

**ENGAGING THE INTERSECTIONS OF EQUITY AND TECHNOLOGY IN TEACHER
EDUCATION INSTRUCTION, CURRICULUM AND PEDAGOGIES**

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Abstract

This study examined the critical digital practices and pedagogies of two professors from two different Canadian provinces – Ontario and British Columbia. Employing a qualitative multi-site case study methodology and a tri-theoretical framework that I refer to as a Critical Intersectional Technological Integration framework (CITI), I investigated the meaning of digital and critical literacy within mandatory educational texts such as provincial curriculum documents and syllabus statements. I engage with how educators mobilized these texts to become critical digital literacy learners, producers, and communicators of knowledge. This study provides a detailed analysis of how two professors understand their pedagogical conceptualizations and enactments of critical digital pedagogies and lessons learned in regard to future pedagogy and practice. Several significant findings emerged from this research study. First, the two professors' teaching and schooling experiences revealed how intertwined equity and diversity issues were, which influenced their pedagogies and practices as critical digital literacy teacher educators. Second, the critical digital literacy teacher educators modelled expansive definitions of literacy to include the consumption, critique, and creation of digital content. Third, deliberately exploring issues of diversity and equity was a strategy employed by the professors to support teacher candidates to appreciate the complexity of education and arrive at the understanding that schooling, pedagogy, and curriculum are not neutral practices. I argue that this work should not be left solely to teacher educators; rather, teacher preparation programs must play a larger role in preparing and supporting teacher educators with both the technical and pedagogical know-how of meaningfully designing and integrating critical digital practices into their courses.

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Chapter One: Introduction

“We are all robots when uncritically involved with our technologies”

(McLuhan, 1968, p. 18)

The quality and approach to digital literacy instruction between and among each Canadian school board, educator, institution, province, territory, and First Nations curricula varies significantly and alters how learners experience digital literacy instruction (Hadziristic, 2017). Canada’s fragmented digital education and teacher training landscape are contributing to digital divides, widening disparities in digital literacy skill levels, particularly for Indigenous learners, female learners, learners outside of major urban centres, learners with low-income levels, and learners with disabilities (Haight, Quan-Haas, & Corbett, 2014; Huynh & Malli, 2018). Despite significant government investments in forward-thinking provincial policies, programming, pedagogical practices, and curriculum, digital literacy instruction remains uneven across Canada. Access to formal education and training is a barrier for teachers struggling to incorporate, teach, and effectively infuse digital technology within curricula. Within the last decade researchers have pointed out that in the Canadian education landscape from K-12, post-secondary, and teacher education there is no standard method of measuring or assessing elements of digital literacies -- a national strategy to support digital literacy does not exist, streamlined curricula that incorporate digital literacy are absent, and on-the-job professional training for educators has yet to be secured (Hadziristic, 2017; Huynh et al., 2018; Hoechsmann & DeWaard, 2015). Consequently, research in Canada and the United States on teacher education and digital literacy integration have found that teacher candidates are not adequately prepared to integrate technical or critical skills necessary for their future students to become effective, skilled, and critical digital users (Haight, Quan-Haas, & Corbett, 2014; Huynh et al., 2018; Miller, 2013;

Talib, 2018; Van Deursen & Van Dijk, 2010). Teacher education programs are vital sites to bring about educational reform (Watt, 2019). There remains a central role for government and educational institutions to reduce the digital divide in Canada including: professional development of teachers and teacher candidates to support student learning of digital literacies; inclusion of digital curriculum components that align with research; development of learning assessments to inform instruction; and utilizing or developing appropriate and accessible resources (Hadjiristic, 2017; Huynh et al., 2018). Without deliberate programs and policies aimed at bridging digital divides, the possibilities for developing pedagogical frameworks that could bring about the cultural shifts in schooling that have long been called for by educational leaders, are limited.

As the demand for digital literacy skills grows, rigorous research is needed to navigate the complicated Canadian educational landscape. While there is no single method to becoming digitally literate, because educators and learners start with varying skill levels and face different barriers to access, skills, and use, there are opportunities to increase equitable opportunities for digital learning. To do so, my study responds to Leu, Kinzer, Coiro, Castek, and Henry's (2017) call to conduct research from the application of multiple theoretical frameworks to better understand how to prepare and support digital literacies learning for professors and teacher candidates. I use a critical, intersectional and new literacies framework to look at the context of teacher education and the digital technology acculturation process as they are differentiated by curricula. The goal of this study is to develop a deeper understanding of how culturally specific information technologies affect professors' participation with, or abstinence from the Internet. The central aim is to engage with the concerns expressed by a multitude of scholars about how various marginalized identities are often ignored in interrogations of Internet use and access –

concerns that are often buttressed by shifts in provincial curricula that focus on the competencies, communication capacities, and range of skills needed to be literate (Hoechsmann & DeWaard, 2015, p.1), and overlook issues of power and privilege and contemporary and historical discrimination against the ‘other’ (Noble et al., 2016).

Raison d’être

Given the call for research on teacher education programs and the use of multiple theoretical frameworks to inform this research, I crafted a qualitative multi-site case study methodology. I employed a tri-theoretical framework that I refer to as a Critical Intersectional Technological Integration framework (CITI) to examine and learn how two professors from two different Canadian provinces – Ontario and British Columbia – taught critical perspectives with technology. I investigated the meaning of digital and critical literacy within mandatory educational texts such as provincial curriculum documents and syllabus statements. I inquired how educators mobilize these texts to become critical digital literacy learners, producers, and transmitters of knowledge. I also strove to answer the call to conduct research in teacher education that investigated how student teachers are prepared to critically engage with, understand, and adapt to technologies inside their future classrooms. Preparing students to be successful in today’s digital landscape is an issue that teacher education programs in Canada currently face (Watulak, 2016).

Research Questions

The overarching research questions that guide this work are:

1. How do two English Language Arts curricula inform the design and planning of the syllabi, pedagogies, methods, and interventions of professors who are laboring to bring critical digital literacies and intersectionality into their classroom?
2. How do teacher candidates in these professors’ classes understand digital literacies and

intersectional/critical frameworks?

3. What is the evidence, if any, of teacher candidates' evolving understandings of intersectionality and critical digital literacies pedagogies upon course completion?

Provincial Context: Definitions of Digital Literacy

In this section, I briefly explain the contents of English Language Arts curricula and provide definitions of digital literacy gathered from K-12 English Language Arts curriculum documents in British Columbia (2015) and in Ontario (2006). I chose definitions from the most recent versions of official curriculum documents to begin to inquire into what is considered a digital literacy practice, and what it means to be digitally literate, in order to investigate how current definitions of digital literacy might impact educators' methods of technology integration.

British Columbia.

British Columbia is a member of the Western and Northern Canadian Protocol for Collaboration in Education (WNCPE). The first iteration of the "English Language Arts – BC Curriculum" and accompanying Integrated Resource Packages (IRPs) were completed in 2006 and contained a media education component. The aim of ELA curricula documents was "...to provide students with opportunities for personal and intellectual growth through speaking, listening, reading, viewing, writing, and representing to make meaning of the world and to prepare them to participate effectively in all aspects of society." Media education outcomes were integrated throughout the curriculum for grades K-12.

In 2015, English Language Arts (ELA) curriculum in British Columbia underwent a complete redesign to capture the state of educational change in a technology-rich world. The rationale for media education integration in the "English Language Arts – BC Curriculum" and accompanying Integrated Resource Packages (IRPs) is for students to:

...gain a repertoire of communication skills, including the ability to interact, on a local and global level, with information from a variety of sources and in multiple modes. Within this repertoire is the ability to critically evaluate digital media, a crucial skill for today's students. As they become effective and literate users of language, students are able to use these and other skills in achieving their personal, educational, social, and career goals.

As of 2015, according to the updated “English Language Arts – BC Curriculum” digital literacy is defined as “...the interest, attitude, and ability of individuals to use digital technology and communication tools appropriately to access, manage, integrate, analyze, and evaluate information, construct new knowledge, and create and communicate with others.” The “English Language Arts – BC Curriculum” (2015) also notes that it values the study of communication and information technologies because it is becoming increasingly important in society:

...Students need to be able to acquire and analyze information, to reason and communicate, to make informed decisions and to understand and use information and communications technology for a variety of purposes. Development of these skills is important for students in their education, their future careers, and their everyday lives.

The excerpts I selected to describe digital literacy are the definitions provided in the “English Language Arts – BC Curriculum” (2015), which is why I chose them.

Ontario.

Ontario provincial curricula began to develop and include media literacy outcomes in 1987 in response to perceived weaknesses of literacy education due to the absence of media education (MediaSmarts, 2019). Ontario became the first Canadian province to improve

technology integration techniques through policy and curriculum reform. First, in 1987 media education was mandated in one-tenth of Grades 7-8 English, and one-third of Grades 9-10 and 11-12 English courses. Then, in 1995, Ontario's Common Curriculum: Policies and Outcomes for Grades 1-8 integrated media education and reformed curricula documents to reflect aspects of integrated learning concerning media education, particularly in reference to achievement charts. Next, in 2006, the Language curriculum for Grades 1-8 added Media Literacy as a new expectation strand (MediaSmarts, 2019).

Although my study deals with the term digital literacy, the Ontario curriculum does not define digital literacy and instead, specifically emphasises media literacy as one of the four strands of the language curriculum, so I focus my attention there. Media literacy outcomes are scattered across the curriculum in various subject areas such as social studies, history and geography (elementary, grade 7, grade 8), Canadian and World studies (grade 9-12), Social Sciences and Humanities, English, and health and physical education. Interestingly, definitions of media literacy differ dependent on subject areas in both the primary and secondary curriculum, which on the one hand ensures that technology-use enhances teaching and learning of diverse subject knowledge. On the other hand, the lack of definitional consistency makes it difficult to understand media literacy and how it translates to teaching and learning and the pedagogical techniques to foster it. The definition of digital literacy I selected is an excerpt taken directly from the "The Ontario Curriculum Grades 1-8: English" (2006) and the only definition provided, which is why I chose it. The definition states that media education:

...should include the ability to critically interpret the messages they receive through the various media and to use these media to communicate their own ideas effectively as well. Skills related to high-tech media such as the Internet, film, and

television are particularly important because of the power and pervasive influence these media wield in our lives and in society. Becoming conversant with these and other media can greatly expand the range of information sources available to students, their expressive and communicative capabilities, and their career opportunities. (The Ontario Curriculum Grades 1-8: English, p. 13).

I chose to engage with curricula in Ontario and British Columbia because both documents approach digital literacy integration in distinct ways and contain a range of integration methods and approaches. This range of curriculum integration methods causes educators to experience different challenges when designing and integrating digital literacies into their practice. Accordingly, in my thesis, I engage with how educators navigate curriculum documents to design and implement learning with digital tools. I also investigate teacher candidates' understandings of critical digital pedagogies upon completion of their course.

The ELA curriculum makes sense as the centrepiece for my research because literacies are part of the disciplinary practices of every subject. In my study there are a mix of teacher candidates' preparing to teach in broad fields, ranging from K-12, and although I draw clear connections to other subject areas in my study, given that literacies are central to all subject areas, I use the ELA curriculum as the focus. An added benefit is that the Ontario curriculum ELA strand integrates elements of digital literacy more so than any other discipline and thus provides a more robust data source to analyse.

Chapter Summary

The more technology becomes embedded in education policies, the more it matters whether that technology amplifies longstanding inequities or drives us toward an equitable future (Scott et al., 2015). Given the call for critical and multiple frameworks and further research on

teacher education programs, I argue that the research questions, design, and methodology I selected offer new evidence to shape the design of new literacies curricula. The study unites three critical topics in education: new literacies, critical literacies, and intersectionality, and contributes to discussions of strategies for digital literacies education among teacher candidates and teacher educators. By working with new teachers, this study gathers evidence on pedagogical frameworks that identify the expressions of cultural shifts in schooling that have long been called for by educational leaders. This study provides a deep and detailed analysis of two provincial contexts that contributes to a better understanding of the complexities and challenges in teacher education from a Canadian perspective.

Chapter Two: Literature Review

Introduction

If we could not ensure equitable access to “elite” and other powerful forms of literacy in the context of technologies as simple and readily available as the pencil, what grounds are there for believing things will be any different with new technologies? (Lankshear, 1998, p. 365)

It has only been 30 years since Tim Berners-Lee invented the World Wide Web.

Observing the rise of media change, and predicting further advancements, in 1964 intellectual historian Marshal McLuhan noted that any major introduction or change in media or technology, “that is – of any extension of ourselves” (p. 9) encompasses social and personal consequences that require special study. He asks: “What will be the new configurations of mechanisms and of literacy as these older forms of perception and judgment are interpenetrated by the new electric age?” It is such a predictive call to action that education scholars have gathered in a broad scope to understand what is considered “digital” and what it means to be “literate” in the 21st century. Correspondingly, different understandings of digital literacy have led to diverse educational approaches and outcomes.

Federal and provincial commitments to digital literacy education in Canada tend to be centred around the “new technical stuff” – the competency to use the hardware and software of digital applications (Lankshear & Knobel, 2007, p. 51). One of the driving forces behind the expansion of technical “know-how” in education policy and curriculum is to equip students to become better prepared to live and work in a digital economy (Leu, Kinzer, Coiro, Castek, & Henry, 2017). While improving economic growth can contribute to advances in quality of life, “... the benefits are not accruing equally” (Malli, Doyle, Warner, Thomson, 2019). The potential economic benefits of digital literacy education, to date, has not supported educational innovation

to create more inclusive and equitable classrooms (Haight, Quan-Haase, & Corbett, 2014). A lack of focus on power relations in digital literacy education has resulted in educational practices that inadvertently repeat historical patterns that sustain conditions of injustice (Huynh & Malli, 2018). As Stiegler (2012) puts it, “the new philosophy that must arise from the world wide experience of the web, and more generally of the digital, across all cultures...cannot merely be that of digital lights: it must be a philosophy of the shadows that inevitably accompany all light” (p. 31). To make digital literacy education more equitable and inclusive, there is a growing body of educational literature that extends Stiegler’s (2012) philosophy and attends to the combined effects – lights and shadows – of digitization in educational reform, in particular the digital inequities that arise as result of the digital divide.

The causes and consequences of digital inequities is one of the most urgent and complex concerns of 21st-century educators. Inequities have spread insidiously across educational landscapes creating a ‘digital divide’ between those who do and those who do not experience the affordances of technology (Rowse & Morrell, 2019, p. xii). Concern for life trajectories is so rampant that scholars urge for it to be considered in the pantheon of twenty-first century inequalities (Robinson, et al., 2015). It is an economic concern, as school boards contemplate how to ensure equal access to digital tools and resources for all students. It raises questions about how teachers can inspire more students of colour, Indigenous students, and women and girls to pursue STEM fields. It sparks debate about how to manage students’ safety, privacy, and behaviour while encouraging democratic participation online. Dependent on researcher approaches and context, accounts of the digital divide are nuanced and represent a mixed phenomenon of dystopia and caution. The through line of substantial scholarship is to de-emphasise the notion of social capital and economic growth because it reinforces consumerism

and cultural capital as an instrument for power and teaches people how to function within the education system from the perspective of the people in power (Leu et al., 2017). Also, the adoption of a solely access-based perspective of the digital divide in education research is criticized because it excludes a multitude of properties of the digital divide. Instead, a shift towards a notion of digital literacy education that shifts inequity into justice is favoured (Rowse & Morrell, 2019). Optimistically, reframing authentic and rich learning opportunities for diverse students that move beyond social capital and access divides can help to bridge digital divides in Canada. In what follows, I summarize the challenges that educators face and devised solutions that reach beyond surface inequities of access and social capital to enlighten and revolutionize learning with digital tools. But first, I define and describe the historical delineation of the digital divide – the first, second, and third level – and trace it to contemporary digital divide discourses in Canadian schools.

