Ybarra, 2003). There aren’t any specific technologies that is better suited for using with ELLs than others, but most importantly teachers should choose technology that increases student interactivity; such as Web-based pen pals to discussion boards (Lacina, 2004). Digital technology not only helps ELL students with their basic language skills, but also helps them learn to apply it later in a social setting (Smart, 2008). Research has found that many ELL students spend their day listening to others, but not actually interacting with the language itself. Digital technology allows students to become more immersed in the language as it brings an aspect of unpredictability, mixing things up so students stay engaged in ways traditional classrooms do not allow (Smart, 2008). Web-based chat sessions and discussion boards allow students an authentic means of communication, encouraging active participation from the students (Lacina, 2004). Especially as ELLs, being seen as shy or introverted due to language barriers, an online discussion board may be a place where their voice can be heard and not have to worry about the minute details of mispronunciation or spelling (Lacina, 2004). With online chatting and discussion, the text is always in front of the ELL, avoiding them from missing a word or phrase that may make the whole conversation or sentence incomprehensible (Lacina, 2004). Research indicated through his medium of communication, student engagement is maintained as ELLs have the ability to read the conversation more than once, as they determine who they want to respond to their peers (Lacina, 2004).
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A study by Liaw (1997) was conducted to see if computers specifically increased the verbal interaction between students. There are always teachers and principals stating that sitting a student down in front of a computer does not do anybody any good (Smart, 2008). These digital books that were used had many different interactive choices: read aloud, music, interactive highlighting, sound effects, and many more. Through videotaping student interactions of students in groups of three using digital books, their speech used with each other were analyzed. Although the students were ELLs, not only were they able to use the different features to complete the reading of the book, they shared opinions with one another and made suggestions as well. They asked each other many questions, each providing responses, and their overall quality of talk included both computer and story related talk (Green & Ybarra, 2003). Overall, this particular study concluded that digital technology can provide ELLs with an opportunity for verbal interaction to foster their language development, and can also be a useful supplement to the traditional curriculum (Green & Ybarra, 2003).

Currently, survey results show that digital technology is not being used in classrooms to their fullest potential. Although these could be seen as facilitating authentic connections, the most reported use for digital technology are 73% for word processing, 72% for research and 67% for video projection (Digedu, 2014; Smart, 2008). These are all fairly basic usages and shows a lack of technology use to enable more advanced, digitally enhancing possibilities (Digedu, 2014). There is a growing body of research that has disclosed the language-acquisition value of building teams, problem solving, and thinking critically through online games, chat rooms, and web-based interactions (Smart, 2008). Social online communication has shown several benefits
Digital Technology Integration to support ELLs’ learning and engagements to ELLs as there is more opportunities for expression and meaningful discourse, greater linguistic production, more student engagement, and less teacher directed interaction (Smart, 2008). Professors are focusing on how technologies allow ELLs to focus in on the text and have opportunities to engage with real-life audiences and issues (Smart, 2008). One of the key components observed through students’ usage of online discussions is that they tend to use more complicated vocabulary. This is because it is easier to see what other students have already written, and use that as a model to write their own responses (Smart, 2008). A researcher cites the real-life work of a group of grade three and five ELL students to show what is possible with the effective usage of digital technology: their goal was to research the lives and work of nearby strawberry-field workers. The students came up with their own research questions in English, translated them into Spanish to conduct the interviews, and then translated the responses back into English. They wrote poetry about their experiences, drew graphs for the data they collected, conducted online research, wrote letters to different parties requesting more information, had online communications with students in Puerto Rico, and gave a presentation to their community on their findings (Smart, 2008). This project allowed the students to fully immerse literacy activities into something that was culturally relevant to the students’ lives. It gave them a chance to focus on the text and what it really meant (Smart, 2008).

In Smart’s (2008) article, she came up with a list of practical applications and software that can be used with ELLs in the classroom, whether independently or in a small group. These programs focus more solely on the betterment of student’s literacy skills.
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1) Read Naturally - a multimedia reading program that helps students develop their English fluency.

2) Rosetta Stone - helps students associate images with English words and sentence structure.

3) Scientific Learning’s Reading Assistant - one-on-one guided oral reading support program.

4) Kurzweil Educational System’s Kurzweil 3000 - accessibility to grade-level content and can read in multiple languages.

5) Lexia Reading - teaches phonics and phonemic awareness.

6) MindPlay’s My Reading Coach - focuses on articulation.

Many of the programs above can record audio files of students’ reading, the corrections they make, documents errors, evaluates comprehension, and provides thorough data on monitoring the students’ progress (Smart, 2008). Digital technology acts as a great supportive environment where students who are not comfortable reading in front of their peers yet do not have to, but still can practice individually without anxiety.

2.4 Conclusion

This study explores the question of how a sample of teachers integrate digital technology in the classroom and to learn what outcomes they observe from their ELL students. After an extensive read of the literature out there, this study has taken the relevant information on English language learners (ELLs), digital technology integration in classrooms, and how digital technology can support ELLs’ learning and engagements in the classroom to learn where the gaps in the research are. There are gaps in the research in how technology can support struggling ELLs to be socially accepted, when ELLs commonly have limited interactions in social settings with English
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speaking peers. Research indicates pull out programs are not effective and not cultivating the
students’ English Oral language proficiencies. There is greater success where there are supports
and strategies implemented in the classrooms, but research focuses on strategies that keep them
up to pace with other students through diagrams on the walls, labelled objects, and so on. My
research study will look for best practices and strategies that can be implemented by educators to
directly include ELLs in their learning, providing them a platform for differentiated instruction
and learning, as well as how teachers are using technology to benefit ELLs in the classroom
through social online communications, web-based interactions, and so on. ELLs are expected to
increase their learning at a pace like no other and many are looking to digital technology to fill
that gap. Using the tools that are relevant to our current students’ lives to make learning more
interesting and individualized can be momentous in their progress. This research study con-
tributes examples from exemplary educators who are using digital technology effectively in their
classrooms to support ELL students. Educators from all around the world will then be able to
take those practical strategies and not only gain personal ideas, but feel confident in implement-
ing them as well. The contribution my research is hoping to make is to note what constitutes op-
timal training and support, what kinds of hardware and software produce the best results and for
what, and look into what is needed to bridge the gap from where we are in the present day to a
future where digital technology can consistently help teachers and students make the most of
their time in the classroom (Digedu, 2014).
Chapter 3 - Research Methodology

3.0 Introduction (Chapter Overview)

In this following chapter, I describe the research methodology used for this study. I begin by reviewing the general research approach, procedures, and data collection instruments before elaborating more specifically on participant sampling and recruitment. Next, I explain the data analysis procedures and review the ethical considerations pertinent to my study. In addition, I identify a range of methodological limitations but also speak to the strengths of the methodology. Finally, I conclude the chapter with a brief summary of key methodological decisions and my rationale for these decisions, given the scope of the research purpose and questions.

3.1 Research Approach & Procedures

This research study was conducted using a qualitative research approach involving a literature review and semi-structured interviews with two different teachers. A qualitative research approach was chosen to understand experiences in which we, as researchers, did not personally participate in (Lichtman, 2013). Qualitative research is done when researchers want to understand the contexts and settings in which participants of the study describe the issue or problem (Creswell, 2013). This method allows the researcher a first-hand look into the real-life problems and practical methods that current educators are using in the field of the research topic. Researchers play a key role in a qualitative study, as they carry out the interviews personally with the open-ended questions they created (Creswell, 2013). Throughout the whole qualitative process, each participant offers a different perspective on the topic from their personal experiences, leading to a diverse pool of views to draw information from. As the qualitative study is
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emergent, the idea is to learn about the issue from the participants and engage with them in the best practices to obtain additional information (Creswell, 2013).

The qualitative method is a suitable approach for this study because it can support and develop theories where existing theories may not sufficiently capture the complexity of the problem we are examining (Creswell, 2013). Qualitative research provides a more detailed understanding of an issue and this detail can be established by having direct conversations with people and giving them the opportunity to share their perspective, free from any bias by our expectations from previous research or literature (Creswell, 2013). As a qualitative researcher, I was interested in looking at what specific educators are doing, rather than seeking to change what they are doing to see how that change affects how students learn and are engaged.

3.2 Instruments of Data Collection

The primary instrument for data collection used in this study is the semi-structured interview protocol (see Appendix B). This instrument is appropriate because it allows the researcher to cover any particular topics they specifically would like to, as well as additionally hear the participants’ individual stories (Rabionet, 2011). As a result, the researcher is prepared with an introduction and general questions to get the conversation started, with supplementary questions on hand to probe for more information if it does not come up (Rabionet, 2011).

Semi-structured interviews provide a great deal of versatility (Galletta & Cross, 2013). In this research, it was suitable because I was interested in speaking-with various teachers from dif-
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different backgrounds, each providing an individualized perspective on the research topic. Within
the semi-structured interview method, there is room for researchers and participants to engage in
critical reflection of the information. There is no set schedule or format, therefore the exploration
of the participant’s narrative can be done at any time (Cross & Galletta, 2013). There is always
room for the researcher to pursue questions that critically engage the participant to further ex-
plor their experience through a different angle and perspective, supported by theories and other
data pools (Cross & Galletta, 2013).

3.3 Participants

This section reviews the sampling criteria I established for participant recruitment, and
describes the avenues for recruitment that I used. I also introduce the participants, and provide a
brief biography for each of them.

3.3.1 Sampling Criteria

My research study investigated how teachers are integrating digital technology in their
classrooms, such as iPads, tablets, and SMART boards, and what outcomes these teachers ob-
serve from their ELL students. The sampling criteria that I applied were:

1. They are teaching in K-8 classrooms.

2. They have 5 or more years of teaching experience in a full-time position.

3. They have experience working directly with English Language Learners in their
current or previous classroom.
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4. They show a commitment and leadership in the area of integrating digital technology in classrooms, and have used it to specifically support English Language Learners.

I chose to select teachers who were teaching between kindergarten to grade 8 as it can directly inform my personal practices as a future teacher in these grade levels. Digital technology in classrooms can also be used in similar aspects, just at varying levels, throughout these age groups. I thought it would be informative to see if there were any overlapping practices amongst the teachers who teach primary, junior, and intermediate grades. I also selected teachers who had been teaching full-time for five or more years. It was important that the teachers had the time to try and modify certain strategies in the research study area, and to build themselves a reputation of pursuing a leadership in this field or specific community they are in.

As my primary focus for my research directly relates to English Language Learners, I selected teachers who have experience working directly with English Language Learners in their current or previous classrooms. Teachers who have firsthand experience with English Language Learners have better insight as to the challenges ELLs may face on a daily basis in the classroom, and be able to observe and note the differences with how digital technology can and has impacted and supported them in their learning and engagements in the classroom.