First Level Digital Divide

In the 1990s, the digital divide was primarily used to describe a divide related to lack of access to a digital device at home that connects to the internet (Wellman, Quan-Haase, Witte, and Hampton, 2001). Researchers approached this first level digital divide solely from an access perspective. A 2000 study indicated that divides were greater for newer technologies and decreased for saturated technologies. At the time, access to computers and the Internet separated household ‘haves’ and ‘have nots’ (Sciadas, 2002). However, as more people began to use the Internet, the divide became more of a comparison between ‘have-less’ and ‘have more’ groups. In 2013, Media Smarts conducted a nationwide Canadian survey of 5,436 students in grades 4 to 11 to investigate the function of networked technologies in their lives. Results indicated that 99% of students had access to the Internet outside of school. Half of the students surveyed connected

to the Internet via a shared family computer (tablet, laptop, or desktop). Some students (6%) accessed computers at local libraries and community centres. Boys were 27% more likely than girls (18%) to have access to a personal desktop computer at home. Some research posits that this gendered divide is linked to the rise of marketed personal computers, mainly to men and boys. For example, in the United States, a study conducted by Henn (2014) found that parents are more likely to purchase a computer for their male child, even if their female child is ‘really’ interested in computers. A literature review on the state of digital literacy in Canada conducted by the Brookfield Institute for Innovation and Entrepreneurship (2017) found that oftentimes, digital skills such as programming and coding are self-taught and when students have access to a digital device at home to ‘tinker’ with, their skill sets excel more rapidly. Scholars reason that girls’ lesser digital participation is embedded in culture and does not reflect their interest or skill level (Hadjiristic, 2017).

Canada is arguably considered a country with privileged segments of populations that have access to a digital device that connects to the Internet, all of the time. However, there are segments of the population that still lag behind. According to Haight, Corbett, and Quan-Haase (2014) these divides are no coincidence and reflect existing social inequalities in Canada. Their 2014 study found that divides in access persist and socioeconomic status, education, rural Indigenous communities, immigration status, and age, and other complex layers affecting access patterns and rates play a role in the 20% of Canadians who remain unconnected (Haight et al., 2014). Infrastructure gaps in remote, rural and Indigenous communities, as well as financial access barriers among low-income Canadian residents are contributing to this divide. According to a 2015 Canadian Radio-television and Telecommunications Commission (CRTC) report, 59% of Canada’s lowest income households have access to the Internet at home, compared to 98% of

Canada's highest income households (Government of Canada, 2016). Additionally, a 2014 report by the Organisation for Economic Co-operation and Development (OECD) found that fewer than 4% of Canadian residents have high-speed fibre connections, below the US at 8.8% and the OECD average at 16.5% (Nowak, 2015).

According to a report by the Pew Research Centre (2014) – a social science research tank that uses methods such as demographic research, and media content analysis to inform the public about attitudes, issues, and trends that are shaping the world – Internet access divides are predicted to become ubiquitous within the next decade. Experts foresee an, “ambient information environment where accessing the Internet will be effortless and most people will tap into it so easily it will flow through their lives ‘like electricity’” (Anderson & Rainie, 2014, p. 1). These expert predictions become less idealistic and more realistic in light of a new program created by SpaceX CEO Elon Musk, to launch large satellites into space to provide reliable and affordable global Internet coverage from low orbit over Earth. The first batch of satellites launched in January 2018 served as a demonstration to test how to deploy more satellites in the future, but the program boasts potential in full fruition (Sheetz, 2019). Until equitable access is achieved – perhaps when the final 6 batches of satellites are launched into orbit – educators are tasked to be creative and resourceful to address dimensions of access gaps (Haight et al., 2014).

While work is being done to expand Internet access in Canadian classrooms, implementation is dependent on available hardware, software, and infrastructure; school, school board, and institution policies; and teachers' digital literacy confidence, competence, and training (Huynh et al., 2018). The uneven deployment of digital literacies learning at the policy, school, or classroom level creates imbalanced learning opportunities that contribute to substantial disparities in digital literacies learning. In particular, for Indigenous students living on reserve

who lack access to reliable, affordable broadband access (Stollery, 2018), students of low socioeconomic status who lack digital access at home (Huynh et al., 2018), and francophone students who require digital support and opportunities to demonstrate development of digital literacies skills at school in their own language (Cotnam-Kappel, 2018). These results echo a study conducted by Gillis (2018 as cited in Huynh et al., 2018) who found that the greatest gaps in access exist in provinces such as Newfoundland and Labrador and Prince Edward Island, and in remote, rural, and Indigenous communities.

Providing broadband access and digital devices in school, however, cannot bridge the digital divide. Yes – access to Wi-Fi coupled with digital devices ensures that students who cannot afford a device at home have access at school but providing access at school does not remedy the hardware gap for low-income students to complete assignments at home.

Additionally, once students graduate the hardware gap does not disappear and those who experience a digital divide are left behind once again (Smith, 2018). Perhaps most importantly, ensuring equal access to Internet or digital devices at school is irrelevant if students are not taught how to use the device. In Canada, despite significant government investments in digital literacy and growth in program offerings, access to training and support to harness literacy and numeracy skills, confidence, and navigation skills remains a barrier, most notably for people living outside of major urban centres and in low-income neighbourhoods (Hadiristic, 2017). Additionally, the poorest school districts are under the most pressure to raise literacy achievement test scores (Henry, 2007), but because students are not tested for digital components, there is little incentive to include new literacies in instruction (Hadiristic, 2017). In this way, the poorest students experience a double disadvantage because they have less access at home, and less skills training at school. For students with disabilities, appropriate teaching tools

and devices are even less accessible (Huynh et al., 2018). As I expand upon in the next section, digital equity is about more than access to Wi-Fi and digital devices.

Second Level Digital Divide

In 2001 DiMaggio and Hargittai were two of the first scholars to introduce a definition of the second level digital divide by examining differences in digital usage among people with access. Alongside DiMaggio et al. (2001) many scholars are concerned that the diffusion and increase of Internet access since the 1990's has not benefitted all users to perform tasks effectively in a digital environment (Attewell, 2001; Hargittai & Hinnant, 2008; Howard, Busch, & Sheets, 2010; Jones & Flannigan, 2006; Ono & Zavodny, 2007). As forms of online disadvantage mutate (Robinson et al., 2015), the second level digital divide has birthed research that is concerned with not only the functional or technical aspects of operating digital tools in digital environments (Eshet-Alkalai, 2004), or the range of activities performed online (Hargittai & Hinnant, 2008; Zickuhr & Smith, 2012), but also the correlation between usage and socio-emotional and cognitive aspects of online activities (Eshet-Alkalai, 2004). Although a universal definition of the second level digital divide is nonexistent, the through line is that level of online activity, types of online activity, and level of online skills predict second level digital divides (van Deursen & van Dijk, 2010; Epstein, Nisbet, & Gillespie, 2011).

In a Canadian context, scholars have birthed limited research on the second level digital divide. The central findings of my limited investigation indicate that differences in Internet access parallel the findings for online activity level. In 2013, Media Smarts conducted a Canadian survey of 5,436 students in grades 4 to 11 to examine online usage and found that regardless of gender, digital devices are primarily used for Social Network Service (SNS) to communicate and socialize, follow friends and celebrities, and for entertainment purposes

(downloading, streaming gaming, pranking). Relatedly, a Canadian study conducted by ICTC (2016a) found that students believe they have excellent digital skills, particularly in regard to mobile devices, social media, and office software. Survey findings from a study conducted by Actua in 2018 also found that 64% of young Canadians, with no difference by gender, are generally confident in their ability to use digital technologies such as smartphones, computers, and tablets (Munro, 2018). These findings echo previous research about youth as skilled with social networking, texting, and downloading, and less skilled at online comprehension such as locating and critically evaluating information (Bennett, Maton, & Kervin, 2008) and producing their own online content (Eagleton et al., 2003). Students' online civic participation has also been found to be quite low with less than a third of students who have commented on news sites, half who have shared links to current events or news stories, and approximately a third who have joined an online activist group (Steeves, 2014b).

Furthermore, in 2018 a national survey by Actua was conducted to assess Canadian youth and parents' attitudes and confidence toward coding and digital technology related careers. Results indicate that 92% of Canadian parents/guardians and youth believe, "that knowing how to use digital technologies—like smart phones and computers—will be very or extremely important to future careers" (Munro, 2018, p. 4). Differences in household income and education are factors in the perceived importance of digital technologies. For instance, parents/guardians with a post-secondary education are 13% more likely than those with high school or less to consider digital technologies as, "extremely important for future careers" (p. 5). Parents/guardians with a household income of over \$100,000 are 16% more likely than those with household incomes below \$40,000 to consider digital technologies as, "extremely important to future careers" (p. 5). The survey reveals a link between children's perceptions of the importance

of technologies (66%) and their parents/guardians' education and income (57%). Actua's (2018) national student survey also investigated students' perspectives on their digital skills development. Results indicate that only a third of Canadian students report that coding or programming classes are provided at school, and more than half of Canadian students consider their opportunities to learn digital skills insufficient (Munro, 2018). A substantial proportion of students who have access to these classes are determined by parents' household income of over \$100,000 (38%), post-secondary education (43%), and region as 4 in 10 students in Saskatchewan, Manitoba, Ontario, and British Columbia have access to instruction, and only 2 in 10 in Quebec. More than half of the students requested more opportunities to learn coding in school.

In terms of gender differences, results from a study conducted by Actua (2018) to assess confidence levels toward coding and digital technology related careers revealed a persistent gender gap between boys (41%) and girls (28%) confidence in their coding and programming abilities (Munro, 2018). A substantial gender gap was also found between boys (72%) and girls (57%) who are interested in digital technology related careers. Boys reported higher levels of interest and confidence in their abilities is not necessarily evidence that they are more skilled or better equipped for digital careers than girls. Rather, recent studies conducted by psychologists in the United States suggest that gender stereotypes about brilliance and innate talent, underrepresentation in STEM fields (Leslie, Cimpian, Meyer, & Freeland, 2015), and discouragement and social conditioning (Bian, Lesley, & Cimpian, 2017) shape girls' ideas about intellectual ability, interest, and career aspirations and predict changes in confidence, abilities, and interest in STEM (Google, 2014; Cimpian, 2016). Stereotypes about ethnicity, race, and socioeconomic status have also been found to predict changes in confidence and interest in

STEM fields (Bian et al., 2017). Multiple scholars in the United States agree that to increase the number of females and students of low socioeconomic status in the industry, the kinds of peer status (or lack thereof) and identities attached to certain types of technical skills are an area that warrants more research (Kafai & Burke, 2015; King & Douai, 2014; Pugh, 2014).

Moving on to Canada's adult population, a study conducted by Haight et al., (2014) relied on a Canadian Internet Use Survey to investigate differences in people's Internet access and level of online activity. The survey found that Canadians aged 16 and older in the highest income bracket complete 1.4 more activities online than those in the lowest bracket. Consistent with findings from the 2013 Pew report on Social Networking Site (SNS) adoption (Duggan, 2013), no variation in SNS usage by income level is observed. In other words, all income categories use SNS to the same extent, which indicates that once access barriers are overcome, income does not predict SNS usage. However, the education divide persists in terms of level of online activity and SNS usage. Findings confirm the trend that higher levels of education are associated with greater rates of online activities. Recent immigrants to Canada, for example, are less likely to have Internet access, but those with access have a higher level of online activity than Canadian born residents and earlier immigrants. Access divides cease to exist between men and women; however, a statistically significant difference remains in terms of online activities. Results indicate a higher rate of online activity completed by men. This finding aligns with a 2005 Pew report that men are more active and complete more activities online than women (Fallows, 2005; see also: Wasserman & Richmond-Abbott, 2005). Consistent with previous research, however, SNS use among women is higher (see Duggan, 2013; Hargittai & Hsieh, 2010).

Furthermore, a survey of adult skills conducted in 2013 by Statistics Canada found that the majority of Canadians are above the OECD average in problem solving and technology use

skills, which is defined as, “using digital technology, communications tools and networks to acquire and evaluate information, communicate with others and perform practical tasks” (Statistics Canada, 2013). The highest scoring people live in Alberta at 39.5 percent. Contrarily, 15 percent of Canadians rank below level 1, meaning they are unable to use basic software, a web browser, or email. The lowest scoring Canadian residents live in Nunavut.

In terms of career development, approximately 25% of Canadian women are in ICT professions, which is lower than the US and EU countries (ICTC, 2016b). Women are more likely than men to leave the STEM profession and cite working conditions and work-life integration as the primary reason. Interestingly, women’s attendance in private boot camps for coding and programming, in the U.S. is much higher than university-level computer science (ICTC, 2016). As previously mentioned, researchers determine that the gender divide in formal education is not determined by women’s lack of interest in STEM, but by social and economic inequalities. As Robinson et al., (2015) put it, countries with more gender equality have higher ratios of women in STEM and ICT. Even factors such as socioeconomic status and proficiency levels have less to do with women choosing computer science than social encouragement from family, schools, and peers. Because social encouragement is such a great indicator of women entering STEM, ICTC (2016a) argues that STEM courses in school must be promoted to women and girls.

Exclusion of indigenous populations in ICT and STEM careers is also rampant. The ICTC (2016b) found that only 3 percent of indigenous people are in ICT and 3.7 percent in STEM. Carpenter et al. (2012) found that women in rural/remote indigenous communities are active users of ICT and use it to preserve culture and history and maintain communication. Multiple scholars conclude that community-based approaches to ICT based on democratic dispersal of

technology decreases digital divides within the Indigenous community. Additionally, scholars argue that Canada's approach to digital literacy training should be reframed to empower community-centred digital development that is designed by and with Indigenous communities and schools (Hadiristic, 2017; McMahon et al., 2015; 2011; Walmark et al., 2012).

Canadian research on digital usage suggests that there remains a fundamental role for government policies, educational institutions, and researchers to aid in the reduction of the second level digital divide. While research on access, use, and skills are unquestionably vital to understanding digital divides, scholars query that development of digital skills does not *always* lead to more beneficial outcomes (Stern, Adams, & Elsasser, 2009; Van Deursen et al., 2016). This query has generated a third branch of digital divide research that seeks to investigate not only digital access, use and skills but also the *consequences* of digital use, which is expanded upon in the subsequent section.

Third Level Digital Divide

In 2011 Wei, Teo, Chan, and Tan were the first to label the third-level digital divide. Alongside Chan et al. (2011) many scholars in the United States argue that the discourse of digital divides should be approached not only from an Internet access, skills and use perspective, but should also include the *consequences* of Internet use (e.g., Fuchs, 2009; Selwyn, 2004; Van Dijk, 2005). Accordingly, the digital divide discourse has shifted and birthed a third-level digital divide whereby researchers are concerned about Internet access and skills, and the tangible outcomes of Internet use. A third level digital divide is caused by a variety of factors (Bruno, Esposito, Genovese, & Gwebu, 2010) and is identified when the possession of Internet use and skill do not lead to beneficial outcomes (Stern et al., 2009; Van Deursen et al., 2016). In pursuit of additional research on the third level digital divide, I found that Internet outcomes are less

studied, and in the current moment, no research has been conducted in Canada. A literature review conducted by Scheerder, van Deursen, and van Dijk (2017) echoes this finding. What is known, however, is that literature that focuses on Internet outcomes primarily aims to distinguish between the kinds of skills necessary to acquire benefits to bridge the digital divide (Mossberger et al., 2003; van Deursen and van Dijk, 2011). As a case in point, Mossberger, Tolbert, and Stansbury (2003) distinguish technical competence (ability to operate hardware and software) from information literacy (ability to retrieve information or resources to solve a problem). More recently, van Deursen, Helsper, and Eynon (2016) conducted a literature review of Internet skills-related studies to develop a framework to measure digital use in research, practice, and policy. Other scholars such as van Deursen et al. (2016) differentiate between technical skills (the basic ability to use the Internet), information navigation skills (the ability to find, select, and evaluate information), social skills (the ability communicate online and interact online to exchange meaning and acquire knowledge/social capital), and creative skills (ability to create and share different kinds of content).