Lastly, I selected teacher participants who have demonstrated a commitment and leadership in the area of integrating digital technology in classrooms and have used it to specifically support English Language Learners in some way. Some examples could be through the form of
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providing professional development for colleagues, attending additional workshops or training in this field, and/or writing an active blog to support other educators within this particular topic of interest. Recommendations was also made by fellow colleagues or distinguished educators in the field of education, based on their personal knowledge and observation of leadership and commitment in the field of digital technology integration, and how that can affect English Language Learners’ learning and engagements.

3.3.2 Sampling procedures

In order to locate my teacher participants, I used a combination of convenience and purposeful sampling. The convenience sampling approach consists of selections being made on the basis of who is available and willing to participate (Lewis, Nicholls, Ormston, Ritchie, 2013). The sample was selected based on time, location, and availability of participants (Merriam, 2009). Initially, people at the board level who focus on technology integration and principals of schools that have a dedicated focus on technology integration were my target groups for my teacher participants. I also explored a few professional development and conference workshops that were offered in this field of study, as the participants would likely be teachers that are dedicated and committed to being leaders in this field. As finding participants were harder than anticipated, I looked into my personal networks with current teachers to inquiry through their professional networks, as to if anyone fit my sampling criteria. As well, I am immersed in a teaching community in the Masters of Teaching Program, therefore I relied on my networks and existing contacts there to recruit my teacher participants. I provided them with my teacher criteria and asked them to give my information to any individuals that came to mind, as opposed to asking
them to provide me with the potentially suitable teacher participant’s contact information, due to potential ethical issues. I received responses from two different participants, one a lead technology teacher at one of my practicum schools, the other a lead technology teacher I was connected to through another teacher. Both expressed volunteering their time to participate in the research study. The purposeful sampling method intertwines in as it considers that the researcher wants to discover and gain insight from a sample of participants in which the most can be learned (Merriam, 2009). Therefore, I selected teacher participants that can demonstrate their special experience and competence in the research topic.

3.3.3 Participant Bios

For the purposes of this study, I recruited two participants that met my sampling criteria.

Linda

My first participant was a female teacher who had been teaching for 24 years, 20 of which were full-time, in a public school board in Ontario, as well as a private day school. At the time she was a full-time teacher librarian, working with students ranging from Kindergarten to Grade 5. Throughout her profession as a teacher, she had gained experience teaching everywhere from Kindergarten to grade 7, with the exception of teaching grade 4. She currently worked in a school with approximately 245 full time students, ranging from Kindergarten to grade 5. The school had a 90% immigrant demographic and most of the students are considered to be English language learners, even though 80% of the students were born in Canada. Linda had always had a personal interest in technology. She almost went to school for Engineering, but she realized that teaching was where her passion was. It was not until she started teaching that she quickly
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became aware of the need for technology as a form of support in our classrooms. She had been proactive in searching for professional development opportunities throughout her career, and was a digital lead in the digital lead community, giving professional development to others in the educational community. Through her interest in Science, Technology, Engineering, and Mathematics (S.T.E.M.), she had also become a S.T.E.M. leader, making S.T.E.M. more prevalent in her teaching in the school. She continued to strive to be at the forefront of technology integration in classrooms by increasing her knowledge to better support students in their learning.

David

My second participant was a male teacher who had been teaching full-time for 11 years in a public school board in Ontario. He was currently teaching grade 8, homeroom, which included the subjects Mathematics, Literacy, and rotary History and Geography for all the grade 8 students. In his previous years of teaching, he also taught a grade 1/2 split, 5 and 7. This was the third school he has worked in, all in the same public school board. The current school he worked in had approximately 820 students. The demographics found in the school were mainly families who were either first or second generation new Canadians. Before teaching, he worked in the technology field for approximately 20 years. At one point, he had his own consulting company on Lotus notes integration and developing HTML websites. He believed his background prior to teaching informed the direction he took, as far as how he could utilize technology in the classroom to develop potential and support his students. At the time of the research he was the technology lead in his school, always looking for different innovative opportunities, such as Google Expeditions, for his school to access and participate in.
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3.4 Data Analysis

The process of data analysis consisted of various interconnected processes, including organizing the data, conducting a reading of the transcription, coding and organizing themes, representing the data, and forming an interpretation of them (Creswell, 2013). Each interview was recorded using a recording application on an iPhone, in order to be later transcribed, analyzed, and coded. After the interviews were transcribed, I read the whole transcript in its entirety to gain a sense of all the details as a whole, before breaking it down into pieces (Creswell, 2013). I wrote down notes while reading through the transcription as it was helpful in transitioning to the categorization of details and themes in the coding process (Creswell, 2013). Coding makes reference to the way researchers re-label their data throughout analysis. The process of organizing the data into specific themes is referred to as indexing and sorting (Lewis, Nicholls, Ormston & Ritchie, 2013). This allowed for easier comparison between the different interviews, noting the common themes and divergences in the overlapping information. I then interpreted the data and made meaning of it in the context of existing research and literature in this field (Creswell, 2013). In addition to what the participants shared in their interviews, I recognized that there was information that was not spoken of and investigated that with the reviewed literature (Creswell, 2013). This null data was important to acknowledge as the silences in the data pinpointed any possible gaps or issues that may need to be further explored.

3.5 Ethical Review Procedures

Throughout the research study process, various ethical issues were taken into consideration that might surface during the study. Participants were told clearly what the purpose of the
study was (Creswell, 2013). They received an informed consent form to complete (Appendix A), giving the researchers permission to interview them, as well as audio-recorded. The consent form provided an overview of the study, addressed ethical implications, and specified expectations of participation (1 45-60 minute semi-structured interview) (Creswell, 2013). Participants’ and their students’ identities was anonymous throughout the study and pseudonyms will be used for confidentiality (Creswell, 2013). They were also reminded that they have the right to withdraw from the study at any time, with no questions asked. As everything was saved electronically, all research study documents and files will be password protected to ensure the highest level of security for the data, and will be destroyed after 5 years. There are no known risks to participation. As it is a semi-structured interview, the interview process and questions are fairly flexible and the participants were reminded that they only have to answer the questions they feel comfortable answering and can fully withdraw anytime. The goal is to create an open channel of communication with the participant and ensure they felt at ease and comfortable with sharing their story and perspective on the topic of research. Finally, after the transcription section of the study was completed, the participant had the opportunity to review them and clarify or retract any statements before the data analysis (Creswell, 2013). Only my course instructor will have access to the raw data collected.

3.6 Methodological Limitations and Strengths

This section addresses the limitations and strengths of the research study. To begin with, given the ethical parameters that the Masters of Teaching Program has provided approval for,
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teacher participants are the only interviewees permitted. Consequently, this means that no students, parents or school board authorities could be interviewed for the purpose of this study. The MTRP also only allowed semi-structured interviews to be performed, which limited the methodologies to a single research methodology. If a mixed research method was permitted, additional information could have been retrieved and quantitative data would be available as well for the research (Collins et. al, 2007). The parameters of the MTRP also allowed approximately three interviewers to be chosen, which consequently created an extremely small sample size. With only a few participants, the results are not generalizable to a broader population (Hackshaw, 2008). However, studies with a small number of participants are quicker to conduct and easier to obtain ethical approvals, which is well suited for the capacity and time frame of our research study (Hackshaw, 2008). Another limitation, a face-to-face interview has is the absence of body language when transcribing the interview. There is a chance that meanings may be left out as the participants may have meant one thing, but used different words to try and convey that message (Scheurich, 2006).

Although there are various limitations that come with this research study, there are also many strengths too. Having the opportunity to speak directly to individual teachers who are currently in the field of education has great significance. It allows the researcher to hear their in-depth experience and perspective, as opposed to the general questions that are asked on a survey. There is a lot more flexibility in the sense that the participant can talk about what they feel is important, which the researcher may not have accounted for. The flexibility also becomes a strength in the sense that the researcher has more room to probe the participant with questions to explore
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different aspects of the participants answers (Creswell, 2013). This research method allows participants to be reflexive on their own experiences and practices (Creswell, 2013). Their voices can be validated and heard by others, allowing them to create meaning out of their experiences and hard work (Creswell, 2013). Overall, this methodology has multiple limitations and strengths, however is suitable for the parameters of the Master of Teaching Program.

3.7 Conclusion

This chapter provided the details on the methodology used in this research study. A qualitative study was fitting given the parameters of the Master of Teaching program, as it allowed me to gain a deeper understanding of my participants’ experiences and practical methods for my research topic. I used semi-structured interviews with two different teachers to collect my data. My sampling criteria were established for recruiting my teacher participants and my methods of finding my participants as well. Data analysis involved transcription, coding, and analyzing the themes that surfaced through the interviews. Next, in chapter 4, I report the research findings.
Chapter 4: Findings

4.0 Introduction

In this chapter, I report the research findings derived from two interviews conducted with current educators, one of whom was working in the Toronto District School Board (TDSB) and one of whom was working in the York Region District School Board (YRDSB). Both teachers had been teaching for over 10 years and were technology lead teachers at their respective schools. Both research participants portrayed throughout the interview their genuine love and interest for how teachers can integrate digital technology in their classrooms to better support English Language Learners (ELL), and were excited to share their best practices and experiences with education practitioners and scholars. David had mentioned during the interview that once teachers figure out useful ways to use digital technology in their classrooms, they were usually pretty good at sharing it with their grade partners and coming up with new ideas. In the education profession, it is important to remember that we are never alone in the challenges and triumphs we face and overcome. We have a second family of educators around the world there to help when we are down and celebrate when we are up. Both teachers acknowledged the potential they see in digital technology integration to support the different learners we have in our classrooms today. The personal experiences and perspectives presented from the interviews are vital to this research project because they provide valuable insight into the best practices the teachers have discovered work in today’s classrooms, into the barriers that can challenge the integration of digital technology, and insight into how those barriers can be overcome.
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Throughout this chapter, I maintain the anonymity of the research participants through the use of assigned pseudonyms. I have excluded any specific information regarding the name of schools and neighbourhoods the teachers were working in, but include discussions of the student demographics in the classrooms to provide readers with an understanding of the level of privilege students may have had in terms of access to digital technology. I have organized the research findings into the following overarching themes, most of which have several sub-themes that follow: (1) When defining purposeful technology integration, teachers emphasized planning the lesson with a purpose, focusing on the technology promoting and endorsing the process of learning, and creating authentic real-life connections for students’ learning, (2) Teachers implement a broad range of strategies for integrating digital technology in their classrooms to support English Language Learners and these included involved attention to content, planning, and instructional pedagogy, (3) Teachers used SMARTboards, SMART notebook, iPads, Google applications and the Read and Write program to differentiate instruction to engage students with all different multiple intelligences, (4) When asked about supporting factors for integrating digital technologies to support ELLs, teachers tended to defer to identifying challenges rather than naming specific supports, (5) Teachers experienced a range of barriers integrating technology, and these included challenges related to preparedness, support, and infrastructure, and (6) Teachers observed increased student engagement as digital technology provided students opportunities to express themselves in different ways. It is worth noting that there is a high degree of overlap between the differing themes and sub-themes, and that many concepts were often intertwined throughout the interviews.
4.1 When defining purposeful technology integration, teachers emphasized planning the lesson with a purpose, focusing on the technology promoting and endorsing the process of learning, and creating authentic real-life connections for students’ learning.

At the beginning of this research project, it was imperative to include the word purposeful into my interviews as this research was not only interested in how digital technology was being used in classrooms to support ELLs, but how it was used in a purposeful and meaningful way to enhance their learning and engagements. However, purposeful was a very vague word that was difficult to define for the research participants. Without hesitation, both Linda and David nevertheless agreed that the word purposeful should be used when discussing digital technology use and integration, as they stated just saying you use technology is not even close to good enough. Survey results have shown that most of the reported uses for digital technology are not for facilitating authentic connections; instead, it is most commonly being used for word processing, research, and video projection (Digedu, 2014; Smart, 2008). Nevertheless, David and Linda answered the question in two different ways with their focus on slightly different components of digital technology integration. When asked to describe what his definition of purposeful technology integration was, David commented,

It’s not the technology that has the purpose, but the lesson behind it that has the purpose. So if we look at the lesson first, or what you’re trying to get across first, and then apply technology in a purposeful manner towards it’s development, in terms of the understanding for the student, then it’s worthwhile.

He decided to put the spotlight on the importance of planning the lesson. Too often does the blame get put on the piece of technology itself for malfunctioning or not working the way it was intended. He believed that digital technology integration is not purposeful when teachers
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come too focused on what technology they are using, or the fact they are using technology at all, and forget there is a process to students’ learning. He emphasized time and time again,

If the piece of technology does not specifically promote and endorse the process of learning and how to best construct and showcase the understanding of learning, and teachers were still trying to start with the technology, than it was just a big waste of time. It’s just busy work and they figure that one out quickly.

He believed that students have to be able to see how they can use it in their own future for it to be worthwhile and purposeful. A simple example David provided on how one of his recent activities was implemented was as follows,

So if we are doing an activity, like a math activity, where students are required to first develop an inquiry-based problem that shows their level of deeper understanding of the materials that we are covering and then apply that to the technology, like filming it, recording it, using Aurasma, doing Google drawings, that sort of stuff, then it is worthwhile to their learning.

On the other hand, Linda did not focus on using the word “purposeful” in her answer or during the interview, but described digital technology integration to be meaningful because there were many ways it could be used in the classroom. Whether it was to introduce lessons, to provide hands-on learning opportunities, having it always be accessible to students, or to have the ability to engage all different kinds of learners, she believed the potential for digital technology to enhance student’s learning and engagements were endless, especially for English Language Learners.
4.2 Teachers implement a broad range of strategies for integrating digital technology in their classrooms to support English Language Learners and these included involved attention to content, planning, and instructional pedagogy

There are many different factors that need to be taken into consideration for the successful integration of digital technology to support ELLs. Both participants identified a range of components that were effective in resulting in the successful implementation of technology in their classrooms to support their students. These included the importance of planning the lesson, assessing students’ planning, breaking down stigmas surrounding ELLs, creating a safe environment, opportunities to use first language and provide knowledge on the importance of a student’s first language, moving towards a student-centered learning and teaching approach, thoughtfully considering when to integrate digital technology, and having a learner’s mentality at all times. Both participants approach to technology integration first involved creating classroom conditions that didn’t directly involve the use of technology. They believed the above mentioned components and conditions were crucial to being aware of in order for purposeful and successful technology integration to occur to support ELL students. These teachers’ beliefs about instructional considerations thus align with the view that the goal of technology integration should be to build it into the school’s culture, and that goes beyond just buying and giving schools the physical tools (MaRS Discovery District, 2011).

4.2.1 Teachers emphasized the importance behind planning and assessment

Although only David pinpointed the importance of planning the lesson for the integration of digital technology to be successful, both participants recognized the potential of technology as a supporting tool.
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It sounds pretty obvious that teachers need to plan well for their lesson to go well. However, with integrating technology, it takes a different finesse on how to purposefully intertwine technology and the curriculum to benefit students’ learning and engagements. It is not all about teaching what the curriculum says and crossing it off as it gets taught, it is about how digital technology can take students’ interest and enhance their learning to produce more self-directed, motivated, and high-quality work. Through many trials and errors with digital technology integration, David had observed that without proper planning from top to bottom, the quality of work produced by the students will likely be low. An example David provided is,

So you’ll see technology, if your doing a film where the students have to do a film, or some other piece of presentation material, what they want to do is they desperately want to start filming and then just kind of mucking around with it from there. That’s always a disaster because it just leaks time all over the place.

Both Linda and David made it clear that there is only a finite amount of time in school, so it is crucial to use it wisely and plan effectively. David stressed the significance of showing students the power of effective planning and getting them to practice it, that way the final product can be as good as they can get it completed, depending on their grade and development level. He found that once students see what effective planning does to the quality of their work, they buy into that planning process, because they know it works and is worthwhile to them. David believed it was important to assess the planning process and put more weight on it, he stated,

If you don’t plan it properly and give them the time they need properly to plan it, and also assess the planning, so the assessment around the planning is equivalent to the assessment of the final product. I think that is extraordinarily valuable. When we do a filming project, all the planning work is assessed equally with the final product, it’s
assessed higher. So it tends to be 60/40. The final product is cute and nice, but it’s all the thinking that goes in beforehand that’s interesting.

It was evident through the interviews, both participants had discovered a variety of elements that surprisingly had no direct contact with the digital technology itself, that were important to be conscientious and proactive about to ensure the successful implementation of digital technology in the classroom to support all students.

4.2.2 Teachers created a safe environment with the inclusion of familiar materials and not having ELLs centered out and treated differently, which allowed ELLs to gain confidence and step out of their comfort zone

Both Linda and David emphasized the importance of creating a safe environment for ELLs to try new things, make mistakes, and take risks. Beckett & Haley (2000) found that having positive social interactions helped ELLs identify the classroom as a safe and welcoming place, where they will not be judged for trying new language skills. ELLs are not only struggling through language shock, but they are struggling to be accepted into a completely new environment (Olsen, 2000). Establishing that safe environment is crucial for all students to have, but for ELLs, it is even more vital as they are battling many hurdles to be on the same playing field as the rest of the students. Too often the stigmas that surround ELLs take over and hinder the learning experience the students could be having. It is critical for teachers to recognize the learning and growth that occurs when ELLs are in the right context of a social climate (Olsen, 2000). Both participants expressed different practical examples they had done in their classrooms to create that safe environment for English Language Learners. Linda pointed out the disconnect in regards to the background knowledge for the English Language Learners, which in turn affected
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the way they felt in the classroom. One way she talked about filling that disconnect was to include familiar materials and stories in the classroom. An example was through the telling of fairytales. Linda found that Cinderella was a prolific fairytale that both children from Canada and worldwide all knew and worked through a unit on the fairytale, getting rid of any preconceived notions from the media as to what a princess may look like; blonde hair, blue eyes, pretty blue dress, and so on. She went on to discuss the importance of acknowledging the ELLs’ background,

Making students feel that, hold on a second, my background matters, my knowledge from where I came from matters, and I think that is the most important way to make kids feel that, and bring in their background knowledge, through their stories from home.

David observed using technology allowed ELLs to feel more comfortable in trying something different, as technology was something they had experience with personally. He stated,

We make extensive use of Google cloud-based technology to be able to collaborate and share with students, quite a lot. We’ve used MacBooks and iPads to do film and movie productions. We do public service announcements, newscasts, all sorts of things that are interesting, and the kids really like it. Just to broaden things out, we’ve used the iPads for stop motion animation activities, and webcams to do stop motion animation activities before there were iPads. Again, the idea is to get students to come up with the problems they can solve, and show it all visually. My point is that the more visual you can allow ELLs to show their understanding, the better. So if you give them opportunities to visually represent and show their understanding through the use of media, I think that can become really effective. It gives them a chance to see themselves speaking and using the language in a different context, which is more interesting for them.

With the emphasis being put on trying not to differentiate ELLs, David made an eye-opening comment about wanting the ELLs to see themselves as just another student, and the
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more they themselves can see that, the more powerful it is for them in their integration into the classroom community. Linda shared, “We need to give ELL students enough support and respect for the knowledge they are bringing into the classroom, even though they do not speak the host language.” By treating ELLs without judgment and build that relationship with them and their families, teachers can use that information to develop activities that help ELLs understand the new culture they have been put in, while still respecting the culture they are coming from (Meyer, 2000). ELLs not only need to learn the language and curriculum in our school system, but need to learn to trust other people to build their own self-confidence and independence. It was through a variety of ways that both participants were able to find ways to acknowledge students’ background and knowledge, and create that safe learning environment where students feel welcomed and that they belong in the community like every other student.

4.2.3 Teachers recognized the importance of using students’ first language to support their language and social development in the classroom

Linda spoke very passionately about the importance of allowing students to use their first language in the classrooms. She held strong beliefs that schools should be a multi-lingual environment stating, “I’m very much against the - you are in school now, speak in English.” She described how teachers’ should be promoting and showing acceptance of speaking in first language in classrooms, and relaying this importance of having conversations and reading in one’s first language to not only students and teachers, but parents. Many parents of English Language Learners’ may not have much English knowledge themselves, leaving them feeling helpless at times in supporting their child in school. Linda discussed,
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Whether it is reading to their child in their first language, it is important for it to be acknowledged that is just as important as having their child read a book in English. Letting them know that their first language supports their kids growth and education just as much as their learning English at school supports their language.

Linda expressed that “teachers are not providing ELLs with the acknowledgement that their first language is important, their heritage is important, their culture is important.” Research has shown that if students are reading in their first language and understanding literacy in their first language, they can make the leap into English quicker (Helman, 2004). That is where digital technology plays a huge role in students’ development and their comfort in using their first language. As Linda had discussed,

We are trying to close the gap. And that again is where technology came in using computers in the classroom and supporting the children and trying to use technology to not only look at their work and have their work read back to them and also opportunities for reading and listening to stories in their first language.