Contemporary digital divide discourses in Canadian schools

To better understand the causes and consequences of digital inequities, scholars have called upon researchers to engage digital literacy educational policies and programs to understand which practices widen the equity gap, and which work to bridge it (Hoechsmann & DeWaard, 2015). In response, researchers have started to investigate teacher training programs to find solutions to promote positive student engagement with technology. In terms of Canadian education policy, rather than provide pedagogical resources for teachers to facilitate digital literacy learning (Huynh et al., 2018), the discourse around achieving digital equity is often about filling educational deficits by providing digital tools (Hadziristic, 2017; Huynh et al.,

2018). As previously mentioned, simply teaching with and providing access to digital tools is a soundbite solution to systemic issues. The digital divide cannot be bridged by simply introducing digital tools because equity is not about all students learning how to code, edit, or upload. Digital equity is about much more than the device – it is about how students are taught to use the device to create, innovate, and integrate content. Without understanding and then reframing fundamental systemic causes, scholars fear that digital literacy education will lead to the same or exacerbated online inequities (Wellman, Quan-Haase, Witte, and Hampton, 2001). Instead, the role of digital literacy education, policy, and practice should be to achieve a sustainable approach to equity that ensures diverse bodies of students learn to use the tools they have in new, critical, creative, and collaborative ways (Andreotti, 2013; Brown, 2017; Steeves, 2014a; Williamson, 2013). Although there is no standard way to teach with technology, and no standard technology to teach with (Kolb, 2017) because there is no standard way to teach tout court, critical digital literacy scholars can agree on the kinds of pedagogical inventiveness that either improve or exacerbate digital divides. In what follows, I summarize the challenges that educators face followed by devised solutions that reach beyond surface inequities of access and social capital to enlighten and revolutionize learning with digital tools.

System Crashing: Flawed Engagement and Soundbite Solutions

Research suggests that teachers frequently cite increased excitement and student engagement in school as the number one benefit of technology integration (Bebell & O'Dwyer, 2004; Martinex & Schilling, 2011; Project Tomorrow, 2016). Unfortunately, when content specific learning goals are detached from technology-enhanced lessons, student excitement about the technology tool can be mistaken for cognitive engagement (Linnenbrink & Pintrich, 2003). While technology might engage students more so than a traditional approach, student performance, cognitive engagement, and assessment outcomes do not increase (Linnenbrink &

Pintrich, 2003). The assumption that active use of a digital device equates to achievement of learning goals is referred to as “false” or “flawed” engagement. Flawed engagement leads to loss of student interest over time because, “they recognize that the technology is a mere trick and not actually adding value to their understanding of the content” (Kolb, 2017, p. 2). Numerous studies have also found that some teachers – often with little to no tech training – integrate technology because they are required to by the administration, or because it looks fun (Cuban, 2001; Oppenheimer, 2003). Active learning with technology depends on pedagogical strategies and content specific learning goals in conjunction with technology tools to meet prescribed learning goals (Mishra & Koehler, 2005; Okojie et al., 2006). As Wartella (2015) writes, “active learning occurs when children are ‘minds-on’ – that is engaged in thinking, reflecting, and effortful mental activity...swiping, tapping, and physically engaging with an app is not the same as ‘minds-on’ activity” (p. 1). Despite the need for up-to-date professional development of technology integration, there continues to be little or no supports given to teacher educators to effectively enact critical digital pedagogies (Hadziristic, 2017).

Recent research has brought ethics and values in technology design to the forefront of public debate, to question and make visible how human-designed devices, algorithms, and computer codes are embedded with discrimination and deepen unequal conditions for marginalized communities (Noble & Tynes, 2018; Wachter-Boettcher, 2017). A recent Canadian survey found that supporting students to understand how online applications, algorithms, and organizations collect and use personal online information is considered of least importance to teachers (Johnson et al., 2016). Instead, educators focus the majority of technology instruction on appropriate online behaviour, privacy and cyber bullying, accuracy of online information, and online safety. As Wachter-Boettcher (2017) points out, tech designers do not necessarily intend

to recreate stereotypes, more than likely, they have not been taught or encouraged to think about it. Similarly, educators are not trained to grant students the opportunity to think critically about the minutiae they encounter online (Haight, Quan-Haas, & Corbett, 2014; Talib, 2018; Watulak, 2016). The narrower students' perspectives are on exclusionary technology tools and biased or oppressive algorithms, the less likely they are to avoid biased practices, and produce ethical designs that diminish inequality, insensitivity, and hate online. As Wachter-Boettcher (2017) notes, "[c]ulture doesn't just inform technology and design. Technology and design also, increasingly, inform culture" (p. 196). Although some Canadian educators have begun to integrate technology into instruction, many are not prepared to facilitate learning (Johnson et al., 2016; Lotherington et al., 2016) that supports students to identify ethical blunders and biases that exacerbate stereotypes and inequities, or how to take action (Haight et al., 2014; Watcher-Boettcher, 2017).

Lastly, teacher educators are being asked to prepare student teachers in ways they did not learn in their own classrooms and continue to face challenges in not only gaining technical proficiency with digital technologies, (Brown, 2017; Miller, 2013; Johnson et al., 2016; Lotherington et al., 2016; Watt, 2017), but also re-conceptualizing their courses in ways that digital technologies are used as tools to enact critical pedagogies (Brown, 2017). For example, during interviews with K-12 teachers in Canada, Huynh et al., (2018) found that educators experience intimidation and fear of failure to simultaneously learn and teach effectively with technology. Teachers had a predisposition that they, "had to master a skill before they could teach it, rather than learning alongside their students and incorporating trial and error into the learning" (p. 51). As Watt (2019) contends, it is vital for teacher candidates and teachers alike to understand that advanced technological expertise is not required to teach with digital technology.

It is far more important to create space for teacher candidates to engage with different ways of learning and meaning making, which are vital to succeed in the information age. Traditional student-teacher relationships are no longer appropriate in a 21st century teaching and learning context.

In addition to lack of teacher training, funding for high-speed Internet, and sophisticated and expensive hardware, and software is a common deterrent of integration (Huynh et al., 2018). For schools with access to devices, an intergenerational struggle over authority and control over learning exists. Authorial struggles in the classroom either lead to a lack of engagement with technology inside the classroom (Sanford, 2005; Huynh et al., 2018), or to interventions that discourage active participation (Wohlwend, 2009). For example, research conducted by Sullivan, Johnson, Owens and Conway (2014) found that authorial struggles in the classroom lead to confiscation of devices as a form of punishment to address student distractions. Similar to taking away paper, pencils, and textbooks, digital devices are basic, fundamental tools for learning – they are our modern-day encyclopaedias. Sullivan et al. (2014) adds that multitasking with a digital device in class does not always equate to being distracted from teaching and learning. Banning or confiscating devices is another example of a soundbite solution. As a case in point, on November 4, 2019, cell phone use in classrooms across the province of Ontario are banned and the decision to integrate technology based on classroom context no longer resides in the control of teachers (Jones, 2019). Justification of the cell phone ban revolves around the notion that, “students need to be able to focus on their learning — not their cellphones,” as Education Minister Lisa Thompson wrote. “By banning cellphone use that distracts from learning, we are helping students to focus on acquiring the foundational skills they need, like reading, writing and

math” (Jones, 2019). Teachers can benefit from understanding how digital devices influence student engagement, rather than as a behavioral problem to fix (Sullivan et al., 2014).

A quick fix to teachers’ lack of confidence and expertise, and the inequitable distribution of devices in schools is not plausible. However, the actual hardware is not always a necessary feature, nor is expertise. As a case in point, although students are oftentimes more innovative, skilled, confident and proficient technology users than their teachers (Johnson et al., 2016), research suggests that students seldom create or publish personalized digital texts, and struggle to read digital content critically (Steeves, 2014b). Thus, rather than envisage the educators’ role as an expert on tech trends and devices that constantly alter and change, the educator’s role is to connect the digital literacy practices of students to the critical skills that students lack access to outside of school (Baroud, 2019). Learning to teach and ensure digital equity then, involves thinking of students’ individual and communal needs and finding creative solutions to provide opportunity, resources, and support for all students to pursue the projects they are passionate about (Luke, 2004). Despite a need for sustainable education, funding, and access to technology educators are cautioned not to permit their level of technical knowledge or digital access deter them from integrating technology (Lotherington et al., 2016). Until policy and research align, scholars propose that educators be inspired to channel a critical pedagogical inventiveness, which is explained more detail below.

Reboot: Consume, Critique, Create, and Community of Practice

We’ll only be successful in ridding tech of its excesses and oversights if we first embrace a new way of seeing the digital tools we rely on – not as a wonder, or even as a villain, but rather as a series of choices that designers and technologists have made. (Wachter-Boettcher, 2017, p. 200)

As mentioned, one of the greatest digital challenges of our time is to encourage learners to read digital texts critically, produce ethical designs that diminish inequities and harmful stereotypes, and inspire marginalized students to pursue technology related fields. A first step in this process is to encourage policy makers and educators to redefine technology instruction and curriculum and move from solely functional skills and include the critical skills needed for students' to read, examine, and interrogate digital texts from their particular subject position, including the cultural knowledge and perspectives that shape their understandings (Andreotti, 2013). In this way, student knowledge and diverse literacy practices are privileged and linked to critical literacy in the curriculum and everyday classroom activities. It is also crucial to make connections within the STEM community and illustrate to students that people who represent them, who look like them are successful in STEM fields (Watt, 2016). Educators are encouraged to act as socializing agents (Ireland et al., 2018) —interpersonal supports who provide structure and guidance in the development of students' confidence, identity, and achievement in the field of technology (Rice & Alfred, 2014). Early exposure to technological learning opportunities is vital alongside opportunities for students not only to see others who look like them doing work in the field, but also to learn alongside them to solve problems they witness and experience in their life worlds. Additionally, understanding sociopolitical implications, making political decisions based on critique, and redesigning texts to, “produce ideas rather than just consume them” is vital (Williamson, 2013, p. 2). Instead of focusing on lectures, tests, and homework that are disconnected from students' everyday realities, interests, and experiences, opportunity to reimagine or remix the content students internalize to create solutions for real people and real situations is also fundamental (Andreotti, 2013; Williamson, 2013). According to Burwell (2013), remixing involves a rich and complex understanding of the problems that can and cannot

be solved with technology such as learning how to source the right tools, work on a team with different perspectives and knowledge, and discern scope and scale. The ultimate goal is for students to learn how to consume, critique, and create digital content that serve them, their local communities, and their global comrades.

To move beyond technology integration insecurities, teachers are encouraged to be transparent with their students about their technical abilities and to privilege students' knowledge. Teachers are urged to call upon students to share their tech savvy competencies, skills, and expertise, and to acknowledge, name, and credit students' tech savvy innovations (Charles, 2007; Dezuanni, O'Mara, & Beavis, 2015; Emert, 2014; Grace & Henward, 2013; Jackson, Zhao, Kolenic, Fitzgerald, Harold, & Eye, 2008; Leard et al., 2006; Rowsell et al., 2009; Wohlwend, 2009). To facilitate digital literacies teaching and learning, it is vital to disrupt the notion that educators know more than students. Instead teachers are advised to model a collaborative-based approach to digital literacies teaching and learning, whereby the expectation is to learn with and from each other and to search for answers together via online resources if needed (Watt, 2019). Indeed, it is good practice for teacher candidates to take risks and experience how it looks and feels to share power and authority in the classroom, so that they will be more likely to take those risks and enact those pedagogies in their own classrooms (Watt, 2019). Experimentation with various forms of representation and expression has been found to promote a collaborative-based classroom environment. This pedagogical move not only decreases students' level of anxiety, but also increases their confidence to produce and share media online (Emert, 2014). For these reasons, educators are called upon to flatten hierarchies, forge a community of practice inside the classroom, and not only include, but also value students' interests, voices, and ideas (Sanford, 2015). An additional benefit is that when

hierarchies are flattened and students' creations and productions are infused with powerful insights from their lived experiences, perspectives, expressions, and identities, students are granted the opportunity to rewrite their own stories differently than how they are often (mis)perceived in mainstream media (Burwell, 2013; de la Piedra, 2010; Honeyford, 2014; Rowsell et al., 2009; Wargo, 2015; Wohlwend, 2009). Additionally, control over digital production provides opportunity for students to investigate individual, community, and global concerns and determine how to advocate for social change, inclusivity, mutual respect, and unity between people of diverse backgrounds (Dahya & Jenson, 2015; Leard & Lashua, 2006). Andreotti and de Souza (2008) refer to this pedagogical framing as, "Think for yourself and choose responsibly what to do" (p. 11). This kind of classroom practice puts the responsibility on the learner to critically engage with different ways of thinking and doing to make decisions about what is right or wrong, and how to take action, dependent on context. In this way, equity for students means less teacher instruction, and more co-created learning, peer evaluation, and elicitation of students' prior knowledge (Kolb, 2017). Rather than adhering to traditional notions of teaching literacy (Miller, 2013) or treating technology as an add-on, after-thought, or option, which is often the case (Bullock, 2011; Hoechsmann & DeWaard, 2015), these significant pedagogical shifts could encourage teacher educators and student teachers alike to consider meaningful integrations of critical digital literacies into the curriculum. In this kind of classroom space, instead of being told what to do and how they are doing, students' personal goal setting, self-reflexivity, and global and local awareness are the driving forces (Andreotti, 2013; May, 2015).

Chapter Summary

Teacher educators are summoned to prepare teacher candidates to become effective and critical digital users, but to date, have not been granted the support, training, or professional

development for effective K-12 digital instruction in Canadian teacher education programs (Brown, 2017; Hadziristic, 2017). Although there has been a growing number of policy initiatives, attempts to incorporate digital technologies into teacher education literacy programs has proven to be a challenge (Kirkwood, 2009; Walsh & Durant, 2013). Teacher educators struggle to gain technical proficiency and reconceptualize pedagogical approaches to facilitate equitable instruction. Digital divide scholars argue that a paradigm shift towards critical digital pedagogies can support educators to think critically, ethically, and responsibly in their pursuit to design literacy learning opportunities that respond to institutional, social, and economic contexts and needs (Hobbs, 2010). It is complex, time-intensive work, and requires more people in conversation to take action.

Chapter Three: Conceptual Framework

The meaning of the term literacy is deictic and is constantly changing alongside the rapid evolution of communication and information technologies (Kimmons & Hall, 2017), which has become a theoretical challenge for literacy scholars (Leu, Kinzer, Coiro, Castek, & Henry, 2017, p. 319). In my study, I decided to develop and adopt a conceptual framework that combines several theoretical frameworks including: New Literacies, critical literacies, and intersectionality. Operationalized together, I wanted to illustrate how integral it is that diverse fields of research engage in conversation not only to inform, but also elevate each another. As Leu et al., (2017) argue, “we can no longer afford to work in separate theoretical worlds, ignoring others and privileging our own” (p. 325). I also wanted to move away from a single theory of integration to constructively combine the complementary and competing perspectives of each framework. I strategically selected New literacies, critical literacies, and intersectionality because each is explicit about their ambition not to privilege a single theoretical framework but rather, to employ multiple perspectives to capture the complexities of literacies. Each theoretical framework encompasses aspects of functional, critical, and intersectional frameworks, but to varying degrees and from different perspectives.

I created a tri-framework that I refer to as a Critical Intersectional Technological Integration framework (CITI), which permitted me to capture the threads between each framework. The CITI framework looks at six categories for considering how syllabi and curriculum are designed and how pedagogies and practices are implemented in each case study. I refer to this framework as the 6 C’s because it consists of *critical*, which acknowledges that critical literacy, critical thinking, and functional technology skills are equally important to examine, read, curate, and create online texts. *Collaborate*, which sees the relationship between

teachers and students as reciprocal and collaborative to rework power structures in the classroom; *content*, which sees course content as a reflection of student diversity, identity and the root of decision-making. *Construction of knowledge*, which encourages information from diverse online perspectives, cultures, societies, contexts and divergent interpretations inside the classroom. *Creation*, which acknowledges that to create or transform content online is for the purpose of producing counter-normative content that challenges imbalances in power, identity, and representation; and *continuous self-reflexivity*, which sees the tracing of both individual and collective thoughts and journeys as vital to independent and collective learning and growth. The six C's are used as a tool to map the complex web of pedagogy, practice, syllabi and curriculum documents that I analyse in this study. In this chapter, the three conceptual layers are situated in recent literature and divided into three distinct sections, and expanded upon sequentially: New Literacies, critical literacy, and intersectionality. While each piece of the conceptual framework is discussed below as separate pieces, they cannot be dismembered into neat categories.