Teachers expressed the use of first language for ELLs may relieve some of the pressure they may feel in having difficulties in expressing and communicating their ideas and feeling inadequate as non-contributors in the classroom community. These teachers believed that digital technology gives students the potential to even work in their first language and have it translated to English. Linda communicated that it all depends on the level each ELL is at and due to the vast possibilities digital technology offers, there is a way to use digital technology to target each student’s individual needs. Once students feel more confident and safe in the classroom, it allows more room for personal growth and development.
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4.2.4 “Traditional teaching methods” versus “Student-centered learning”

Both David and Linda prioritized the importance of having a student-centered approach to teaching and learning. Research has shown that the use of digital technology in classrooms has promoted more student-centered and individualized learning, more collaboration, critical thinking, and problem solving (Granot-Gilat & Spektor-Levy, 2012; MaRS Discovery District, 2011; Muir-Herzig, 2003). Linda was clear in her beliefs that the traditional paper and pen way of teaching did not support ELLs at all and that is where they fall behind and lose out on a lot in their school experiences. Traditional teaching was a means to an end in her eyes. No matter what the end result was, positive or negative, that was the end. An example she provided, “Before you would shove a math test in their hands and they failed it, that was the end. You gave them a spelling test, they failed it, that was done. There was no learning in between.” In our 21st century classrooms, a one size fits all model will no longer work for all the different learners (MaRS Discovery District, 2011). Making connections with the earlier sub-theme of including students’ use of their first language, Linda felt it was affirming when in her classrooms,

We are seeing more and more students starting to, the lightbulbs are starting to come on, because they’re recognizing their interests are being recognized, they can ask questions, they can work at their own pace, they can do some of the background work in their own language, which can support them moving forward and feeling that they’re just as smart as the students who speak English as their first language.

Linda expressed how students felt more in control of their own learning and being proud of what they produced. Technology provides ELLs with more independence to their learning which can easily change their perspective heading into an assignment. Linda stated “The second you have an ELL that can translate instructions into their own language to understand what is
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being asked of them, you’ve reduced not only your frustrations as a teacher, but more important-ly, you’ve reduced the frustrations of that ELL.” Students can then start building on their own interests and knowledge, which becomes a motivation to learn in school. David’s response matched up with Lindas as well when it came to digital technology integration. It was all stu-
dent-based and student-centered around bringing in their interests and things that excited the par-
ticular group of students he had in front of him that year. In his eyes, digital technology in itself was following how students wanted to be learning and integrating it in what they do:

> With the goal being, if you are going to do something, you got to make it effective, you got to make it interesting, so you can do all those sorts of things that make it in-
teresting as far as integrating, and then you get richer and deeper work from the stu-
dents. They are engaged, it tends to be more inquiry-based, you are letting them ex-
-plore and show their understanding in different ways, without dictating what they need to specifically know.

People for Education (2014) found that digital technology allowed for learning opportu-
nities that extended beyond the four classroom walls. David talked about a few things that per-
sonally I haven’t heard about. He was currently trying to bring Google Expeditions to his school and that would bring student learning to a different level. It consisted of Google 3D reality glasses and it offers online 360 degree virtual field trips to anywhere around the world. He also inte-
-grated social media, something that students are always using, to his geography class and how it could be used for social good. Through Granot-Gilat & Spector-Levy’s (2012) research, they dis-
covered that digital technology has been shown to change the teacher’s role from teacher-direct-
ed and standing in front of the classroom, to being a facilitator and encouraging exploration and problem solving. Not only that, student-centred learning makes learning relevant for students and
like David said, “Happy students are good students. If they aren’t happy, they aren’t going to do anything for you.”

### 4.2.5 Teachers’ beliefs on when to integrate digital technology to support ELLs

Both participants spoke about when they believe it is the best time to integrate technology into their classroom to support ELLs. On the one hand, Linda directly said, “I always integrate technology! It’s great in integrating all the subjects together!” She discussed how teaching in classrooms should no longer be taught in isolation anymore and that everything should be cross-curricular. Linda viewed digital technology integration as a part of her teaching and not an addition. On the other hand, David made it clear that he has even told the students, he is all for integrating technology into their activities and lessons, but it is all about what the best way to do things is. If that happened to be technology, then there will be technology integrated within what they are doing. If it is not, then there won’t be. He continued on to say,

Technology doesn’t drive what we do, it’s just a tool, a resource. I will integrate technology if I think there’s a relevant use to it, if it will enhance students’ learning or not. If I don’t think it’s going to enhance student learning, I just won’t do it. It just doesn’t make sense to me.

David seemed to have a deep understanding and experience of when technology integration can be used purposefully as opposed to just being used. He really endorsed the SMART technology and notebook for other educators and integrated it mostly for literacy-based subjects, such as geography, history, literacy, and at times, if it will support showing a deeper understanding around the communications and thinking, then mathematics as well. Where the differences...
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shone through was that Linda used digital technology as a base and worked outwards, as opposed to David who was resourceful in using it as a strong tool only when it enhanced students’ learning and rarely at a surface level.

4.2.6 Teacher as a learner mentality

As an educator, it is always important to continue to grow as a learner and be proactive in seeking out ways to stay current or even ahead of the times, especially when it comes to digital technology, which is constantly changing. One of the ways Linda decided to continue learning was to put herself in a position where she would have to step out of her comfort zone, which was to become a digital lead, and start giving professional development to others. Her attitude as a teacher was if she wants to learn more about something, for example about S.T.E.M. and how to make that more prevalent in her teaching, she would become a leader in it to push her to continue looking for additional supports and resources that could make her that much better in that area. There definitely was a consensus amongst the participants with being proactive in their self-development and staying current. Both Linda and David personally described striving to be at the forefront of leading technology integration in their communities, and learning and growing with the technology to support students with that knowledge. Digital technologies such as the iPad have a multitude of functions and features that can be used to differentiate instruction for ELLs. From creating imaging in Minecraft to producing videos, Linda stated,

As a teacher, I’ve had to go in and learn a technology first before bringing them into the classroom. I know nine times out of ten, students are way more sufficient at producing something from the iPad. We have to be willing to realize now, student as teacher, teacher as learner. And that is a big leap for a lot of people to make as well.

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Linda believed teachers need to be reflective on themselves as learners and remember that classrooms should be more of a collaborative environment with their students. Both participants also credited their personal interest and curiosities in the field for having such a proactive learning mentality for digital technology integration. When asked about what digital technologies they are curious about, Linda immediately said “Are there any digital technologies that I’m curious…. I’m curious about everything!” As for other teachers who may be more hesitant with supporting students with digital technology, just the willingness to try and an open-mind will open many doors and possibilities for not only growth in the teacher, but growth in the students and community as well.

4.3 Teachers mainly used SMARTboards, SMART notebook, iPads, Google applications and the Read and Write program to differentiate instruction to engage students with all different multiple intelligences.

A central theme consistently emphasized by both participants was all the various ways digital technology acted as a great support to differentiate instruction for English Language Learners. It has the ability to change the way teachers teach and offers an alternative means to reach different types of learners, effectively meet their individual needs, and also assess their understanding through multiple means (Edutopia, 2008; Granot-Gilat & Spektor-Levy, 2012). The ratio of teacher to student in our classrooms today makes individualized learning very difficult to implement. Digital technology is a great resource and tool to ensure that each student gets what they need to be successful, especially ELLs, who may need more modifications to their instructions and strategies than other students may need. Linda had made a point to discuss how digital technology enabled teachers to bring in all different kinds of learners - kinesthetic, auditory, tac-
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tile, and so on. Instead of using paper and pen, which may only engage visual learners, by using
technology, it allowed the teacher to engage all different types of learners. Granot-Gilat & Spektor-Levy (2012) showed throughout their research that digital technology can be used in a way to
differentiate instruction within the classroom and give students opportunities to work at their
own pace. Different aspects of how digital technology could be used to differentiate instruction
for ELLs were raised by both participants such as in terms of the delivery of material, more time
to process information and complete work at their own pace, and offers a different way to
demonstrate understanding and learning. These sub-themes will be further discussed below.

4.3.1 Teachers used digital technology to modify the delivery of material in a lesson to accom-
modate the English Language Learners, and as a means to allow them to better demonstrate
their understanding of materials and work.

Both participants identified using digital technology as a means to revise and re-purpose
their materials to better suit the needs of the English Language Learners in their class. Meyer
(2000) had found that rewriting or explaining learning material supported lightening the lan-
guage load the ELLs faced in the classroom. English Language Learners, depending on age and
how long they have been in our school system, pick up communication skills fairly quickly once
immersed into the community. However, as Linda shared, “Even though the communication
skills may come very quickly, the playground language, the language of education doesn’t”. As
Meyer (2000) stated, ELLs need to have a certain amount of language and cultural knowledge in
order to understand meaning and participate in activities in school. So when your giving instruc-
tions, the student could very much understand the concept, but not understand the instructions.
Language then becomes the main barrier for understanding solely the instructional work. For
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David, the SMARTboard allows teachers to target individualized needs and he states, “Using SMARTboards in schools is useful because it allows us to identify the needs that individual students have, such as an ELL or an IEP, and then chunk and provide information to them in a manner that is best conducive for their learning.”

The teachers reported that the presence of digital technology also provides opportunities for ELLs to demonstrate their understanding. At times, all ELLs may need is the appropriate platform suited to their needs for them to excel. The abilities may be present but they are unable to showcase it. They need a specific platform and in this case, various forms of digital technology is that platform for them. Linda mentioned both Google applications and the Read and Write program as two platforms that really are beneficial to ELLs when used properly and efficiently. It’s the use of the right tools that can allow ELL students to fully participate in learning, regardless of their language abilities. Linda shared an example of the capabilities with an iPad,

iPads give them the ability to, from recording their thinking, to producing slideshows, to taking pictures, to drawing, to even Minecraft, creating images in Minecraft and bringing that into their learning from 3-D to animation. It has opened up a world of ways of students to present their learning. Kids who are musical, who can present something musically, kids who can create a video game to present their learning, it is just such a strong way to support kids learning and provide students with multiple intelligences an opportunity to express themselves in different ways.

David observed after integrating digital technology in his classroom that ELLs tended to be more visual in terms of showing their understanding of content. Through planning visually, using mind maps, he would integrate technology to create reports or documentaries with them.
He recognized that the mind map became a visual reference point and allowed ELLs to connect the language with the pictorial representation of what it was. He expressed,

> I started modifying a lot of stuff, things I was doing in class, to be less text-based, and more visual-based. I found that the more I did that, the more it allowed them the opportunity to show their understanding, show their thinking around what we were studying.

However, Meyer (2000) found that brainstorming is often fast-paced, oral or written, with minimal guidance, with the goal of gaining an idea of what the student’s previous knowledge was. It was suggested through a strategy called language bath that teachers would talk about the topic first, with students’ listening, before any brainstorming activity was initiated (Meyer, 2000). With ELLs, it would allow them to familiarize themselves with some vocabulary and gives them some time to think about their thoughts.

The Read and Write program becomes a tool to promote students’ language dependence and can scaffold students’ learning as well. Linda conveys,

> Students who are having a hard time reading, can read a research book at a much higher level because it is read to them… and the comprehension can be at a greater level as well because they are not only hearing, they are seeing and they can pull from the visual aspect.

Both participants were also big users of Google applications for education as they believed it has growth potential and significance for especially ELLs. There is a wave heading into many different school boards in Ontario, and according to Linda, as the Toronto District School Board has a license to the Google applications, parents who have children, especially with an IEP, can be given a code and have free accessibility to the programs on their home computers.
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An interesting component that did not come up in either of the interviews was the importance of supporting ELLs’ oral communication in class, socially or academically. Ybarra & Green (2003) emphasized the importance of ELLs’ learning through communication with one another, and how digital technology acting as that tool to increase the amount of verbal exchange occurring amongst the students.

4.3.2 SMART technology and iPads gives students more time to process the information during the lesson and work at their own pace with hands-on learning.

With ELLs, language becomes a clear barrier in the understanding and conveying of content. David found, “The SMARTboard allows you to really show the students the information in a way that gives them time to process and time to work with it in lieu of any challenges they may have, with the language.” Not only does the SMARTboard give students more time, David also found,

The SMART notebook allows you to pace your lessons and adjust them to the particular needs of your class. So the pace I would give to the class that has ELLs is different than the pace I would give a class without ELLs. I would understand going into it that the ELLs are going to have a harder time understanding what I’m saying in the first spot.

Smart’s (2008) findings are similar as it found digital technology to give ELLs a chance to focus on the text and the meaning behind it. Both participants mentioned the benefits of hands-on learning for any student, even more so for ELLs. They found providing ELLs opportunities for more hands-on learning, where they can manipulate the SMARTboard, whether it is moving a number line, clock, or manipulating objects, that resource and ability in itself provided a rich learning experience for them. This sub-theme ties into student-centred teaching and learn-
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ing as well because Google applications such as Google documents and Google classroom, allow students to collaborate and work off the provided materials on their own, which provides a whole different individualized yet collaborative learning experience for both teachers and students.

4.4 When asked about supporting factors for integrating digital technologies to support ELLs, teachers tended to defer to identifying challenges rather than naming specific supports

There was a clear absence of supporting factors mentioned throughout both interviews in regards to supports teachers had in integrating digital technologies in their classrooms. For David, he literally laughed out loud when asked about any supporting factors he felt he had, as he felt there were not any. The baseline it came down to for both Linda and David were their self-interest as the main supporting factors for integrating digital technologies. They both expressed playing around with different technologies and applications all the time because they found it interesting and wanted to learn how to better use it. David explained, “There are things that the board does, like workshops and stuff, but frankly, I tend to give the workshops right? So there isn’t a lot of workshops that I can attend.”

Both participants had made minor comments during the interview showing acknowledgement that they were lucky to have all this technology accessible to them. Linda did share that she does what she can with what she has available to her at her school. There is a lot of sharing of SMARTboards/Promethean Boards throughout the different classrooms and grades. David, however, mentioned the abundance amount of technology that was available at their school due to the parent council’s fundraising and support for the integration of technology with-
Digital Technology Integration to support ELLs’ learning and engagements in their classrooms. He never once mentioned how it was like at the other schools he has been a part of, in regards to supporting factors there, or what if teachers were not as fortunate to have access to this amount of technology. As David had expressed his school has approximately three hundred computing devices, he quickly led this question towards the lack of support that is available in the whole school community. He passionately stated,

The amount of support we get is exactly the same as a school that hardly has any technology! We are expected to support that many resources without any additional resource help at all from the board. So as the technology lead teacher, I get zero time in terms of time allocation to be able to support teachers in the other classrooms, zero, and that is just not possible. It’s just not practical, there is no time to do that for teachers, even if I really wanted to. There’s just no time!

In terms of lack of support, Linda talked about how universities are lagging behind in the proper support for teacher candidates. She believed the Ontario College of Teachers need to be more proactive and involved in putting down specific guidelines as to the amount of time teachers need to have taken a digital technology course to be certified to teach in today’s classrooms. Both participants were definitely not in the minority when complaining of lack of support because through Digedu’s (2014) survey, 51% of teachers also reported a lack of adequate support as well. She also mentioned how “the cutting of support for our English Language Learners is putting them at a disadvantage and it is putting us at a disadvantage because we are getting highly uneducated, highly intelligent kids, who are unable to show their learning.” If they are unable to show their learning, that is when they begin falling through the cracks in our education system. Cutting the support of ELLs outside the classroom hurts the support teachers are receiving as well. Without the support, modifications, and collaborations of ESL teachers and homeroom
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teachers, teachers will be even less supported in their support for ELLs in the classroom and especially finding ways to integrate digital technology to support their learning. It was interesting as in the literature, it had been shown that there was greater success with ELLs when they are not removed to a separate class to learn, but when strategies are constantly being implemented throughout the homeroom classroom (Brice & Roseberry-Mckibbin, 1999). From the participants’ experiences, it sounded like we were currently stuck somewhere in transition from taking the ELL students out of the classroom for extra support, to cutting that support as a whole. Although the intention is to give them more attention and one-on-one support, according to Fitzgerald (1995), Romo (1999), and Slavin & Calderon (2001), as cited in Mohr (2004), these programs that pull children out of their homeroom classroom do not cultivate ELLs’ oral language proficiencies or scaffold them to the appropriate levels in reading and writing. If the scenario is that the school boards are moving towards just having the teacher in the classroom support ELLs, teachers will need to be given more support on how to better integrate and support ELLs’ learning and engagements. Many principals in Ontario schools have noted in a study that having support at the board level on different ways to use the digital technology, as well as having mentorship programs between teachers made a difference in teachers feeling more supported (People for Education, 2014). Everything is connected in teaching and learning, it is a constant work of collaboration amongst different people, working towards the same goal.

4.5 Teachers experienced a range of barriers integrating technology, and these included challenges related to preparedness, support, and infrastructure.

When discussing barriers to the successful integration of digital technology to support ELLs, a few different concepts emerged as a shared theme amongst both participants. They
spoke about the need for students and teachers to be more specifically taught how to use the technology, a lack of understanding and willingness to try new things, a fear of looking foolish, not having enough opportunities to play around with the technology, a lack of support previously discussed, and the unpredictability of technological issues, all of which will be further deliberated about in sub-themes below. One barrier that was not mentioned was the accessibility to the technology itself. An assumption that usually arises in the discussion of barriers is that accessibility to technology in schools is one of the biggest barriers teachers face. However, in both my participants’ situation, it was interesting that there was no discussion at all in accessibility being an issue. Back in 2014, Ontario’s Ministry of Education had decided to fund one hundred and fifty million dollars to invest in technology for our classrooms (Rieti, 2014), and this could be an indication for that investment making an impact in our classrooms today. A vice principal from Toronto District School Board also shared how barriers may not necessarily surround the use of technology, but more so on the integration, accessibility, training, and pedagogical direction (MaRS Discovery District, 2011). Our participants definitely touched on many of those barriers themselves, explaining how they faced them in their school communities.

4.5.1 Teachers identified not giving teachers more opportunity to manipulate the digital technology as a barrier for digital technology integration.

With getting anything new, time needs to be spent figuring out how to use what you have in front of you, and also, how to use it to benefit yourself and others. Technology is no exception to that. David expressed by not getting the technology into teachers’ hands more and giving them
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a chance to mess around with it and make mistakes to try different things out is a big mistake. In his current school right now he indicated,

    We’ve integrated technology over the last two years and the idea is that we give it back to the classroom teachers. With the primary, we give them stands, iPads, and you guys are primary teachers, you mess around with it, you figure out the best way you can use it. And then what is interesting is that when they do that, they share; teachers are good at sharing what they know with others.

    David pointed out exactly what MaRS Discovery District (2011) reported, that effective integration of digital technology may have to begin with a few teachers who aren’t afraid to make mistakes and try, and those teachers will share and promote it to other teachers in the school community, and get that concept rolling. By taking a small piece of action and getting the technology out into the classrooms and into the hands of the teachers, where it should be, we are targeting many of the barriers teachers face at once. Once teachers begin getting comfortable themselves and they start sharing, that takes the pressure off the technology lead’s hands and it becomes a larger digital learning community.

4.5.2 Teachers believe fellow teachers and students need to be more specifically taught how to use the technology effectively.

    For both students and teachers, digital technology is seen in different lights. For students, they may see it as a tool for games and free play, and for teachers, they may only use it in their personal lives for surface level purposes like sending emails and connecting with friends, and so on. Just getting the technology into teachers and students hands was not enough. Without giving them proper training on how they can use it purposefully and effectively, we are basically setting up whomever is holding the piece of digital technology for failure. Through Digedu's (2014) sur-
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vey, 46% of teachers reported a lack of adequate training on how to use the technology. David had said,

They need to be more specifically taught how to use the technology effectively, so if they are developing their understanding of English, well how can we give them technology, and not train them in technology in a way that is going to be productive?

David mentioned how he observed Chinese students in his classroom, always being on small translators or the Chinese search engine, which eats up a lot of their time in the classroom. English Language Learners are really using technology the only way they know how to be productive in class and to stay on par with everybody else. Linda supported the idea that we need to teach students and teachers how to use it properly and stated “Their learning curve really increases when you put a piece of technology in their hands!” Teachers’ fear of using the technology may even decrease once taught, been given some guided instructions, or concrete ideas to try on their own. However, this does tie into the amount of time teachers are given to support other teachers, which was raised as another barrier to effective integration of digital technology to support ELLs.

4.5.3 Teachers identified a lack of understanding, fear of looking foolish, and unwillingness to try on the teacher’s part as hindrances to technology integration in schools.

Teachers both identified fear as a key barrier preventing technology from being integrated in schools and classrooms. Fear of technology, fear of looking foolish, fear of trying something new, fear of not being good at using it, the list goes on. David captured it well in his statement, “Teachers by nature are risk-adverse, so they are afraid of looking foolish and trying something new, especially relative to technology.” This statement was supported by what Hoffman (1997)
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and Smart (2008) found that teachers were worried about how to integrate it with their current teaching style and what if it didn’t mesh well. In both school environments, teachers also mentioned having accessibility to all this amazing technology, but finding that nobody is using it and it is just sitting there in classrooms. Linda talked about how it is just teachers having excuse after excuse as to why they are not integrating digital technology. She believed it came down to teachers plainly being uncomfortable with technology itself. At the end of the day she said, “It is just so beneficial, but we need teachers to realize the importance of using technology in the classroom.” As People for Education (2014) stated, teachers need to have an understanding that effective teaching is not determined by the use of digital technology, however, digital literacy has become a necessity for students’ participation in adult life.

4.5.4 Unpredictability of technical problems (internet, break downs of computer or SMART-board) and working with what you have (expensive - board is upgrading but not all schools have the same amount of resources)

Although the participants did not necessary pinpoint accessibility to digital technology as a barrier, there was discussion as to inaccessibility created by the unpredictability of technical problems. Linda had expressed many scenarios where she was left asking in her head, “Where do I go from here? What do I do?” According to Digedu (2014), 48% of teachers reported a loss of class time due to technology issues. Some of the specific issues Linda had faced were the internet connection going down, the wireless internet being unstable, the computer stopped working for no reason, the light in the digital projector stopped working, a student could not login to their school account, and so on, the list could be endless. Due to these unpredictabilities, it becomes a reason for teachers to choose not to use digital technology to begin with. Their fear of “what ifs”
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then trickles through when deciding if they should implement digital technology in their classrooms to support their ELL students. According to People for Education’s (2014) article, many principals in Ontario schools were on board and enthusiastic about the changes digital technology brought to their schools, however, a lack of network infrastructure and unstable wireless connection were just a few challenges they expressed they faced. It is difficult for schools when basic components acts as a weak base and cannot support the technology movement our schools are taking on.