New Literacies

The field of literacy research has seen significant multidisciplinary shifts in the past several decades (Brass et al., 2014; Kosnik et al., 2015). As Leu et al. (2017) put it, meanings of literacy shift “alongside social forces...and the technologies these forces often produce” (p. 320). Interdisciplinary fields of study have emerged which reflect these significant shifts in how literacy is understood today, including new literacies, multiliteracies, multimodal literacy (Jewitt & Kress, 2003), and multimodal discourse (Kress, Jewitt, Ogborn, & Tsatsarelis, 2001). The through line of these four theorizations is that digital technologies are understood to extend, not replace conventional literacy practices; and that conventional views are no longer adequate if they lack digital components (Mills, 2010). I chose to situate my study in the field of new

literacies because it expands the boundaries of what counts as literate competencies and literacy; understands literacy as a cultural and social practice constantly in flux; and attempts to reframe literacy to adjust to modern ways of life (Cervetti, Damico, & Pearson, 2006). Inspired by Leu et al. (2017) in what follows I summarize the central tenants of New Literacies as a theoretical framework.

From a New Literacies perspective (Leu et al., 2017) the social forces that prompt changes to literacy include global economic competition based on the effective use of technology, and the rapid dependence on the Internet in personal and professional lives. In the twenty first century, reliance on the Internet requires an innovative set of skills including identifying prominent issues, locating useful information related to various issues, critically evaluating the information gathered, synthesizing relevant information to determine solutions, quickly communicating solutions, and monitoring and evaluating the results of the solutions and modifying them as needed. Competencies with these new literacies skills is required to lead an engaged life in an online age of information and communication technologies. However, Leu et al. (2017) are quick to correct the assumption that these skills lead solely to productive workers. The information made available by the Internet provides opportunities to, for example, improve personal and professional lives, advocate for social justice, select an institution of higher education, purchase books, manage health-care questions, and either participate in democratic politics or overthrow undemocratic political systems. The reason why a New Literacies framework tends to focus on how internet technologies have dramatically altered the world of work, is because it has led to fundamental adjustments to components of the literacy curriculum. Today, the evolution of education policies is slowly becoming more integrated in nations such as Canada and include the standards and skills necessary to prepare students to succeed in the 21st

century. Although changes are slow, literacy and Internet use are becoming more integrated in curricula and public policy directly impacting literacy education.

As the concept of literacy unremittingly evolves, New Literacies scholars using isolated theories struggle to capture, keep pace with, and understand the complex layers of literacy. Leu et al., (2017), however, consider these rapid changes an opportunity to understand the “extraordinary complexities” of literacies and propose a collaborative approach to theory building, one that generates solutions to problems from the power of diverse and multiple perspectives (p. 325). New Literacies theory takes an “‘open-source’ approach, inviting everyone who studies the Internet’s impact to contribute to theory development and to benefit from others’ contributions” (p. 325). To account for the growing multiplicity of literacies and perspectives emerging, and to dispel the assumption that new literacies focuses exclusively on technology and ignores other literacies and modalities beyond print (see for example Cervetti et al., 2006) Leu et al., (2017) recently reframed new literacies to distinguish between two levels: uppercase (New Literacies) inquiries common and consistent findings or patterns within lowercase new literacies research and theory, which inquiries a discipline or new area of literacy or technology. These models assume change, and thus accept that definitions of literacy also change and are based on the most recent data across all disciplines.

Upper case New Literacies.

In this section I list the eight central principles that govern uppercase New Literacies and then summarize them, not as separate, but as interconnected pieces to illustrate how each principle connects, impacts, and contributes to the next. The list of eight uppercase New Literacies principles include (Leu, et al., 2017, p. 326):

1. The Internet is this generation's defining technology for literacy and learning within our global community.
2. The Internet and related technologies require additional new literacies to fully access their potential.
3. New literacies are deictic.
4. New literacies are multiple, multimodal, and multifaceted.
5. Critical literacies are central to new literacies.
6. New forms of strategic knowledge are required with new literacies.
7. New social practices are a central element of New Literacies.
8. Teachers become more important, though their role changes, within new literacy classrooms.

New Literacies theory aligns with the sociolinguistic perspective (see Gee, 2007) that literacy is embedded in and developed out of cultural social practices. The current generation's technology for literacy is the Internet. With new technologies such as the Internet come additional skills, dispositions, strategies, and social and communicative practices that are needed to take full advantage of their affordances. New literacies build upon foundational or traditional social practices required of literacy including text reading and writing, vocabulary, spelling, word recognition, inferential reasoning, comprehension, response to literature, and so on. These foundational literacies are insufficient for communicating, writing, and reading new forms of text online that are linked to complex information networks (Dalton & Proctor, 2008; Wyatt-Smith & Elkins, 2008). The innovation of new technologies means that to become or to be literate transforms rapidly. As new possibilities for teaching and learning are advanced and shared, new social practices with new technologies are also envisaged. With the ease and speed of

information exchange on the Internet, “changes to literacy derived from new technologies happen at a pace faster than ever before” (Leu et al., 2017, p. 327). Put simply, the rapid pace of advancement in the function and form of literacy is intensified by the speed of Internet communication and social practices.

New literacies are multimodal, multifaceted, and multiple and so understandings of them profit from multiple points of view and technological contexts. This multiplicity is apparent on three levels: Unlike traditional texts that are typically made up of print and two-dimensional graphics, new texts encompass a multitude of media formats and symbols including video, audio, animated symbols, virtual realities, and interactive tables (Callow, 2010; Walsh, 2010). These new combinations of texts and images take on various forms and challenge traditional ways of understanding diverse representations of information and how they are shared (Jewitt & Kress, 2003). Second, the Internet provides access to multiple tools. Proficient and literate users can effectively determine which of the Internet’s multiple offerings of forms and tools best meet their needs, and how to construct meaning and design and upload self-made creations and information to add to the body of knowledge on the Internet. Third, new social skills and practices are required as individuals interpret and respond to information from broad global, social, and cultural contexts that communicate divergent meanings and understandings of the world. All three of these multiple contexts have, “important implications for educators preparing students to critically understand and interpret the meanings they find on the Internet and to communicate with others” (Leu et al., 2017, p. 328).

New forms of critical literacy with greater emphasis on critical analysis and thinking are in demand for new literacies scholars. Open networks on the Internet license anyone to publish content. Widely available information from a multitude of perspectives is an opportunity

afforded by technology. But it is also one of its limitations because, “information is much more widely available from people who have strong political, economic, religious, or ideological stances that profoundly influence the nature of the information they present to others” (p. 329; see also Metzger & Flanagin, 2008). The literacy curriculum in Canada has and does include critical thinking components and the skills to separate propaganda from fact, however, these complex analytic skills in connection with Internet technologies is not devoted enough time or prominence in the classroom or curriculum (Hobbs, 2010). As New Literacies expand and evolve, a deeper devotion to critical literacy and media literacy is necessary to provide a higher quality of research in the area.

New technologies require a new set of strategies to traverse, inquire, and see information from multiple aesthetic and cognitive forms of media (Leu et al., 2017). Work by Lankshear and Knobel (2006) highlight two elements that generate changes to New Literacies practices. First, with new digital technologies comes new ways of sharing, constructing, and accessing content. Second, the distributive, participatory, and collaborative aspects of digital spaces permit a distinctive ethos, or way of engaging in participatory culture. The result is new literacy social practices and new discourse communities that together redefine literacy and require learning of new social practices in classrooms (Kiili, Laurinen, Marttunen, & Leu, 2012). For example, literacy instruction was once framed around educators transmitting information and skills to students. This is no longer adequate or possible with new literacies because, “today, many young students possess higher levels of knowledge about some of these new literacies than most adults” (Leu et al., 2017, p. 329), and many students possess varied skills and technological abilities. As a for instance, Leu et al. provide this example:

One student...may know how to edit digital video scenes, but another may know how best to compress the video so it can function optimally in web-based environments. This social learning ability may not come naturally to all students, however, and many will need to be supported in learning *how* to learn about literacy from one another. (p. 330)

The integration of Internet technologies in classrooms will both increase and alter the role of the teacher in facilitating learning experiences for students. New literacies are richer and more complex than traditional print literacy and so teachers are required to present richer and more complex learning opportunities. It will be common for teachers to be less literate than students with some technologies (Harper, 2006). Consequently, the role of the teacher is to not dispense new literacies skills, rather to facilitate learning contexts through reciprocal exchange of digital skills. According to Leu et al, (2017), because the teacher's role changes, greater attention must be placed on new literacies professional development and teacher education.

Lower case new literacies.

The new literacies of online research and comprehension, so far, encompass six elements. In this section I first list and then sequentially summarize the six elements that govern lowercase new literacies. The six elements include (Leu et al., 2017, pp. 330-331):

1. Online research and comprehension are self-directed processes of text construction and knowledge construction.
2. Five practices appear to define online research and comprehension processing: (1) identifying a problem and then (2) locating, (3) evaluating, (4) synthesizing, and (5) communicating information.

3. Online research and comprehension are not isomorphic with offline reading comprehension; additional skills and strategies appear to be required.
4. Online contexts may be especially supportive for some struggling readers.
5. Adolescents are not always very skilled with online research and comprehension
6. Collaborative online reading and writing practices appear to increase comprehension and learning.

Starting with online research and comprehension, readers typically follow unique informational paths and links to online informational and thus gather unique segments of information to construct knowledge (McEneaney, Li, Allen, & Guzniczak, 2009). This process is possible while reading offline, but *always* takes place while reading online (Hartman, Morsink, & Zheng, 2010). Subsequently, two online readers seldom read identical texts to solve the same problem (Leu et al., 2017). At this time, five processing practices distinctive to online reading and comprehension have been identified and are further explained below (Leu et al., 2017, p. 331): (1) reading to identify important questions, (2) reading to locate information, (3) reading to evaluate information critically, (4) reading to synthesize information, and (5) reading to communicate information. The purpose of reading on the Internet is to solve problems and answer questions. The ability to locate and read information online leads to successful research and comprehension and is considered a gatekeeping skill (Eagleton, Guinnee, & Langlias, 2003) because solving a problem is not possible if you cannot locate relevant information. The skills needed for effective online reading include how to generate a keyword search (Kuiper & Volman, 2008), how to determine which link is useful between search engine results (Henry, 2006), and how to scan websites for relevant information (Rouet, et al., 2011). Reading to evaluate online information critically includes the skills to evaluate reliability, bias, and accuracy

(Centre for Media Literacy, 2005). Though useful for offline texts, online contexts present additional challenges such as unedited information, and merging of education content with commercial advertising (Fabos, 2008). Training to judge reliability, accuracy, and bias of online information is necessary to avoid confusion (Sundar, 2008). To read and synthesize information from an array of online sources in a multitude of media formats is required to illustrate awareness of the reading process and understanding of texts (Jenkins, 2006). The ability to communicate online to obtain information or share learned information is required for successful online research and comprehension. Specific online communication tools are connected to specific and new strategies, skills, and social practices to effectively communicate in social networking environments (Coiro, Knobel, Lankshear, & Leu, 2008).

Moving forward, several studies have found that online research and comprehension are not isomorphic with offline reading comprehension and require additional skills such as navigating appropriate online reading paths (Afflerbach & Cho, 2010) and new cognitive reading skills to process information (Hartman et al., 2010). Some studies have also found that students, who perform at a low level on traditional reading assessments, perform at high levels during online reading and comprehension (Castek, Zawilinski, McVerry, O'Byrne, & Leu, 2011; Leu, Zawilinski, et al., 2007). Researchers do not fully grasp why this isomorphism exists. Some scholars speculate that it is because online reading is a problem-based task that requires higher levels of critical evaluation, while offline reading is a comprehension task (Taboada & Guthrie, 2006). Much more research is required.

Further, some struggling readers tend to perform well with online research and comprehension because online texts are typically shorter and easier to process. In addition, readers follow information links and paths and select their own texts to read, which increases

engagement, and the likeliness that students are selecting texts appropriate for their level of ability. Also, online texts include multimedia and graphic image, which are supportive for struggling readers who are typically skilled readers of information presented this way.

Sometimes too, the new literacies skill Command + F supports quick scans for information (Leu et al., 2017). Although youth are skilled with, for example, texting, social networking, or video and Mp3 downloads, they are not always as skilled with online research and comprehension.

Emerging research suggests that framing reading and writing online as a collaborative process provides additional opportunities for deep exploration of different perspectives, ideas, and controversial issues, which leads to greater knowledge and meaning construction (Kiili et al., 2012), and greater critical evaluation skills, and heightened ability to identify false information (O'Byrne, 2011). Opportunities to co-construct knowledge and produce content online are an important dimension of online research and comprehension.

Overall, a New Literacies perspective claims that the literacy practices, once synonymous with the autonomous skills of reading and writing, are now increasingly understood as a complex social practice in which historical, cultural, social, and technological perspectives are at the centre (Brass et al., 2014; Street, 1994). There have been pedagogical implications for this which take into account the various ways one makes meaning and aims for practices that promote diversity of perspective, new strategies for teaching and learning, and the embrace of technological complexity and deixis. As forms of Internet communication proliferate, educators who prepare teacher candidates grapple with the meaningful integration of digital technologies in teacher education courses. The theoretical and conceptual terrain of New Literacies is rich and complex and is an important first step. To move further away from an emphasis on producing effective workers and towards an emphasis on cultural and ethical responsibilities, decisions, and

actions, in the next section I divulge how New Literacies in conjunction with critical literacy and intersectional theory can intervene on the types of uneven power relations that exist in technological spaces, and inquiries how critical and intersectional thought can support teachers use of technology as a tool to enhance creative power and potential to affect social change.

Critical Literacy

Critical Literacy is defined and used by various scholars in education who have traced the origins of critical literacy to different kinds of traditions, scholars, and sources. In the broadest of terms, critical literacy can be defined as an educational practice that underscores the connections between knowledge, language, power, and identities (Andreotti, 2014). Within the multiplicity of definitions, I employ Vanessa Andreotti's definition of critical literacy coupled with a framework she and her colleagues developed for global citizenship education (2006; 2010) and digital democracy (2013). Echoing the critical pedagogies of Freire (1970) who understood literacy education as a means to address sociopolitical inequities, critical digital pedagogues such as Andreotti (2013) stress the mastery not only of technical skills but critical thought. I chose Andreotti's definition of critical literacy because Internet and communication technologies provide access to diverse information, perspectives, societies, and cultures, and learning how to engage in critical dialogue and take ethical action is an important, yet oftentimes overlooked element to critical digital literacy education. Also, it is one of the few critical digital literacy frameworks to incorporate reflexivity for the purpose of individual and collective growth. Because teacher educator reflections on past and future practices are one element of my research, Andreotti's framework aids in the framing and analysis of data. I emphasize alongside Andreotti (2006) that there is no approach or recipe to critical literacy that serves all educational contexts; all approaches serve particular contexts, "and can already represent a major step" (p. 49). But

there are risks of (indirectly or directly) reproducing harm when approaches to critical literacy ignore limitations and implications. In what follows I will discuss three skills identified by Andreotti (2013) that support the development of critical literacy in an educational context: critical engagement, reflexivity, and digital democracy.

Critical engagement skills.