4.6 Teachers observed increased student engagement as digital technology provided students opportunities to express themselves in different ways.

Both participants spoke about the observed benefits of increased student engagement with the integration of digital technology. This was also demonstrated in Edutopia’s (2008) article as they found with digital technology, students were more on task, which also affected the amount of behavioural problems that occurred in the classroom. Participants in this study believed that not only were ELL students more engaged in their learning, it provided all students a different means to express their understandings and knowledge. Through the development of materials that matched the students’ interests, that were challenging but intriguing, students really took to the technology to show their understanding in a variety of different ways that was more interesting to them. David shared,

It’s really neat when you see the kids kind of all buzzing around, working together on something, sharing their ideas, and coming up with different stuff. It’s also neat to see the feedback from the parents when they see their kids do something really neat on digital technology, something that they never thought their kids would be capable of doing.
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It was interesting as David expressed that at the beginning of the school year, he received a little bit of pushback from the parents because the teaching and learning style may seem different with all of the integration of digital technology. However, he mentioned that once the families saw the engagement increase in their children, that pushback became confidence and trust. “Their kids aren’t coming home and complaining, they are happy and motivated to come to school and they are doing interesting stuff!,” David explained. An example he provided was as follows,

Working on a project on Fair Trade with grade 8s. In the last two to three months, we gained an understanding of what economics, trade, and world sustainability was as background preparatory knowledge. What they had to do was apply that to a specific fair trade or product. There was a research piece, using Google drive and the Google research tool. Once they’ve done that, what they are going to be allowed to do is they can, in groups, decide to do either like a Rick Mercer Rant or another way to present their knowledge. They have to write a script, story board, then film it; that’s just one of the options. They can do a newscast report, using green screen technology set up at the back of the class. But again, they have to brainstorm it, develop it, storyboard it. There’s a planning procedure we want them to go through it. Something else they could do, as an option, is a public service announcement, but again, before they get to the fun bit which is the filming, which we all want to do, there’s the whole writing process that leads up to it. As a teacher, you got to make it effective, you got to make it interesting, so you can do all those sorts of things that make it interesting as far as integrating technology, and then you are able to get richer and deeper work from the students. They are engaged, it tends to be more inquiry-based, your letting them explore and show their understanding, without dictating what they need to know.

Digital technology is also a great tool to improve that home-school relationship and communication (People for Education, 2014). Linda concurred that it made teaching less difficult at times as students were engaged for longer periods of time, using digital technology as a hook to introduce lessons, to co-create success criterias to show students they are collaborators in their own learning, and to implement more inquiry-based learning to truly have learning led by the students.
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Smart’s (2008) research showed that digital technology brought an aspect of unpredictability, keeping students engaged in a way that a traditional classroom cannot match. Through higher student engagement, Linda noticed that it led to the ELL students producing different quality of work. She said, “You are going to have a very different piece of work from a student that you have asked to handwrite something versus something that is created on technology. They grew up with technology, it is just something they are comfortable with.” With more opportunities provided by digital technology to produce and generate, students can be more focused on getting their ideas out and not be distracted by all the small concerns that could take over their thoughts, such as spelling, grammar, messiness, and so on. Digital technology has all the different features at the students’ fingertips to give ELLs, who may have a hard time writing, more opportunities to create. Linda also observed ELLs’ learning curve increase when technology was integrated within their learning, after you teach them how to use it properly. She stated,

It levels the playing field. They have the opportunity to listen to an e-book in their language. They have the opportunity to create a document and work at their own pace. They have the opportunity to listen to something as many times as needed in order to understand. They have the opportunity to translate something into their own language. They even have the opportunity to investigate and research primary resources in their initial language. It definitely gives ELLs a huge amount of support in their learning. Once you level the playing field for ELLs, they want to learn, they’re excited about learning, they feel that they’re respected, they begin to understand that they are more intelligent for knowing two languages as opposed to one.

4.7 Conclusions

Throughout this chapter, it becomes apparent that both participants have taken proactive steps to integrate digital technology within their classrooms and are working out different ways on how to do so purposefully. They shared a range of barriers they have faced in doing so, but
Digital Technology Integration to support ELLs’ learning and engagements have also shared their observations as to the increase in ELL student engagement in their classrooms after they have integrated digital technology. The findings I reported on the different strategies participating teachers used, in addition to the barriers and outcomes the teachers faced, are all consistent with the existing research founded in chapter two. The findings are significant because they highlight the importance of the various strategies and resources new teachers need in order to integrate technology to support ELLs’ learning and engagements in the classroom. Different aspects of how technology was used to differentiate instruction for ELLs were raised by both participants, such as in terms of the delivery of material, more time to process information and complete work at their own pace, and offered a different way to demonstrate understanding and learning. Teachers observed increased student engagement as digital technology provided students’ opportunities to express themselves in different ways. The findings supported existing literature in regards to technology not being used to their fullest potential. Both participants found that technology was fairly accessible at both their current schools, but teachers in the schools either weren’t using the technology at all or often, or wasn’t using it in a purposeful way. If there were SMARTboards in the classroom, both participants stated that it was still being used as a projector for playing video clips. As the existing literature also found that many ELL students spend the day listening to others and not interacting with the language itself, therefore finding a medium where ELLs can be active participants in their learning, maintaining their engagement, is crucial. Although the participants didn’t use mediums such as online chat rooms and discussions as a medium for communication, they used SMARTboards and SMART notebook often, especially David. He felt very strongly about the positive benefits the SMARTboard and notebook has on ELL students,
How we use SMARTboards in the school is useful because it allows us to identify the needs that individual students have, such as an ELL or an IEP, and then chunk and provide information to them in a manner that is best conducive for their learning. It allows you to really show the students the information in a way that it gives them time to process and time to work with it in lieu of any challenges they may have, with the languages that are their secondary language. You can also save the information as pdfs for later reference. So again, this is why I think SMART notebook is so particularly effective is it allows you to pace your lessons and adjust them to the particular needs of your class. So the pace I would give to the class that has ELLs is different than the pace I would give a class to one without ELLs. Because I would understand going into it that the ELLs are going to have a harder time understanding what I’m saying in the first spot.

A significant finding from both participants is that despite the many challenges they faced to integrate technology as a whole, they were still able to overcome these challenges in order to integrate technology to support ELL students in their classrooms. In the following chapter, I discuss the implications of these findings for the education community and for myself as a beginning teacher, and I make recommendations for practitioners and further research. Lastly, I will speak to my concluding remarks and how this research study fits into the landscape of the research field. In the following chapter, I discuss the implications of these findings for the education community and for myself as a beginning teacher, and I make recommendations for practitioners and further research.
Chapter 5: Discussion

5.0 Introduction

This chapter begins with discussing the key findings of this research. From the research findings, I have brought forth the implications the research has had for the education community, as well as for myself as a beginning teacher. Finally, I have identified a range of recommendations based on what I learned from completing this research study and identified areas for future research.

5.1 Overview of Key Findings

When defining purposeful technology integration, teachers emphasized planning the lesson with a purpose, focusing on the technology promoting and endorsing the process of learning, and creating authentic real-life connections for students’ learning.

When asked to define purposeful technology integration, both participants focused on various aspects that centered around what could create a strong platform for purposeful technology integration, and not on a specific application or strategy directly affiliated to the piece of technology. The focus was on the purpose of the actual lesson and focusing less on the piece of technology itself. Teachers tend to focus too much on the device being used, that the process of students’ learning and how it can be used to best construct students’ knowledge is easily forgotten. Making the use of technology relevant for students was another way to make it purposeful; beginning with an inquiry-based problem and then applying that to the technology through filming it, recording it, using Google drawings, and so on. Planning effectively allowed teachers to use technology not on the surface level, such as word processing and internet, but as more of a tool or canvas for students to demonstrate their learning and apply their knowledge in multiple
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ways. Finally, one of the participants discussed the multitude of ways that technology can be implemented in the classroom and straying away from the mainstream ways of just solely games, google, and taking pictures.

**Teachers apply a range of instructional considerations ranging from student-centered teaching approaches, integrating familiar materials and content in ELLs’ learning, inclusive teaching, and acknowledging the importance of students’ first language use when integrating technology to support ELLs.**

Both participants discussed the importance of creating a safe learning environment for ELLs to develop and step out of their shell. It is critical for teachers to recognize the learning and growth that occurs when ELLs are in the right context of a social climate. Beginning with acknowledging that their background matters, their prior knowledge is recognized, and their voice is important to be heard, are little steps that can be taken to ensure students feel like they are in a safe place where they can try new things, and that they belong to the classroom community. Students need to see themselves as just another student. Even if they do not speak the host language, teachers need to respect the fact that they bring a lot of knowledge and experiences into the classroom. Research has shown that if students are reading and understanding literacy in their first language, they have the ability to make the leap into English more quickly (Helman, 2004). Technology can be used to provide opportunities for students to listen and read stories in their first language, as well as support them in having their work looked at and read back to them. Having the option of communicating and completing work in their first language, especially at the beginning of entering the school system, may relieve some of the pressure ELLs may feel in having difficulties in expressing and communicating their ideas to others. Due to the vast amount of possibilities that technology offers, there is a way to use digital technology to target each stu-
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dents’ individual needs. This leads into the importance of having a student-centered approach to teaching and learning. The use of technology really supports this style of teaching and learning well, promoting more individualized learning, collaboration, critical thinking and problem solving. It has changed the teachers’ role from standing in front of the classroom to being a facilitator and encouraging exploration and problem solving. The traditional way of teaching is where ELL students fall between the cracks. Traditional teaching was a means to an end, no matter what the results were. In our 21st century classrooms, a one size fits all model no longer works for all the different learners. At the end of the day, it is important to know when to integrate technology into our curriculum as technology shouldn’t drive what you do, but used as a tool to enhance students’ learning and fill the missing gap that ELLs are looking for in regards to the support needed in the classroom.

Teachers mainly used SMARTboards, SMART notebook, iPads, Google applications and the Read and Write program to differentiate instruction to engage students across multiple intelligences.

Digital technology has the ability to revise and re-purpose content material to better suit the ELLs in the class. It has the capacity to lighten the load for ELLs and chunk and deliver the information to them in a manner that is best conducive for their learning. It was found that technology acted as the platform necessary for ELLs to demonstrate their understanding and gave them an opportunity to fully participate in their learning, regardless of the language barriers. It was observed by one of the participants that ELLs tended to be more visual in terms of showing their understanding of content, so through planning visually such as through mind maps, it created a visual reference point and allowed ELLs to connect the language with the pictorial represen-
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tation of what it was. SMART boards and iPads also allowed teachers to pace their lessons and adjust them to the particular needs of the class. This allowed ELL students a chance to focus on the text and the meaning behind it. Not only did digital technology provide more opportunities for ELLs to participate in hands-on learning, it provided a whole different individualized yet collaborative experience for both teachers and students. Digital technology has the ability to allow students to work at different paces, on different levelled work, but not feel segregated in anyway.

Participants expressed a lack of support for integrating digital technologies to support ELLs in their classrooms.

There was a clear absence of supporting factors mentioned throughout both interviews in regards to the support they receive when integrating digital technologies in their classrooms. They relied on their self-interest as the main supporting factors for integrating digital technologies. Although they mentioned a few professional development opportunities, they found that they were the ones voluntold to run the workshops at their schools for other teachers. It was evident that the support each school gets is the same, regardless of how much technology the school has access to. Not only do the technology lead teachers (the participants) not get any support from the board level, they don’t have time allocated to be able to support all the teachers at the school on their own.

On another note, there were discussions around pre-service education and how universities are lagging behind providing proper support for teacher candidates in the regards to integrating digital technologies in classrooms. Pre-service teachers are the future in our classrooms, therefore it is important to come up with strategies implemented to prepare them to use technol-
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do not just have the expectation that because they grew up in the technologi-cal era, they should just know how to use it purposefully. Just like anything else, people need experience manipulating and learning how to use it in order to implement it purposefully into their curriculum and teaching.

Teachers experienced a range of barriers integrating technology, and these included challenges related to preparedness, support, and infrastructure.

As there is a technology movement in schools right now, teachers are getting stuck in the middle of it as they have not received adequate training on how to use the technology effectively, but are just expected to figure it out. Fear was a big barrier that was brought out. Fear of technology, fear of looking foolish, fear of trying something new, fear of not being good at using it, the list goes on. Teachers are naturally risk adverse and may be worried about how to integrate it with their current teaching style. Although many schools now have accessibility to technology, it is still found not to be used. This is where administrators and board level members have to come in with initiatives to enforce teachers to at least try. How can you give anything a fair shot if you do not actually try to make it work? Digital literacy has become a necessity for students to become successful in the future, so integrating technology into their learning has now become a necessity as well. A weak infrastructure is also not keeping up with the amount of technology being implemented in schools, which is causing many unpredictabilities of technical problems. Many of the barriers are all intertwined as teachers’ fear may decrease once taught how to use the piece of technology that is given to them. However, this does tie into the amount of time teachers’ are given to support other teachers, which was yet another barrier spoken of. Recommenda-
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tions will me made to target some of these barriers as it is possible to take actions in order to re-
move these barriers from the equation that teachers have to deal with.

**Teachers observed increased student engagement as digital technology provided students’ opportunities to express themselves in different ways.**

With the integration of digital technology, ELLs were observed to be more on task and present in their learning. The students were not only engaged in their learning, it provided all students a different means to express their understanding and knowledge. It was also observed to be a great tool to improve home-school relationships and communication. Although there was higher student engagement as a whole, one of the participants noticed that ELL students were producing different quality work. Students were able to produce and generate, being more focused on getting their ideas out and not distracted by the little things like spelling or grammar that could take over their thoughts. Digital technology has all the different features at the students’ fingertips to give ELLs, who may have a hard time writing, more opportunities to create.

### 5.2 Implications

As a researcher, it was important to identify the gaps that could occur through a variety of areas. One of the biggest implications was to learn and understand the real-life challenges that were faced by educators in the system. Based on my participants, access to digital technology was no longer the biggest challenge in our schools today. This could connect to the limitations of this study as I only spoke to two different participants, both from different areas of the city. Both were teaching in fairly affluent areas whose schools had been gifted with many technological resources. It was expressed that technology had to be put into teachers’ hands more often, giving
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them more opportunities to manipulate the devices and applications in order to feel confident in taking the risk to integrate it within their classrooms. This brings us to the issue of initiatives and professional development. As it is clear that we live in a digital world and our students view technology as an everyday part of their lives, it is important that we keep up with the digital times and teach to the strengths of our students and what they will need to know in their future to become successful citizens of our society. There is a lack of support for our teachers, whether or not the support is wanted. There are handfuls of teachers who although are not comfortable with using digital technology in their teachings, are open to learning more about it and trying. Then there are handfuls of teachers who just do not see the need for it in the classroom and feel as though the benefits to the use of technology do not weigh more than the amount of time they would have to spend learning how to use it purposefully in their classroom. Both scenarios point to the need for more consistent support, and support not just in terms of accessing technology, but support focused on how to use it in a meaningful way. This work needs to include a focus on changing teachers’ mindset toward trying new things, and opportunities for hands on learning that can develop teachers confidence and understanding for how technology can be used to facilitate teaching and learning, including supporting the social and academic well being of ELLs in classrooms and schools. Teachers need to feel this support from the board level, feeling as though they are set up to succeed and not have to fend for themselves. Support can come through in different lights, one being through professional development initiatives that may be mandatory for all. Demonstrating and instructing teachers as to how technology can benefit their students in a practical way may show teachers that technology does not define their instructional practice, but can be used as a tool to engage and inform their practices.
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As a teacher, these findings have many implications for my practice. It was clearly evident that technology integration created a platform for students to showcase their knowledge on a specific topic and provided students’ opportunities to express themselves in different ways. This was specific to ELLs as it took the element of language aside for a period of time and allowed them to independently engage in their learning and feel more as a part of the classroom community, and not as an outsider looking in. After this research study, I would love to integrate the use of online chat discussions and concepts such as google classroom, where students can have an ongoing conversation, pose questions, access articles and so on to support ELLs in my classroom. Read and Write Gold is also a great program to integrate as it allows ELLs to organize their thoughts and ideas, teach them how to research different topics, read information back to them, and so on. It is such a great inclusive concept to integrate within the curriculum as a whole. Providing ELLs with more independence in the classroom is key, while giving them the supports they need to be successful at the same time. As an educator, I already knew the importance of planning a lesson with a purpose, however, it was brought out multiple times of focusing our efforts not on technology having a purpose, but the lesson behind it having a clear purpose. Teachers still get too focused on the use the technology, but forget to focus on if the piece of technology is transforming the students’ learning to allow for the creation of new tasks, ones that may be previously inconceivable without the piece of technology integrated. It was observed that with careful planning, the quality of work students produced were higher, as it was produced by more self-directed and motivated students. As a teacher, I definitely want to stay away from using technology as a reward of any sort. It is in the classroom where screen time can be used to teach students how to use technology as a tool for learning and different ways to use it in their
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lives. It was interesting to see how the participants indicated various elements, that surprisingly had no direct affiliation with the piece of technology itself, when speaking about their strategies for successful implementation of digital technology. One of these included the creation of a safe learning environment for ELLs. Acknowledging that ELLs come into our classrooms with prior knowledge, in their own language, is the first step to igniting their interest in learning. Technology is a great medium to spark ELLs learning process in a new environment and provides opportunities to become more independent in the classroom, while building their confidence and self-esteem in the classroom community.

5.3 Recommendations

Analyzing the information gained from the research, the goal should be to explore the actions that could be taken in order to build the integration of digital technology into the school’s culture, as just buying and giving schools the physical tool is no longer enough. The board has to put initiatives in place in order to be consistent amongst all schools as to the importance of integrating technology into students’ learning and make it clear that they are putting an emphasis on prioritizing this important step in the right direction. Initiatives such as Bring Your Own Device (BYOD) programs that are provincially implemented. As some boards already have this program in place, it can help create an environment where students, teachers, administrators, and families become more comfortable with having technology integrated into the curriculum and school life, progressing and building on their understanding of how to use the devices. As it is recognized that people do get uncomfortable with new concepts and the unknown, as teachers, we really need to continuously step out of our own comfort zone to push forward for what is best for our
students’ learning. Nobody needs to be the expert know-it-all, but teachers need to be the model for what it looks like to learn about new concepts and try them out. Along with this, the board level should work on strengthening their network infrastructures by putting more funding into this area. By hiring a technical support team responsible for individual clusters of schools or creating a step-by-step, user friendly troubleshooting manual for the main obstacles that are faced on a daily basis, will be steps taken to limit their unpredictability of technical problems in the classrooms. Due to extent that teachers are confronted by unpredictable infrastructure to support technology integration, too many teachers choose not to use digital technology in their classrooms at all.

Based on the lack of support the board supplies for schools, creating a community network where there is a platform for teachers in the school or community schools to mentor each other, share instructional practices, technological implementations, questions and concerns, can be a great stepping stone for teachers taking that next step in the integration of technology to support their students through this e-platform. As technology has revolutionized the way we communicate with one another, there really are no boundaries as to the communication and learning networks that could be created to assist teachers in overcoming challenges and barriers that teachers face on a daily basis. Speaking of the revolution of communicating with others through technology, this includes using it to inform parents of ELLs, using various languages, on what is happening on a daily basis in the classroom, as well as providing ongoing home support for ELL students. This is also a great time to inform parents of the importance of using their first language at home, as continuously building on their first language communication, reading, and writing will only strengthen their language development in the English language. Those skills are
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transferable and it is important for parents to understand that as there is a stigma attached to speaking in one’s first language at school as a negative aspect, when it really should be a positive.

The cutting of ESL staff at schools is another issue that needs to be dealt with. This not only disadvantages our ELLs, but it also minimizes the support homeroom teachers are receiving as well. Without the support, modifications, expertise, and collaboration of ESL and homeroom teachers, teachers will be even less supported in their support for ELLs in the classroom and finding ways to integrate digital technology to support their learning. Although there is research supporting this fact, it means that the board needs to provide other supports, such as mentorship programs, accessible platforms for teachers to share with other teachers, and more professional development opportunities, in order for teachers to feel more supported and provide them with the resources to be successful. Everything is connected in teaching and learning; it is a constant work of collaboration amongst different people, working towards the same goal. The more teachers can be encouraged to share materials, resources, and best practices between themselves around the use of digital technologies, the better. In this day and age, mandatory professional development should be implemented to promote the technology integration piece in our classrooms. Knowledge is power; teachers need to understand how technology can be used to fill the gap to support ELLs in our classrooms. Once they have practical strategies to implement and have gained an understanding for what it could look like in a classroom, they may feel more inclined to implement it themselves. As there are waves of new teachers entering the educational community each year, pre-service teaching programs and even the Ontario College of Teachers (OCT) should have more responsibilities to ensure teachers are equipped with the right techno-
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logical tools and knowledge. If pre-service teaching programs take on a bigger role of shaping what our teachers are able to contribute in their classrooms and see it as their duty to best prepare their teacher candidates, that may be one of the ways to promote an increase usage of technology to support ELL students learning. Both pre-service teaching programs such as the Master of Teaching program and OCT have the power to determine how much time goes into each course and which courses are prioritized over others. Along with many others, technology integration to support students’ learning should be high on the list of priorities for ensuring pre-service teachers get the training and opportunities required to be successful in our 21st century classrooms.