To further conceptualise the *critical engagement* skills associated with critical literacy, Andreotti (2013) uses the following two orientations. The first orientation is to *challenge imbalances in representation and power*. Questions that illustrate such an orientation include: Who decides what is ideal or true? How is ‘being somebody’ defined and how do people in diverse contexts understand this idea, and for whose benefit then, and now? Whose interests are served and represented in this reality? What and whom are forgotten or lost and how can this be thought of ‘otherwise’? The second orientation *challenges notions of objectivity and self-evidence* and promotes openness, knowledges, and realities that are suppressed. Questions that illustrate such an orientation include: What is the root of this understanding or narrative? How have we come to think about the world the way we do? How can we begin to think of this reality ‘otherwise’? Where does it lead us in terms of cultural, social, and environmental implications?

To teach critical literacy then, bears no resemblance to Freire’s (1970) model of banking education, which refers to knowledge as deposited into learners’ minds to be regurgitated. Whereby learner’ thoughts and actions are disciplined by education, which creates a false perception of their relationship to hegemonic forces. From a ‘banking model’ perspective, one body of knowledge is universal and applicable to all contexts and if learners think ‘critically’ and reasonably, there is only one correct response to any issue. In other words, critical thinking is either “think for yourself as long as you agree with me” or “critical thinking will only lead to one

right answer” (Andreotti, 2013, p. 11).

In opposition, to teach critical literacy, Andreotti and de Souza (2008) uphold that all understandings of reality are contextually, historically, socially, and culturally specific, and so there are a multitude of ways to think about reality. Andreotti and de Souza (2008) refer to this critical pedagogical framing as, “Think for yourself and choose responsibly what to do” (p. 11). This kind of education places responsibility on the learner to engage critically with different ways of doing and thinking and to understand that each answer is context bound, partial, and has limitations and implications.

A next step is to promote change and action without telling learners what to do or think. According to Andreotti (2006), action is an individual choice made after careful analysis of the context, opposing views, power relations, and of goals and strategies. Her approach to critical literacy promotes classroom spaces where learners are safe to experiment and analyse a variety of other forms of thinking, being, seeing, and relating to one another, and maintaining respect for others without imposing ideas on them. In other words, learners might lack knowledge that is constructed outside of their own society, culture, and context; engagement with all perspectives is necessary to transform learners’ identities, views, and relationship with ‘others’.

Taken together, to teach critical literacy is not to ‘unveil’ the ‘truth’ for learners, but rather to dismiss binary notions of what is biased or unbiased, right or wrong, true or false, and to provide the space and time for learners to reflect on their own assumptions and the assumptions of others. Learners are involved in the learning process and in the co-construction and scaffolding of knowledge with the teacher. Critical literacy education emphasizes democratic practices, enquiry, cooperative/collaborative work, and relationship building. To develop critical engagement skills involves understanding how we as learners have come to think, feel, be, and

act the way we do and the implications of our belief systems on our social relationships and our relationship to power (Andreotti, 2006). Learners are encouraged to critically reflect on the processes of their own cultures and contexts so that they can take ethical responsibility for their decisions and actions and imagine different futures (Andreotti, 2013).

Reflexivity skills.

Self-reflection in the context of education has been mainstreamed as a focus on the individual process of decision and meaning making to improve practice. By Andreotti's (2014) definition, *self-reflexivity* moves beyond individual thoughts, journeys, and assumptions and instead emphasises the practice of tracing individual assumptions to, "collective socially, culturally, and historically situated 'stories' with specific ontological and epistemological assumptions that define what is real, ideal, and knowable (i.e. 'root narratives')" (p. 15). The purpose is to emphasise that individual thoughts and choices are conditioned by our individual and collective histories and contexts and are thus never entirely neutral, free, or only individual (Andreotti, 2010a; 2010b).

To practice self-reflexivity involves challenging the assumption that there is always a correlation between what we think, say, and do. The first layer, 'self-awareness' is 'what we say, think, and do' which are understood as not directly related. Our capacity to express what we think is limited by what is appropriate to say in a specific context, by what we cannot yet articulate or make sense of in words, or by what we choose to present (or not) to others. Self-reflexivity then acknowledges the limitations of language, which is a central feature of critical literacy practices. The second layer, 'self-reflection' represents individual experiences and acknowledges that what we say, think, and do are based on our individual and unique (traumatic, ordinary, or inspiring) learning experiences and journeys in multiple contexts that come with a

‘baggage of concepts’ all dependent on what we have been exposed to (Andreotti, 2014, p. 17). The third layer, ‘self-reflexivity’ is recognition that our interpretations of experiences are conditioned by and grounded in languages we adopt to make sense of and communicate with others and their realities. These languages are culturally, socially, and historically ‘situated’ and serve as the criteria to determine parameters for what and how something can be known and how to get there. Because culture, society, and context change over time there is always diversity within a group – some might intersect and some might contradict, but the sentiment is that they do not remain static. Still, Andreotti (2014) reminds us that, “there is also always a dominant set of criteria that represents the ‘common sense’ of a group or groups” (p. 17). All three layers of reflexivity are important steps in the process to becoming critically digitally literate.

Digital democracy.

Andreotti’s (2006) digital democracy framework assists to distinguish the good intentions of technology integration approaches into ‘soft’ and ‘critical’ categories to raise important questions regarding the benefits and downfalls of educational technology integration. According to Andreotti (2013) the soft versus critical framework can make visible the difficulties of dissociating dominant celebrations of digital learning from the consequences that arise when not all learners have the same digital rights and opportunities.

A soft approach to digital learning, according to Andreotti (2013), might see progress as technological acceleration; technology as assumedly liberating for every learner; violence as an inevitable consequence of technology; technology as a freedom and as a consumer choice; correlation of technology with productivity, rationalization, and profit; correlation of technology with pleasurable stimulation (i.e. the next ‘hit’); technologies as neutral, accessible, and progressive; and online democratic engagement expressed as connectivity, mobility, freedom,

and fun. A ‘soft’ approach to digital integration highlights how difficult it can be to manipulate technology without technology manipulating us. This ‘soft’ approach to digital integration can generate an illusion of connectivity because technology can mask as a tool to boost social capital for the ‘Other’, but in actuality can disenfranchise those who experience digital divides and are unable to keep up with technological advancements. Andreotti (2013) makes claim that if digital instruction is to be used to prepare learners to engage with the complexity, inequality, and uncertainty of technology then as educators, “we need to raise our game” (p. 433) and move away from naïve hope and towards skeptical optimism.

In my study, Andreotti’s framework is particularly useful to analyse professors’ syllabi and pedagogical moves because my goal is not to determine or judge whether participating professors are using ‘right’ or ‘wrong’ or ‘good’ or ‘bad’ approaches to teaching critically with technology, rather my intention is to study how each approach leads to unique learning outcomes. Andreotti’s framework is useful as I grapple with and think through pedagogical implications. Admittedly, I also elected to include critical literacy as a framework because it is accepted, celebrated, and accessible in education discourse. Although equally useful and impactful in digital research, intersectional theory has been slower to gain traction as a pedagogical tool in higher education. For this reason, I decided to frame intersectionality not as pedagogy, but as an analytic sensibility – a way of conducting and thinking about analyses – because it is not the term ‘intersectionality’ that makes an analysis intersectional, but rather the way an intersectional way of thinking about difference and sameness and its relation to power is adopted (Cho, Crenshaw, & McCall, 2013). I use intersectionality as a model to notice institutional, structural, and systemic reinforcements of hierarchical practices in higher education, that are sometimes invisible to me – a research who privileges from and works within

the institution. Additionally, although critical literacy is explicit about moving from single axis to matrix thinking, intersectionality is more practical in its approach to navigating within and between group differences. Intersectionality completes the conceptual framework triad and is expanded upon further below.

Intersectionality

Intersectionality as a theoretical, political, and methodological approach has shifted and evolved since its inception in the United States in the 20th century (Carastathis, 2014). Central to intersectional theory is the claim that oppression is not a binary or singular process, but is constituted by interwoven, multiple, and converging structural and political systems (Crenshaw, 1991). Often celebrated as the, “most important contribution that women’s studies, in conjunction with related fields, has made so far” (McCall, 2005, p. 1771) the influence of intersectionality has sprawled across academic disciplines in history, literature, sociology and anthropology (Cho, Crenshaw, & McCall, 2013, p. 787) and is gaining traction in new education research (Blackmore, 2014). It has also become, “tremendously popular” in international human rights discourses and policy initiatives that have begun to recognize multiple intersecting forms of discrimination and inequalities (Yuval-Davis, 2006, p. 193).

The concern with how socio-culturally constructed categories interact with one another and produce inequalities in society is longstanding and has been recognized since before the inception of the term ‘intersectionality’. The impetus in the formulation of intersectionality arose in black feminist politics. According to Brah and Phoenix (2004) the underpinnings of the concept are based in Sojourner Truth’s (1851) speech, “Ain’t I A Woman”, which predates by a century more recent feminist texts on the subject. Other antecedents include the notions of, ‘multiple jeopardy’ (King), or ‘double jeopardy’ (Beal), and ‘interlocking oppressions’

(Combahee River Collective) (See Anthias, 2012). It is significant to recognize that the phenomena or language of ‘intersections’ had already been marked by the political movement of Black, Latina, Chicana, and other women of colour – majority lesbian-identified, from as early as the 19th century in the United States (Carastathis, 2014).

Credited with coining the term intersectionality is socio-legal theorist Kimberly Crenshaw (1989). The metaphor of traffic in an intersection in Crenshaw’s (1989) seminal work is used to explain how black women in the United States experience oppression and inequality caused by the interaction of racism and sexism. The historical logic behind intersectionality was to challenge the dominance of men in the anti-racist movement, and white middle-class women in feminist movements, because they overlooked black women’s concerns (Christensen & Jenson, 2012; Crenshaw, 1989).

From its inception, intersectionality has been characterized by an emphasis on structural, political, and representational power relations, otherwise known as “a matrix of domination” (Collins, 1989). The overall aim of intersectional analysis is to explore intersecting patterns between different structures of power and how people are simultaneously positioned, and position themselves, in multiple categories in this matrix of domination (Collins, 2000). While social divisions have been understood through an intersectional lens for more than two decades, and have had profound effects on feminist theories, it has only recently become more central in political and academic life (Nash, 2008). As the concept of intersectionality continues to gain traction, it also gains criticism from some feminist scholars. In what follows, I briefly expound some of the tensions and debates that have come to be associated with intersectionality. Then, I use May’s (2014) four interrelated commitments of intersectionality to shape my conceptualization and application of an intersectional framework.

Intersectionality: Absences, contradictions, and murkiness.

As intersectional enthusiasm builds, it is vital that the welter of competing methodological perspectives are understood so that practitioners can integrate the most comprehensive approach possible into their practice. As Zack (2005, p. 1) points out, because intersectionality has become “a leading feminist paradigm” with interdisciplinary reach, it is a critical moment to engage with its absences, contradictions, and murkiness. With this in mind, the most common methodological questions and debates identified by Cho et al. (2013) include: praxis – how practice should inform theory, and how theory should inform best practices; the fixed and static versus the contextual and dynamic orientation of intersectional research; the additive versus interactive nature of gender, race, sexuality, nation, class nexus; social categories versus social and political intersectionality; and the et cetera problem – determining which subjects and how many number of categories should be applied. In the forgoing discussion, I use these debates and tensions to map my position and perspective as an intersectional scholar.

Praxis.

Though there are possibilities for fusing theoretical knowledge and practical knowledge, recommendations for the implementation of intersectionality seldom translate into practical application and social action and transformation (Cho et al., 2013). Intersectionality must go beyond critiques and recommendations and offer frameworks for contesting power, thereby linking theory to practice (Cho et al., 2013; Gillborn, 2010). If intersectionality can be used to better understand peoples experiences and needs then it should also inform researchers thinking and action, which is why I created the CITI framework – to not only recommend the implementation of intersectionality as a method of educational reform and pedagogical intervention, but to also provide some guidance on practical application.

The fixed and static versus the contextual and dynamic.

An unresolved debate in the field of intersectionality is whether scholars should recognize categories as fluid (Hancock, 2007) or stable (McCall, 2005) when approaching their research design. According to Hancock (2007) categories are fluid because as they intersect, they are changed beyond recognition. By contrast McCall (2005) advocates that categories should be understood as macro and stabilized because the destabilization of categories makes analysis of these categories rather difficult. While I agree with McCall (2005) that destabilization makes analysis difficult, especially in an educational context whereby categories are stable as a consequence of institutionalization, I argue that it is equally important to acknowledge that categories shift over, space, time, and context. To move forward then, in my study I acknowledge that as historical dynamics and social institutions change, so too does the environment within which sets of social inequalities are negotiated.

Additive versus interactive nature of gender, race, sexuality, nation, class nexus.

Intersectionality attends to structures of power and how people are positioned and position themselves in this matrix of domination. A prominent intersectional dilemma is how to produce knowledge about mutually constituted categories in a non-additive way. An intersectional approach is understood as conceptually different from what Hancock (2007) refers to as the unitary approach – which privileges one single, primary, and stable category – and the multiple approach – which recognizes categories as equally important but static and conceptually independent of each other. According to Hancock (2007) adopting a ‘mutual constitution’ approach assumes that intersecting entities are transformed into something entirely new. Mutual constitution is in opposition to the notion that inequalities are simply added together at the point of intersection. McCall (2005) claims that mutual constitution between categories is not an

essential requirement of intersectionality and proposes the intracategorical approach (examines complexity within a social group) and intercategorical (focuses on the relationships among multiple social groups within and across analytical categories) to resolve the issue. According to Cho et al., (2013) the absence of mutual constitution or additivity does not equate to an inherent flaw in the research. The flaw lies instead with the dichotomization of analysis into either mutual constitution or additivity. The way forward then, is to make visible the importance of separating inequalities at the point of intersection and simultaneously recognize that social relations change as they intersect.

Social categories versus social and political intersectionality.

A major critique of intersectionality is how some scholars focus on categories of identity and ignore structures of inequality (Choo & Feree, 2010). This critique is rather curious given the emphasis on structures of subordination in Crenshaw's (1991) earlier work. As the popularity of intersectionality continuously expands, Crenshaw (2011) is deeply concerned with the increasing number of researchers misinterpreting it. I acknowledge in my study that intersectionality's primary focus is not on social categories but rather social and political inequalities, and as social and political forces alter and change, so too does the environment within which sets of identity categories and social inequalities are negotiated.

The et cetera problem: How many categories and which ones?

The primary difference between how practitioners incorporate intersectionality in their research is dependent on which identity categories they focus on. This is not surprising given that any analysis must select a number of categories, or establish *anchor points* as a *strategic choice* (McCall, 2005) and so it is necessary to select categories that are most relevant to the research question and most important to a specific context, place, and time (Hancock, 2007). Still,

researchers are often left with little guidance on how many categories of difference they should explore in their research. The possible categories one could explore can be endless and some scholars (Ludwig, 2006; Butler, 1990) mock this ‘etcetera problem’ as a weakness in intersectional methodology.

While some scholars (Knapp, 2005) wish to preserve gender as the primary category to understand inequality and are anxious that race/ethnicity or multiculturalism might overshadow gender, other scholars such as McCall (2005) are concerned that the focus on class is increasingly neglected in intersectional research. Hancock (2007) however, is scathing about what Dhamoon (2011) has coined the “oppression Olympics” in which certain inequalities are prioritized over others. In Hancock’s (2007) typology, research is either unitary and selects a dominant category of analysis, or intersectional and treats all categories as equally important. Certainly, “the big three” (gender, race, and class) (Anthias, 2012) should not be excluded from discussions of intersectionality, but choices should be strategically selected and contingent on context, time, and place, particularly when crossing borders (Yuval-Davis, 2006).

My understanding of intersectionality is that ontological differences should not imply hierarchization – not one differentiation is “more real than the other” (Christensen et al., 2012, p. 112). While McCall (2005) is correct that categories must be selected, I avoid the use of a dominant lens in conjunction with intersectionality. By using intersectionality in conjunction with other theories, researchers, inadvertently or not, prioritize and hierarchize a particular category and do not allow participants to self-identify or belong to categories (see also Yuval-Davis, 2006). In my study, participants have the power to name their own social locations, as higher or lower than other categories; to claim their own membership in specific categories; and to determine which social position is most relevant in the shaping of their own lives.