One key concept that is recommended for teachers is to not be afraid to be proactive in seeking out ways to stay current or even ahead of the times. Finding teachers who are willing to help and support the process of integrating technology to support ELLs will be less anxiety-driven than trying to take it all on individually. Having the mindset that nobody is perfect and that mistakes will be made is the first step. As teachers, it is a known fact that sometimes in our mind, an idea sounds brilliant, but when it comes time to execute it, it goes terribly! This happens regardless sometimes whether or not technology is related to the situation. So why do teachers treat technology as this untouchable entity that they are afraid of? Be flexible, be bold, adjust to what the students’ need and integrate it accordingly to meet their needs. It may be unchartered waters for the school community, but only one person needs to be willing to step up, learn, and take the lead, before others decide to follow. Be that person to make the difference, be that person to be willing to take a chance for the betterment of our students’ future.
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5.4 Areas for Further Research

After this research study, it would be interesting to research further practical strategies on what applications or devices can be used with ELL students in the classroom. Although initially the target of the research was focused on this aspect, the responses of the participants led the research down a different path. This research, for example, did not learn what applications teachers are using to benefit ELL students in the classroom.

Other research studies should explore the kind of practical strategies that are implemented at the board level to push these technological efforts to the next stage in schools. The initiatives have to come from higher up at the board level, so identifying initiatives that are making an impact elsewhere would be beneficial. This study could include investigating a current board that already has working strategies in place that has shown positive movements towards a majority of teachers integrating technology in their classrooms to support their ELL students. Action taken from the board would create a larger ripple in the wave of teachers to be proactive and take action, thus speaking to and investigating initiatives already put in place that are working at the board scale would be strategic. Comparing different board strategies would be a component of the study as well, as different boards may be implementing and prioritizing different concepts when it comes to technology integration and support students. Thus comparing the strategies would be eye-opening to see what works in current classrooms, what the challenges are, and what could be improved on the already working strategies.
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An interesting component that also did not come up with either participant was the importance of supporting ELLs’ oral communication in class, socially or academically. Research has emphasized the importance of ELLs learning through communication with one another, and how digital technology can act as that tool to increase the amount of verbal exchange occurring amongst the students (Ybarra & Green, 2003). It would be interesting to explore teachers’ best practices on how they support ELLs’ oral communication in classrooms with digital technology as a supporting tool.

5.5 Conclusion

In this section, I provide a comprehensive summary of my findings, discussion, implications, and recommendations based on this research study. This research has brought forth many important practices and issues for teachers, ELL students, as well as technological instruction. The research examined the best practices and concepts to focus on when integrating technology in classrooms to support English Language Learners’ learning and engagement. As there are key limitations to this research study from only interviewing two participants, it is important to acknowledge that the findings nevertheless inform the topic of technology integration. The focus for English Language Learners was to identify how technology integration might respond to barriers that ELLs are facing through the proper instruction and supports. The findings from the research did not identify specific applications that could be used to benefit ELLs in the classroom, but uncovered many other areas of interest for further exploration. Teachers emphasized the importance of planning the lesson with a purpose, focusing on the technology promoting and endorsing the process of learning, and creating authentic real-life connections for students’ learn-
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They did experience a range of barriers integrating technology which included, but not limited to, challenges related to preparedness, support, and infrastructure. Overall, teachers did observe an increase student engagement as digital technology provided students opportunities to express themselves in different ways. Mainly using SMARTBoards, SMART notebook, iPads, Google applications, and the Read and Write program, teachers were able to differentiate instruction to engage students with all different multiple intelligences. In order to gain more depth, further research needs to be done on integrating technology practices at a school board level, how to create professional learning networks for teachers and pre-service teachers in regards to integrating technology, and more professional development opportunities to support our ELL students in the classroom.

Overall this research study has shown that the effective strategies my participants used in their classrooms when integrating technology does not only work with ELL students, but all students in the classroom to promote an inclusive environment. It will not be a challenge-free journey, but stay proactive, curious, and have no fear of trying new things and possibly failing a few times. It is us, as teachers, who have the power to be the change we want to see in our schools and advocate for the support we need in order to help our students be successful in their learnings and engagements in the classroom. As there are growing numbers of ELLs in our schools each year, research shows they face a number of barriers such as language proficiency, limited interactions in a social setting, identity crises, pulled out from classrooms, and overall lower expectations from educators. In order to support them, it is important that we identify a range of strategies and tools, and this research underscores the potential of technology toward that end.
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Appendix A: Letter of Consent for Interview

Date:

Dear ______________________________,

My Name is Valerie Fan and I am a student in the Master of Teaching program at the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT). A component of this degree program involves conducting a small-scale qualitative research study. My research will focus on what successful practices teachers are using to integrate digital technology in their classrooms, such as iPads, tablets, and SMART boards, and how it is used to support English Language Learners’. I am interested in interviewing teachers who have taught K-8 for five or more years, having experience working directly with English Language Learners’, and has shown leadership in the area of integrating digital technology in classrooms to support ELL’s.

I think that your knowledge and experience will provide insights into this topic.

Your participation in this research will involve one 45-60 minute interview, which will be transcribed and audio-recorded. I would be grateful if you would allow me to interview you at a place and time convenient for you, outside of school time. The contents of this interview will be used for my research project, which will include a final paper, as well as informal presentations to my classmates and/or potentially at a research conference or publication. You will be assigned a pseudonym to maintain your anonymity and I will not use your name or any other content that might identify you in my written work, oral presentations, or publications. This information will remain confidential. This data will be stored on my password-protected computer and the only people who will have access to the research data will be my course instructor Dr. Angela MacDonald-Vemic. You are free to change your mind about your participation at any time, and to withdraw even after you have consented to participate. You may also choose to decline to answer any specific question. I will destroy the audio recording after the paper has been presented and/or published, which may take up to a maximum of five years after the data has been collected. There are no known risks or benefits to participation, and I will share with you a copy of the transcript to ensure accuracy.
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Please sign this consent form, if you agree to be interviewed. The second copy is for your records. I am very grateful for your participation.

Sincerely,
Valerie Fan
(647) 300-0028
valerie.fan@mail.utoronto.ca

Course Instructor’s Name: Dr. Angela MacDonald-Vemic
Contact Info: angela.macdonald@utoronto.ca

Consent Form

I acknowledge that the topic of this interview has been explained to me and that any questions that I have asked have been answered to my satisfaction. I understand that I can withdraw from this research study at any time without penalty.

I have read the letter provided to me by Valerie Fan and agree to participate in an interview for the purposes described. I agree to have the interview audio-recorded.

Signature: ______________________________________

Name: (printed) _______________________________________________

Date: ______________________________________
Appendix B: Interview Questions

Thank you so much for volunteering to be a teacher participant in my research study. This interview should last around 45-60 minutes. I will be audio-recording the interview to be transcribed at a later date. I will be asking you questions about your practices for integrating digital technology in the classroom, such as iPads, SMART boards, and tablets, and how you use these to support English Language Learners. You may say pass to any questions you do not feel comfortable answering, as well as withdraw from the study at any time. Do you have any questions before we begin?

**Background Information:**

1. To begin, can you please state your name for the recording?
2. How many years have you been a full-time teacher?
3. What grade are you currently teaching? What subjects do you teach?
4. In your previous years of teaching, what grades have you taught?
5. Have you always worked in this school or have you worked in a variety of schools?
6. Can you tell me about your current students and school? (size, demographics, programs, etc.)
7. What experiences contributed to developing your interest in technology integration and its potential for supporting ELLs? (*Probe - re: personal, professional, educational)
8. As you know, I am interested in working with specifically English Language Learners. Can you share with me your experience working with ELLs? (*Probe - re: whether they have taught ESL, worked in classrooms with all ELL students, worked in mainstream classrooms with ELLs, provided individual support to ELLs). For how many years have you been working with ELLs in a teaching and learning capacity? Is there any specific experience you would like to share where it has directly impacted you and your teaching outlook?

**Teacher Beliefs and Experiences:**

9. In your perspective, what are some of the most significant needs and challenges faced by ELL students? (language, social, isolation, inclusion).

10. In your experience, how well do schools do in supporting those needs and challenges? Why?
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11. In your view, how might they further support ELLs?

12. What does technology integration mean to you? What kinds of technology do you consider, and being used in what capacity?

13. What are some of the benefits of technology integration that you observed for students (generally speaking) in your experience?

14. What are some of the challenges and limitations involved with technology integration into learning that you have observed or experienced?

15. More specifically now, what do you believe are some benefits and challenges of using digital technology to support ELLs’ learning? What technology, if any, do you see as having the greatest potential for supporting ELLs and why?

16. In your view, what are some of the barriers preventing more schools and teachers from integrating more technology in meaningful ways to support learning?

**Teacher Practices:**

17. What type of digital technology do you integrate into your teaching and why? How have these been effective for you in teaching generally, and in supporting ELLs specifically?

18. Are there any digital technologies that you are curious about but less familiar or confident with? If yes, which ones and why?

19. How do you integrate digital technology in the classrooms? Can you provide some examples of how you have done this?

   • When you integrate digital technology, is it predominantly you or the students who are using and interacting with technology?

   • What kinds of factors inform your decision regarding whether you will integrate technology or not?

   • Do you typically integrate technology for teaching all of your students, or more commonly as responsive pedagogy for ELLs and their learning needs?

   • When integrating technology as responsive pedagogy for ELLs, are there particular approaches that you take? Are there particular digital applications that you like to use? Which ones and why?
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20. What curricular subject areas do you tend to most frequently apply technology integration and why?

21. How do your students typically respond to technology integration?

22. What about your ELLs specifically?

23. Can you give me an example of a lesson that you have conducted whereby you integrated digital technology to support ELLs?
   • What grade/subject were you teaching?
   • What were your learning goals?
   • What opportunities for learning did you create? What were students asked to do and why?
   • How did your ELLs respond? What outcomes did you observe from them?

24. Are there any specific strategies, tools, or programs that you have used that you found to be beneficial in supporting ELLs’ learning and engagement in the classroom? Can you provide specific examples?

Supports, Challenges, and Next Steps:

25. What resources have you come across that support you in this work and that have helped you become a leader in this field? What factors support you in this work? (e.g., access to resources)

26. Have you faced any difficulties in school communities when it comes to the integration of technology in students’ learning? Please expand. If yes, how do you respond to these challenges? How might the education system further support you in meeting these challenges?

27. What advice, if any, do you have for beginning teachers who are committed to supporting ELLs and are interested in applying technology integration as an instructional tool toward that end?

28. Do you have any recommendations for future steps the educational field needs to take in order to move forward in the digital technology era while supporting the learning needs of the increasing numbers of ELLs joining our classroom communities?

Thank you so much for taking the time to share your thoughts, perspectives, and experience with me. I really do appreciate it.