Four Interrelated commitments of intersectionality.

In the forgoing discussion I use May's (2014) conceptualization of intersectionality to shape my understanding and application of an intersectional framework, which rely on four interrelated commitments (p. 229):

- Honor and foster intersectionality's anti-subordination orientation;
- Draw on intersectionality's matrix approach to meaningfully engage with heterogeneity, enmeshment, and divergence;
- Take up intersectionality's invitation to follow opacities and to read against the grain;
- Set aside norm emulation as a philosophical/political/research/policy strategy.

Each intersectional commitment will be discussed sequentially in more detail below.

Honor and foster intersectionality's anti-subordination orientation

To honor and foster intersectionality's anti-subordination orientation scholars must avoid the use of a dominant lens in conjunction with intersectionality. According to May (2015) intersectional dispositions dismantle the worthy/unworthy hierarchy of categories. She encourages researchers to think *through*, engage and learn *with* identities, ideas, and histories and to avoid assimilating, or imposing cultural assumptions. My goal as a researcher then, is not to select categories, but to inspire equal dialogue, valuing of individuals and relationships, and engagement with "anti-social bodies" to ensure participants define their own identities and imaginaries.

When crafting a research project, May (2015, p. 232) argues that to honor and foster intersectionality's anti-subordination orientation, the key questions to ask are, what is intersectionality doing, with whom, by what means, and to what ends? To answer these questions requires an interrogative assessment of the theoretical, conceptual, methodological and

epistemological elements of the project to decipher whether it disrupts the status quo, or if it reinscribes oppression and hierarchies. As previously mentioned, participants in my study have the power to name their own social categories, and to determine which of their social categories are higher or lower than or more relevant in shaping of their experiences of privilege and oppression.

Draw on intersectionality's matrix approach.

To draw on intersectionality's matrix approach involves a refusal to create rigid boundaries or to reduce oppression to one single category. Oppression is understood as being produced by the interaction of multiple, co-constitutive axes including structural processes, historical contexts, and local dynamics. To draw on intersectionality's matrix approach, multiple identity categories as to be considered equally significant in shaping lived experiences and institutionalized practices. Additionally, multifaceted identity categories are recognized as advantageous rather than a hindrance or problem. Intersectional scholars are encouraged to focus on both within-group differences and between-group differences to make visible complex similarities and shared logics across differences. Simultaneously, intersectionality does not homogenize difference and collapse categories. Instead, it unpacks these multiple experiences of oppression to explain how they are anchored in social structures.

To draw on intersectionality's matrix approach, May (2015) encourages researchers to ask unasked and unsettling questions about time, memory, place, gender, race, nation, and who counts as knower to tease out undemocratic or harmful practices. She also encourages researchers not to presume a single or shared social, cultural or historical context but rather to expect and value alternative histories and knowledges and aim to uncover them without hierarchizing them. The purpose is to learn to think and perceive otherwise; to produce richer knowledge; and to interrogate power relations.

An intersectional disposition also recognizes the value of a wide range of resources that challenge traditional modes of knowledge representation. For this reason, May (2015) advocates the inclusion and analysis of social technologies as a tool to positively affirm unique or divergent positions in society. When conducting an intersectional analysis of social technology, May (2015) encourages the researcher to ask: “does the transmitted message coupled with video, text, image enhance creative power and potential to affect social change?” Or does it produce the possibility to “trace and intervene on the types of uneven power relations that exist in technological spaces?” (p. 6). May (2015) reminds us that lived experience expressed through non-traditional modes of representation such as technology can provide opportunities to think and act through resiliency and to uncover overlooked instances of history, resistance, and knowledge.

Take up intersectionality’s invitation to follow opacities and read against the grain.

According to May (2015), to take up intersectionality’s invitation to follow opacities and read against the grain, identity categories, political structures, and history must be read through an intersectional lens, which requires an archival strategy – one that exposes processes of dominance and challenges to dominance. This archival strategy entails reading from different angles of vision to create a more nuanced understanding of structures of power. As May (2015) reminds us, simplicity is a “hegemonic move” (p. 243). Intersectionality’s matrix lens is imperative to create a more nuanced portrait of identity categories and power structures. Scholars are urged to accommodate multiple narratives, selves, and ways of knowing and to look for these insights in art, performance, orature, narrative, fiction, digital texts – any mode that opens up new ways of thinking about power and inequality in ways that traditional peer-reviewed work may not (May, 2015). The goal is not to expect or enforce translatability in comparison to

dominant norms or understandings. Instead, if meanings do not mesh with what is already known, develop an openness toward divergent meanings, experiences, stories, and lives. Be flexible in readings of texts, people, and policies, and treat silences or omissions as meaningful. Ask yourself: what can be said and understood within these conventional or normative terms? (p. 239). While reading these diverse texts and genres, it is important to focus on instances of resistance and simultaneously attend to institutionalized oppression and systemic harm. Agency can be obscured by what may or may not be possible or desirable when working within specific structural relations of power. The capacity to have agency does not stem simply from the person, but from the positions available to that person within the discourses they take up. In this way, agency in practice is different from one person to the next and is dependent on the various types of oppressions experienced. Also, it is not up to that person to determine when, and to what extent they have agency; it is not for anyone else to decide (Davies, 1991).

Set aside norm emulation.

To set aside norm emulation, an intersectional disposition requires researchers to reject the notion that a single unitary identity category affects structures of inequality the same way and thus requires a single policy solution (May, 2015). Intersectionality is not about “add and stir inclusion” but about unsettling and reworking hierarchies and power structures to dismantle norm emulation (p. 251). The pursuit of intersectionality is about a commitment to transforming the collective vision, using within/between group logics to dismantle dominance with a focus on structures and identities. The purpose is to pivot political efforts towards disputing hidden exclusions and norms, uncovering suppressed complexities, tracing shared experiences, and locating sites and forms of complicity. Intersectionality has the potential to unsettle ongoing systemic inequalities and to find ways to create a more just world.

May (2015) acknowledges that thinking and doing research against the grain is oftentimes less rewarding for researchers. Also, it is challenging to see one's own practice as having anti-intersectional premise or violent logic. It requires consideration of distortions, bias, and erasures that are built into research models, tools, and interpretive lenses. To support this careful consideration, May (2015) encourages researchers to ask: does this method rank forms of power? Which categories and explanations are taken as givens? Does the model falsely homogenize or universalize identities or experiences? Intersectional scholars are also called upon to reference literature and employ research methods that do not presuppose single axis thought, and if it cannot be avoided, to then make their limitations visible.

Chapter Summary

Through a tri-framework that encompasses New literacies, critical literacy, and intersectionality, my analysis takes into consideration pedagogy, practice, and policy and the experiences of educators and teacher candidates. The conceptual framing of this project not only bridges disciplines, but also a multitude of understandings of digital literacies, critical theory, and intersectionality. In this, the boundaries of policy and curriculum development, teacher practice, and teacher candidate experience are not separate, but rather trickle into one another and constantly reproduce and reinforce one another, but also become divergent from one another as they shift and take shape. Out of these complex theoretical and conceptual understandings what follows is the research design chapter, which further situates the research project in a framing of digital, critical, and intersectional multi-methods.

Chapter Four: Research Design

Multiple Case Study Approach

I used a multiple case study approach to research the many complexities that are emerging in new literacies learning in two teacher education classrooms. Collecting data from two research settings is meant to build detailed exploration and in-depth understanding to contextually describe, analyse, and learn about multifaceted phenomena (Duke & Mallette, 2004; Merriam, 1988; Stake, 2006). The cases become the lens to interpret and represent through “thick description” what is significant about the physical and social experiences of the participants and phenomena (Merriam, 1988; Patton, 1990; Stake, 1995). Using a multiple case study approach facilitates my understanding of how two similar, yet distinct phenomena operate within local situations and across contexts (Stake, 2006). A multiple case study approach also aims to elucidate explanations and reasoning for the failure or success of a particular innovation, as a means to lead to alternative explanations for future application (Merriam, 1988). Analysis of two research sites is not meant to be representative of all cases, rather my research on emergent new literacies practices is meant to strengthen the rigour of the analysis. In this research the two cases are two university classrooms of approximately the same size in two Canadian provinces.

Triangulation is particularly useful to achieve as complete an investigation and understanding of the cases as possible (Berg, 2009; Gall, Borg & Gall, 1966; Kamberelis & Dimitriadis, 2004; Merriam, 2001). A multiple case study approach supports efforts by the researcher to triangulate multiple data sources to fill in gaps of knowledge that contribute to understanding the phenomena in its entirety (Baxter & Jack, 2008). Triangulation is achieved by employing multiple data collection techniques and methods and including multiple participant perceptions to clarify meaning (Berg, 2009). Overall, my goal is to gather multiple perspectives

and experiences across cases, not to conduct a cross-analysis of the cases; I do not aim to provide generalizable interpretations. What follows is an explanation of the particular participants, context, and research methods chosen to conduct this study to most effectively answer the research questions.

Research Questions

Multiple case study research involves asking the kinds of questions that focus on the ‘how’ and ‘why’ of contextual conditions that are relevant to the phenomena under study (Yin, 2003). The following research questions reflect my intention to study the experiences, pedagogies, and practices of two professors who teach critical digital literacies, and to engage with how they navigate Ministry of Education provincial curricula to bring critical methods, pedagogies, and strategies into their classrooms through their syllabi. I also inquire into teacher candidates’ reflections, understandings, and action regarding the processes of their emerging pedagogical stances and conceptions of critical digital literacies. This study seeks to address the following three major questions:

1. How do two English Language Arts curricula inform the design and planning of the syllabi, pedagogies, methods, and interventions of professors who are laboring to bring critical digital literacies and intersectionality into their classroom?
2. How do teacher candidates in these professors’ classes understand digital literacies and intersectional/critical frameworks?
3. What is the evidence, if any, of teacher candidates’ evolving understandings of intersectionality and critical digital literacies pedagogies upon course completion?

The content in Table 1 maps the chronology and links between the research questions, research design, and conceptual framework.

Research Questions	Method of Data Collection	Instrument	Theoretical Framework	Theorists
How do two English Language Arts curricula inform the design and planning of the syllabi, pedagogies, methods, and interventions of professors who are laboring to bring critical digital literacies and intersectionality into their classroom?	Preliminary interviews with professors	Open-ended interviews	Critical literacy	Andreotti (2014)
	Syllabus analysis	Critical discourse and corpus linguistics analysis of text	Intersectionality	May (2015)
	Curriculum analysis		New Literacies	Leu et al. (2017)
How do teacher candidates in these professors' classes understand digital literacies and intersectional/critical frameworks?	Survey Questionnaire	Thematic guide for survey questionnaire	Critical literacy	Andreotti (2014)
			Intersectionality	May (2015)
			New Literacies	Leu et al. (2017)
What is the evidence, if any, of teacher candidates' evolving understandings of intersectionality and critical digital literacies pedagogies upon course completion?	Final interviews with professors	Open-ended interviews	Critical literacy	Andreotti (2014)
	Survey Questionnaire	Thematic guide for survey questionnaire	Intersectionality	May (2015)
			New Literacies	Leu et al. (2017)

Participants and Context

I obtained Research ethics approval from the University of Ottawa Research Ethics Board in November 2017 (certificate, Appendix I). In December 2017, I began the recruitment process with a goal to select two university sites through purposeful sampling. Purposeful sampling assumes that investigators select cases that are 'information rich' with regard to the study's

purpose (Gall, Borg, & Gall, 1996, p. 218) and will lead to new discoveries, understandings, and insights (Merriam, 2001). Information rich in the context of this study meant that I purposefully targeted Canadian Universities that have Faculties of Education where professors teach digital literacies methods that include critical pedagogical components. I drew on my existing knowledge about the field of critical literacy and teacher education to identify qualifiers to determine a purposive sample and I was mindful of these qualifiers as I collected data in the first interview. Inspired by Lewison, Leland, and Harste's (2008) Four Dimensions of Critical Literacy framework, I first investigated whether the targeted professors' publications and research listings on their respective university faculty websites and/or personal websites incorporated or considered critical pedagogical content such as: viewing multiple perspectives/identities, disrupting the commonplace, focusing on socio-political issues, and taking action for social justice. Next, I investigated whether the targeted professors imagined new ways of teaching literacy based on two requirements set out by The New Literacies Researchers: the educator facilitates, incorporates, and designs new multimodal literacies as it is now required for working and communicating in the 21st century; and educators recognize that significant changes in the teaching, design and implementation of non-print modes of literacy are necessary (Alvermann, 2002; Buckingham, 2003; Cope & Kalantzis, 2000; Gee, 2003; Jewitt & Kress, 2003; Kress, 2003; Lankshear & Knobel, 2003; New London Group, 1996; Street, 1995). Based on the two aforementioned qualifiers, I contacted professors who qualified one at a time via e-mail and sent a brief introduction to the research study including my motivation for selecting them – information and consent forms. Professors who expressed interest in the research were contacted via Zoom to discuss details further. As a final qualifier, I gleaned information about professors' teaching and learning experiences and pedagogies during the

initial Skype ‘meet and greet’ and asked, “What is your motivation for teaching?” and “Which scholars inform your research and pedagogy?” and “How would you describe your pedagogical approach to teaching?” I recruited professors in two different provinces so that curricula will also differ.

In December 2017, I reached out to an Assistant Professor in Teacher Education at a university in Western Canada with an interest in critical literacies, teacher education, and critical digital practices, who consented to participate in the study. I recruited teacher candidates from two sections of her Summer 2018 mandatory literacy course in primary and junior settings, which is part of the teacher certification program. Course content covers a variety of teaching methods and strategies informed by the research, theory, and practice of literacy and language arts teaching, and are used to discuss the importance of questioning and constructing meaning through a critical, multiliteracies lens. The focus is on understanding literacy as a social practice that involves listening, speaking, reading, writing, representing, and viewing, and designing authentic learning opportunities that are integrated across curricular content. Seven teacher candidates initially provided consent. Attrition rates were high for the project activity survey questionnaire based in large part because students were asked to complete the survey outside of scheduled class time, and at the time of the course, approximately half the teacher candidates had one practice teaching placement, while the other half had completed their second and final practice teaching placement and graduated after completion of the course. Assigning the survey outside of class time with a group of students nearing graduation made contact difficult. Overall, seven teacher candidates consented to participate in the study; three teacher candidates participated in the survey questionnaire.

In October 2018, I recruited a second professor at a university in Eastern Canada with an

interest in the complexities of teaching, online learning, and digital literacies. I recruited 44 teacher candidates from two sections of her elective Winter 2019 course, which served as an introduction to theories and practices of technology integration in classrooms. The purpose of the course was to prepare teacher candidates with the knowledge, skills, and critical dispositions to empower them to make strategic, informed, decisions about the technologies they use in K-12 classrooms. This time I introduced the survey in-class, which might explain the high participation rate.

Methods of Data Collection and Procedures

Methods of data collection include an analysis of two Ministry of Education curricula documents and professors' syllabi. Open-ended interviews, for approximately 60-90 minutes, were used to inquire into how two professors navigate Ministry of education provincial curricula to bring critical methods, pedagogies, and strategies into their classroom. Teacher candidates' survey responses were used to document their self-reflection, understanding, experiences, and action regarding the processes of their emerging pedagogical stances and conceptions of digital and critical literacies. A final interview with professors, for approximately 60-90 minutes, was organized around their perceptions on changing definitions of literacy in the curriculum, the influence that technology has had in their classrooms, the pedagogical and methodological approaches taken inside their classrooms, the planning and design of syllabi, and lessons learned with regard to navigating curriculum, and future implementation.

Interviews

Each university professor participated in two open-ended semi-structured interviews. Semi-structured interviews are well suited for exploring the opinions, experiences, and perceptions of participants regarding complex issues (Barriball & While, 1994). Interviews are a

negotiated, contextual, and co-created practice (Charmaz, 2006) and follow an, “open-ended but directed, shaped yet emergent, and paced yet flexible” (p. 28) schedule to maintain sufficient openness for participants to speak about their experiences, introduce unanticipated topics, and generate innovative discussions. Interviews are used as a data collection tool in my study because the goal of my research is to understand the participants’ backgrounds, practices, and visions related to their work as professors using critical and digital literacies. My goal was to learn first-hand about professors teaching experiences and thoughts on the effectiveness of the syllabus and curriculum. Interviews are a valuable data collection tool for this reason. Using a semi-structured interview format, each interview began with a few prompt questions to illicit conversation and gain insights into the uniqueness of each participant’s experience. However, when unexpected but relevant topics emanated, I asked follow-up or probe questions, and thus interview responses are distinctive to each participant, and participants control the specific topics they wished to discuss in the interview. Participants were generally asked the same questions in both interviews, however, in the second interview participants were asked a set of questions relating specifically to their students’ survey responses, and interview questions are framed by each professors’ own critical literacy practices and pedagogies.

Each interview lasted approximately one and a half to two hours. All interviews were audio recorded and then transcribed by me. Upon completion, transcriptions were given to the professors for their approval to improve quality of the transcripts, and thus the quality of research. The transfer of the transcripts to the two professors was also intended to validate the transcripts, preserve research ethics, and empower the two professors to control what was written. Each interview began with an explanation of the voluntary rights of the research participants, emphasizing that they may choose to decline participation at any point and all of the

information they provide will no longer be considered in the analysis of data or in any records. The interviews were conducted face-to-face in coffee shops, participants' homes and office spaces or via video conferencing (i.e. Zoom) when necessary. The first interviews occurred at the beginning of the research project before the class was underway to determine current perceptions of digital literacy, criticality, methods, and pedagogy; to discuss classroom tools and resources such as syllabi and lesson plan ideas; and to collect contextual and demographic information. The second interviews occurred after the semester was complete and after teacher candidates' grades have been submitted. Professors were asked to read teacher candidates' anonymous survey responses as an act of self-reflexivity with a focus on individual (professor) and collective (teacher candidates) learning and growth. Reading survey responses also served to structure discussions around lessons learned and the pedagogies and practices professors might decide to take forward or leave behind. All online survey data was sealed and not accessible to the professors until the grades for the course were submitted. Interviews were organized around the professor's perceptions on changing definitions of literacy in the curriculum, the influence that technology has had in their classrooms, the pedagogical and methodological approaches taken inside their classrooms, the planning and design of syllabi, and lessons learned with regard to navigating curriculum, and future implementation.

Student Questionnaires

At the end of each course, teacher candidates participated in a web-based survey questionnaire that consisted of 9 items including two closed and seven open-ended questions (Appendix G & H). The survey included five sections of questions. The first section focused on teacher candidates' knowledge, competencies, and understandings of critical digital literacy. Questions included: "How would you describe your current level of critical digital literacies?"

and “What is your definition of critical digital literacy?”

The second section of the survey focused on teacher candidate’s experiences with critical digital literacies, including their practicum experience and their classroom teaching experience. Questions included: “Have you had the opportunity to use a critical digital literacy approach in your current classroom or in your practicum experience?” and “Have you had the opportunity to integrate elements of technology with identity, community, critical literacy, and/or social justice issues?” and “If you have not used a critical digital literacies approach, what are the biggest obstacles/challenges that hindered you from incorporating it inside the classroom?” and “Please list up to three additional supports, skills and/or resources that you need to feel confident and competent to teach critical digital literacies? What do you wish you knew more about?”

The third section asked respondents to indicate what critical digital literacy topics and coursework they perceived to be the most important in the syllabi of their course, in particular the pedagogical and content knowledge they plan to adopt and incorporate in their current or future classrooms. Questions included: “Please list up to three skills, tools or pedagogical approaches that you’ve learned about in the course.” and “How do you plan to use content learned from this course in your current or future classroom or practicum?”

The fourth section contained questions that focused on the effectiveness and usefulness of provincial curriculum documents in preparing teacher candidates to incorporate critical digital literacies. Questioned included: Has the curriculum been a supportive resource for you when you design and implement critical digital literacies lesson plans in your current classroom or practicum experience? Please provide examples” and “if the curriculum has not been a supportive resource, what’s missing from the curriculum?”

The fifth section asked respondents to describe their experience participating in the

research study. One question included: “How would you describe your overall experience today, participating in the “Critical Digital Video Workshop”? Overall, I collected 3 online questionnaires from the first research site. Again, 7 teacher candidates consented to participate but attrition rates were high because they were asked to fill out the online survey outside of class time. At the second research site I collected 44 questionnaires, which is a response rate of 100 percent.

The survey also provided a lens to investigate how teacher candidates expressed their perceptions and experiences of critical digital literacies through coursework assignments. Survey questions about coursework assignments provided a means to examine and compare what teacher candidates’ understandings were with how they employed those understandings in their practicum.

Workshops

My intention for facilitating workshops at both research sites was threefold. First, to bring attention to intersectional and critical and digital practices into the two professors’ classrooms. Second, to establish rapport and build trust with teacher candidates. Third, to scaffold teacher candidates learning to connect prior knowledge with new knowledge prior to completing the survey questionnaire. I worked together with the two professors to plan and organize workshops and integrate interconnected components to the course which are described in detail below. I was introduced as a researcher at both sites, as well as co-facilitator of curriculum. I had frequent meetings with the instructors to discuss how to select a digital tool to meet desired learning goals and how to create digital instructional designs that provide opportunities for critical thinking, identity, real-world problem-solving and digital production. The workshops and associated coursework assignments were not the same at both research sites because the desired learning

goals of each professor differed. My initial intention was to use the same digital tools in both classrooms but for different learning purposes, but below you will notice that although video production was integrated in both classrooms, Flipgrid was only integrated at the first research site. I initially chose to incorporate Flipgrid to serve to host collaborative dialogue around critical issues and questions. I hoped the video platform Flipgrid would become a place for authentic ongoing dialogue connecting theory and practice, while giving teacher candidates an opportunity to share in and out of the classroom. However, the professor and I found that teacher candidates questioned the purposes for which the techniques were used and the implications of cybersecurity. Teacher candidates were reluctant to use the platform because they were unaware of the technical, ethical and safety implications of their digital footprint while using the Flipgrid application. After much discussion, the professor and I made the video platform optional for students, which also prompted my choice to eliminate Flipgrid from the second research site. I had ethical concerns about the way teacher candidates responded to it and did not want to risk causing discomfort. For these reasons, I will describe the coursework for each case below separately below.

Case one: Flipgrid and reflection post workshop.

In May 2018 teacher candidates in both sections of the mandatory literacy course in primary and junior settings, were responsible for facilitating a group discussion of course texts (academic readings, videos, blog posts, podcasts, etc.). I facilitated a one-hour workshop on how to use Flipgrid so that teacher candidates could learn to host collaborative dialogue around critical issues and questions that matter, and to develop broadened notions of literacy practices. Flipgrid is a short-video platform that enables users to participate in a community of shared online learning. Users are drawn into an open discussion where they can reflect on their critical

thinking processes, and evaluate, debate, and question as they created their own, and responded to each other's videos (Karlin, 2016). The Flipgrid workshop centered around how to create a space for authentic ongoing dialogue by connecting theory and practice and giving teacher candidates an opportunity to share their reflections in an out of the classroom. The purpose was to open up new angles of understanding and perceptions of new literacies, and to provide the opportunity to practice using the Flipgrid application to increase confidence and competence integrating such tools in their prospective classrooms. Videos were submitted via Flipgrid. Seven teacher candidates consented to provide their assignments for data analysis purposes.

Case one: Video remix workshop.

In July 2018, I conducted a two-hour video remix workshop to guide teacher candidates to view digital texts as unique literacy practices, which could be critically read and analyzed. Video remix according to Willis (2003) is when consumers reimagine and rewrite media texts to create new meanings and complex identities. The remix I used in the workshop is called, "Buffy vs. Edward: Twilight Remixed" by Jonathan McIntosh (2009), "a pro-feminist visual critique of Edward's character and generally creepy behavior" (as cited in Burwell, 2013). This activity facilitated student teacher discussions about authorship, composition and intent. As a class we discussed the use of multi-modal tools to manipulate texts and convey meaning and asked teacher candidates to consider how emotive music, colour, camera placement and angle, and voice over impact mood, genre and spectatorship. Thereafter, I facilitated a lesson on storyboarding, video production, and editing and focused specifically on video production techniques such as green screen, stop motion, voice over, and camera placement, shots and angles, and colour and lighting. Student teachers were asked to blend traditional literacy practices (meaning, word choice, audience) and multi-modal tools (voice over, emotive music,

green screen, stop motion) to construct new meaning for an assigned text titled, *Fatty Legs*. *Fatty Legs*, a young adolescent novel about the residential schooling experience of a young First Nations girl, was used throughout the course to develop a range of teaching and learning skills including comprehension, creation and communication. Student teachers were asked to rewrite *Fatty Legs* from a different point of view, character and/or perspective and create a 30 second to 1-minute video remix trailer. Time for concept development and storyboarding was paramount, as was showcasing videos and providing constructive feedback. Teacher candidates submitted their videos via e-mail. At the end of the workshop the professor kindly left the classroom and I verbally explained the information and consent form and provided a link to the online survey that they could fill out at home. At this time, students gave their consent. Each group of teacher candidates created a video remix, but only 7 participants consented to submit their videos for analysis.

Case two: Online video module and reflection post workshop.

During the week of March 18, 2018 teacher candidates wrote a reflection post in response to my first online video module workshop. The purpose of the online video module was twofold: to introduce myself to teacher candidates and to familiarize them with the purpose, context, and goals of my research study; and, to lay the groundwork for my in-class video production workshop, which required an overview of critical literacy and digital technologies. The decision to produce an online video module rather than an in-person workshop came about because it is a hybrid technology course. After watching the online video module teacher candidates were asked to create a reflective response inspired by what they learned and to creatively communicate their understanding through a blog post, spoken word or stand-up, a digital project (podcast, video, etc.) or an artistic representation (poetry, artistic drawing or painting, etc.). There were no

restrictions placed on creativity. If teacher candidates opted to create a reflection but felt uncomfortable posting it online through the university's digital platform, they were given the option to submit their post via Google Doc. Each of the 44 teacher candidates completed this coursework assignment.

Case two: Green screen and critical video production.

The second coursework assignment included teacher candidates' critical video productions. On March 22 and March 25, I delivered an in-person workshop for each section of the course. The workshops lasted approximately 2.5 hours. The goal of the workshop was to combine critical thinking and video production techniques to create counter-normative texts, and to learn how to use the green screen. The workshop included five elements and began with a game of True or False to review the video production skills and tools included in the online video module such as color, emotive music, and camera placement and angle, as well as critical digital literacies theory and research. Next, the class participated in an animated jigsaw puzzle slide in PowerPoint in which each piece of the puzzle flies onto the slide to display the image. This activity served to put theories of critical thinking to practice. Next, I showcased examples of counter normative advertisements to serve as critical and creative inspiration. Teacher candidates then learned how to use the green screen and how to film and edit videos on the video-editing platform, We Video. In groups of 5 they were asked to choose a historical figure, monument, statue, or issue that resonates with them and create a critical one-minute "Heritage Minute" video that tells or retells a story.

Teacher candidates first created storyboards, and then participated in a gallery walk to showcase their storyboards and receive critical feedback/assessment from their peers.

As Watt (2019) points out, rather than formally evaluate technical aspects of student video productions, teachers should focus on teacher candidates' effectiveness of communicating their message and knowledge of curriculum expectations. Finally, they filmed and edited a 1-minute Heritage Minute video and screened them at the end of the class. Afterwards, I asked the professor to kindly leave the classroom while I verbally explained the information and consent form and provided a link to the online survey. At this time students gave their consent. Each of the 44 teacher candidates completed this coursework assignment.

Provincial Curricula and Syllabi

To examine current meanings of digital literacy in educational reform I investigated what knowledge, commitments, and practices of digital literacy are mobilized through two provincial curriculum documents in Ontario and British Columbia, and how these curricula inform the design and implementation of syllabi of two teacher educators who are laboring to bring critical approaches to technology inside their classroom. I focused my analysis on the curriculum framework for K-9 English Language Arts in British Columbia and 1-8 English Language Arts in Ontario because they both contain strong media education and digital literacy components. Specifically, I looked at, “English Language Arts – BC Curriculum” (2015) and accompanying Integrated Resource Packages which includes six competencies: Communication, Creative thinking, Critical Thinking, Positive Personal and Cultural Identity, Personal Awareness, and Social Responsibility. I also reviewed, “The Ontario Curriculum Grades 1-8: English” (2006). The below visual (Table 2) explains the details of the analyzed documents, including their titles, dates of publication, page numbers, a brief description of their contents, and their purpose.

Table 2: Curriculum documents analyzed

Title	Publication Date	Pages	Summary	Purpose
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English Language Arts – BC Curriculum	2015	17	Presents what students are expected to understand, know, and do, articulated in a progression that begins in Kindergarten through Grade 12.	Equips students with the literacy and language and skills needed for success in school, career, community, and life.
Communication Competency Made up of two sub-competencies: - Communicating - Collaborating	2015	10 1-5 1-5	The Communication Competency encompasses the skills, knowledge, dispositions, and processes needed to interact with others.	Students acquire, develop, and transform information and ideas and make connections to share ideas, express individuality, and further learning.
Thinking Competency Made up of two sub-competencies: - Creative thinking - Critical & reflective	2015	11 1-6 1-5	Encompasses the skills, knowledge, and processes associated with intellectual development. It is through students' competency as thinkers that they take concepts and content and transform them into new understandings.	Requires specific thinking skills, habits of mind, and metacognitive awareness used to process information from a variety of sources, including feelings and thoughts that arise from the subconscious/unconscious mind and from cognition to develop new understandings.
Personal and Social Competency Made up of three sub-competencies: Personal Awareness & Responsibility	2015	17 1-6	The set of abilities related to students' identity in the world, both as members and as individuals of their society & community.	Encompasses what students need to thrive, to care and understand care about themselves and others, and to achieve their life purposes.

• Positive Personal and Cultural Identity • Social Awareness and Responsibility		1-5 1-6		
The Ontario Curriculum Grades 1-8: English	2006	155	Literacy development and literacy learning is a communal project. Teaching of literacy skills is found across the Curriculum. The language curriculum is dedicated to instruction in areas of listening and speaking, reading, writing, and viewing and representing.	Literacy is critical to productive and responsible citizenship, and all students can become literate. The curriculum provides students with the skills and knowledge needed to achieve this aim. The goal is to help students become successful language learners.

The purpose of analyzing two curricula documents and two syllabi was not to determine a measurable comparison, rather, my intention was to inquire about how the content and context of one document speaks to the content and context of another (Setati & Barwell, 2006). Curricula documents and syllabi were analyzed prior to final interviews with professors.

I investigated meanings of digital literacy within mandatory curriculum documents to engage with how educators are directed to become digital literacy learners, producers, and transmitters of knowledge, and to discover what educators are being asked to construct digital literacy into (and not) in their teaching practice. I investigated professors' syllabi to uncover the technology integration decisions and practices that transpired inside the classroom. I chose to investigate curricula and syllabi because the meanings imbued in curricula materialize differently in practice (Chen, 2008) and curricula are, "rarely implemented in practice as they are framed on paper" (Lankshear, 1998, p. 353). In other words, it is not possible to infer meanings of literacy solely from curricula because the meanings of literacy within curricula may differ significantly

from those located in response to these documents through syllabi.

Inspired by Lankshear (1998), to investigate meanings of digital literacy within mandatory provincial curriculum documents and accompanying documents, and professors' syllabi I asked, which values, as stated in the "English Language Arts – BC Curriculum" (2015) and accompanying "Integrated Resource Packages" (2015) and "The Ontario Curriculum Grades 1-8 Language" (2006) currently define digital literacy? What does it mean to be digitally literate and what are the parameters? What counts as engaging in a digital literacy practice? What values are instilled and encoded to alter educators' implementation of literacy practices? The purpose of this investigation was to disentangle why some values and modes of teaching are initiated through curriculum documents and others are not. As Lankshear (1998) astutely notes:

These [values] ultimately are curriculum questions about whose version of culture, history, and everyday life will count as official knowledge. They are questions about pedagogy and teaching: about which modes of information and cognitive scripts, which designs and genres, shall be deemed worth learning; what kinds of tool use with reading and writing will be taught for what social and cultural purposes and interests. (p. 354)

Investigating conceptions of digital literacy in reform documents also involves asking, "what (and whose) perspectives, priorities, and world views prevail within them" (p. 355), and which options are siloed and removed from public debate? Curricula and syllabi are coded accordingly to enactments and perceptions of critical and digital literacy as outlined in the framework provided. Specifically, I described the various approaches to teaching, and the underlying theories that underpin classroom practices. The analysis also describes challenges to successful implementation and development of digital literacy programs.

Ethical Procedures and Considerations

In addition to receiving ethical approval to conduct this research from the University of Ottawa Research Ethics Board in November 2017, I also applied and was granted ethics from both university sites Research Ethics Boards. The following procedures outline the steps I took to ensure ethical practices and decision-making and accuracy of data throughout the research project. To begin, each participant received a letter of information to notify them of the purpose of the study and their role in it. The letter outlined the research objectives and data collection processes. The right for professors and their students to refuse participation or withdraw from the study at any time, and all of the information they provided will no longer be considered in the data analysis and any records, was stated in the letter. All participants were reminded throughout the process that they can refuse to participate or withdraw from the study and that refusal or withdrawal would not affect them negatively in any way. In particular, I stressed to teacher candidates that they were under no obligation to participate in this research, and if they decided not to participate, that decision would not affect their grades in any way. Participants who agreed to take part in the study signed a consent form acknowledging that they had read the letter of information and consent form and agreed to the terms of the study.

Once the first phase of data collection began, anonymity was preserved through the use of pseudonyms and secured data storage to ensure the safety of participants. Participants were informed that the interviews would be audio recorded and transcribed and stored on a locked external hard drive. Teacher candidate survey responses were also kept on a locked external hard drive and sent to professors only after the course was completed and grades were submitted. Additionally, although I obtained consent at the outset of the project I continuously reaffirmed participants' commitment throughout the research process by explaining the objectives of the

research plan and methods prior to each phase of data collection.

In line with a case study approach, to present a coherent interpretation of the data I engaged in triangulation which involves making use of multiple and different sources and methods to validate findings (Baxter & Jack, 2008). I conducted a corpus linguistic and critical discourse analysis of interviews, coursework, syllabi, and curriculum documents. Once all data was completed, transcribed, and analyzed I engaged in member checking with professors to validate findings by sending transcripts of interviews and later sending my findings for their review and approval. Further, after each workshop I debriefed with professors to reflect on the process, discuss our interpretations and perspectives, and to uncover the hidden and various themes that arose.

Data Analysis Procedures

Once each section of both courses was completed, and all grades had been submitted, I began to analyze the data that I collected. During the two-year period of data collection from December 2017-June 2019, the interview transcripts, survey responses, course syllabi, and provincial curriculum and accompanying documents were read several times to become familiar with the context of each case. After the first interview had been transcribed the analysis process began and the cycle between data collection and data analysis ensued (Punch, 2009). During the data analysis process, transcripts were first coded by hand, and then all data was imported into the software AntConc for a corpus linguistic and critical discourses analysis of texts. AntConc is a free and downloadable corpus analysis tool used for researching and analysing electronic texts to reveal patterns in language (Laurence, 2017). In what follows I will define corpus linguistics and critical discourse analysis and describe how they were employed throughout the data analysis phase.

Critical Discourse and Corpus Linguistics Analysis of Text

Corpus linguistics (CL) and critical discourse analysis (CDA) are relatively new approaches to linguistic inquiry that rarely collide but can cooperate effectively to investigate how language operates as social phenomena (Mautner, 2009). CL is an empirical approach to the description and study of language use and relies on corpora. Various linguistic phenomena are studied from the corpus, including “probabilities, trends, patterns, co-occurrences of elements, features or groupings of features” (Teubert & Krishnamurthy, 2007, p. 6). There are four characteristics of corpus-based research (Biber, Conrad, & Reppen, 1998, p. 4) namely:

1. It is empirical, analyzing the actual patterns of use in natural texts;
2. It utilizes a large and principled collection of natural texts, known as a corpus, as the basis for analysis;
3. It makes extensive use of computers for analysis, using both automatic and interactive techniques;
4. It depends on both quantitative and qualitative analytical techniques.

CDA examines how lexical or grammatical choices reflect social practice, context, and phenomena to highlight the hidden ideologies that reproduce or resist structures and strategies of dominance, and seek to expose, understand, and resist inequality (Fairclough, 2010). By definition, CDA is primarily concerned with analyzing how transparent and opaque structural relationships of dominance, power, discrimination, control, and inequality are reproduced, enacted, and resisted by talk and text in a political and social context (Fairclough, 2001; Wodak & Meyer, 2009). CDA is useful then, for deconstructing the hidden ideologies embedded in text and identifying the economic, social, historical, and political power relations between subordinate and dominant groups (Henry & Tator, 2002). It is informed by three main stages of

analysis: description of text, interpretation of the relationship between text and interaction, and explanation of the relationship between interaction and social context (Fairclough, 2001).

According to Fairclough and Wodak (1997, p. 258) there are eight principles governing CDA:

1. CDA addresses social problems.
2. Power relations are discursive.
3. Discourse constitutes society and culture.
4. Discourse does ideological work.
5. Discourse is historical.
6. The link between text and society is mediated.
7. Discourse analysis is interpretive and explanatory.
8. Discourse is a form of social action.

None of the above-mentioned identifications are contrary to a CL approach and corpus methods have been celebrated as a method that can aid with CDL. However, there is disagreement amongst critical discourse analysts about whether or not CDA and CL are inimical and so before I summarize points of contact, I will first identify points of tension. The central impediment identified in the literature is whether or not CL prohibits the in-depth analysis of power relations central to CDA. If corpora consist of hundreds of texts then an in-depth, microscopic investigation of when, how, why, and by whom a text is produced, is not feasible. In addition, large corpora are reduced to text only and any accompanying visuals, typography, layout, intonation, and facial expression – all of which contribute to understanding the meaning of texts – are lost (Mautner, 2009). However, large aggregations, and de-contextualization of text can also be of benefit to CDA and counteract the most persistent and commonly cited criticism of it, namely that researchers cherry-pick data samples, “to suit researcher’s pre-conceived

notions about hidden ideological meanings; in short, that the analysis is allowed to be shaped by the desired results, which in turn, is often said to be shaped by the researcher's own political agenda" (Mautner, 2009, p. 34-35). Numerous authors (see for example Baker, Gabrielatos, Khosravini, Krzyzanowski, McEnery, & Wodak, 2008; Baker, 2012) argue that the cross-pollination of CDA and CL in research has the theoretical and methodological potential to improve validity of findings. While there are significant disagreements amongst CDA scholars that warrant discussion, disagreements are not necessarily prohibitive to its use. Similar to Baker et al., (2008) I have found the synergy of corpus tools and techniques and CDA to be useful in my study because it served to facilitate the initial focus of a multilayered analysis of discourse. As Mautner (2009) explains, "corpus methods make it easier to know where to start" (p. 34).

What then, are the through lines and affordances of combining corpus linguistics and CDA? Similar to CDA, CL is concerned with data authenticity, language in use, and language as social phenomena. Both also purposefully combine tailor-made corpus and publicly available texts for analysis. Perhaps most notably, Nartey and Nuokya-Ire Mwinlaaru (2019) conducted a meta-analysis of 121 studies that incorporate corpus-based CDA in the last decade and argue that corpus-based techniques in combination with CDA makes it possible to answer robust research questions about social issues, power, identity, inequality, and change in a localized, contextual, and rich way by capturing the dynamic landscape of language use.

What does a CL and CDA approach look like in practice? As aforementioned, corpus is purpose-built, and I chose to include interview transcripts, survey responses, course syllabi, and provincial curriculum and accompanying documents for analysis. I elected to input each text into the concordance software AntConc straightaway to "play with the data" (Mautner, 2009, p. 35). While corpus linguistic analysis provided a preliminary means to identify linguistic patterns

across all texts without “cherry-picking,” to makes sense of those patterns I perform a close reading and critical discourse analysis of selected texts, using the salient terms identified to delve deeper into the context of specific language, and to analyse any visual representations that were invisible to the freeware program AntConc. To begin the corpus linguistic analysis, I compiled and repetitively studied the frequency list, and looked at the concordances of frequent lexical items (the number of occurrences of a repeating word). Next I looked at collocation, a sequence of words that co-occur more often than expected, because as Mautner (2009) suggests, frequency list is a good entry point to the corpus to highlight collocation patterns. Afterwards, I looked at semantic preference, a words co-occurrence with a class of words that share the same meaning. Finally, I looked at semantic prosody, the ‘semantic aura’ around a word, or the indication that something is “good” or “bad” (Mautner, 2009). The CITI framework, which consists of New Literacies, critical literacy, and intersectionality supports my mission to determine whether the semantic aura is “good” (critical) or “bad” (not critical). I acknowledge that binary notions of “good” or “bad” should be dismissed according to a CITI framework, but for the purpose of data analysis it supports my mission to understand at what point the data I collected converges with or diverges from the CITI framework and how that might have impacted teaching and learning goals. I use the CITI frameworks 6 C’s because it consists of *critical*, which acknowledges that critical literacy, critical thinking, and functional technology skills are equally important to examine, read, curate, and create online texts. *Collaborate*, which sees the relationship between teachers and students as reciprocal and collaborative to rework power structures in the classroom; *content*, which sees course content as a reflection of student diversity, identity and the root of decision-making. *Construction of knowledge*, which encourages information from diverse online perspectives, cultures, societies, contexts and divergent interpretations inside the

classroom. *Creation*, which acknowledges that to create or transform content online is for the purpose of producing counter-normative content that challenges imbalances in power, identity, and representation; and *continuous self-reflexivity*, which sees the tracing of both individual and collective thoughts and journeys as vital to independent and collective learning and growth. The six C's are used to answer research questions, identify themes, and map the complex web of pedagogy, practice, syllabi and curriculum documents that I analyse in the section below.

Chapter Five: Findings

My qualitative multi-site case study employed a tri-theoretical framework that I refer to as a Critical Intersectional Technological Integration framework (CITI) to examine and learn how two professors from two different Canadian provinces – Ontario and British Columbia – teach critical perspectives with technology. To engage this pursuit, my research asked the following three related questions: How do two ELA curricula inform the design and planning of the syllabi, pedagogies, methods, and interventions of professors who are labouring to bring critical digital literacies and intersectionality into their classroom? How do teacher candidates in these professors' classes understand digital literacies and intersectional/critical frameworks? What is the evidence, if any, of teacher candidates' evolving understandings of intersectionality and critical digital literacies pedagogies upon course completion? In this research the two cases are two university classrooms of approximately the same size in two Canadian provinces.

As a starting point, I conducted a corpus linguistic and critical discourse analysis of interviews, survey responses, syllabi, and provincial curriculum and accompanying documents. I used the CITI framework 6 c's (critical, collaborate, content, construction of knowledge, creation, and continuous self-reflexivity) to guide the development of themes and looked specifically at three questions to guide the analysis: (1) How are identities framed and represented? (2) How are approaches to critical literacy and digital literacy framed? and (3) What values are encoded in the curriculum to frame critical and digital literacy pedagogies and practices.

I followed the same pattern of analysis for all data collected. To begin the corpus linguistic and critical discourse analysis of text, I separately input each data set into the concordance software AntConc. I compiled and repetitively studied the frequency list of words

and looked at the concordances of frequent lexical items. Next I looked at collocation of words that co-occur more often than expected. Afterwards, I looked at semantic preference and then semantic prosody. While corpus linguistic and critical discourse analysis provided a preliminary means to identify linguistic patterns across all texts, to make sense of those patterns and themes, delve deeper into the context of specific language, and analyse visual representations, I also perform a close reading of the salient terms identified by the software.

In line with a case study approach, to present a coherent interpretation of the data I engaged in triangulation which involves making use of multiple and different sources and methods to validate findings (Baxter & Jack, 2008). In the following section, separated by case study and by order, I used critical discourse analysis and corpus linguistic techniques in combination with a CITI framework to examine a first interview with professors, to investigate the meaning of identity and digital and critical literacy within syllabi and curriculum, to analyse teacher candidates responses to a web-based survey questionnaire about perceptions and experiences of critical digital literacies, and to investigate a second and final interview with professors.

Case Study One

Preliminary Interview

The pre-interview with Mira occurred at the beginning of the research project before her class were underway. I used critical discourse analysis and corpus linguistic techniques in combination with a CITI framework to engage with professors' perceptions of digital and critical literacy practices, and pedagogies, and to discuss classroom tools and resources such as syllabi and lesson plans. The pre-interview was also used to understand the professors' backgrounds, practices, and visions related to their teaching practice using critical and digital literacies. My goal was to learn first-hand about professors teaching experiences and thoughts on the effectiveness of the syllabus and curriculum. Interviews are a valuable data collection tool for this reason. Using a semi-structured interview format, the interview began with a few prompt questions to illicit conversation and gain insights into the uniqueness of Mira's experience. However, when unexpected but relevant topics emanated, I asked follow-up or probe questions. My interview with Mira lasted approximately one and a half to two hours and was audio recorded and then transcribed by me.

Personal, teaching, and education background.

Personal background: Journey towards teaching.

Mira is a teacher of South Asian descent who comes from a family of business owners and entrepreneurs. She was born and raised in an inner city in Ontario in a working-class household. Mira describes her journey towards teaching as "unconventional." Uncertain about her career path, future goals, and learning interests, Mira followed the direction of her family and chose to pursue an undergraduate degree in Business. Soon after she graduated, Mira landed her first career in the corporate world. She had a "great boss" who "kind of saw me withering away

at my desk after a year or two” and recommended that Mira be moved into a sales position. Mira’s interest in the field did not intensify and so she began to investigate alternative career options. Serendipitously, Mira heard about an urban based program for teachers in the United States. She had always been interested in teaching but it, “wasn’t really an option in my family. My parents, I just kind of knew how they would respond to that and it wasn’t ... it wasn’t valued.” After learning that the teaching program consisted of short training, and then straight into full-time classroom teaching she decided it was a practical move, “because I knew I wouldn’t have to be a student for two years, I would have a full-time job.” Mira decided to quit her corporate job and move to the city to pursue teachers' college. She graduated with a designation in language arts and special education. As a classroom teacher, Mira taught English Language Arts and Humanities in the 6th, 7th, and 8th grade in an urban American community.

Teaching background.

Mira’s first experience teaching literacy was in a Title 1 school and, “in America that is quite a strong label, because it says that the students get free or reduced breakfasts and lunch, so it speaks to the socioeconomic nature of the school.” Mira was teaching at the height of stop-and-frisk in the city, which is a Police Department practice of questioning and searching civilians for weapons and other contraband and was later deemed as unconstitutional because it disproportionately targeted black and brown young men. Her students would come to class, some having been stopped and frisked on more than one occasion, and:

...we’d have to talk about that and deal with that, and I let that inform my curriculum. And I kind of did it under the radar because I didn’t know if I was going to get in trouble for making my curriculum responsive, and for kind of bringing things in that weren’t in the textbook.

From this experience, Mira gained a deeper understanding for the complexity of literacy teaching and learning and began to shift the curriculum in her classroom. She connected students lived experiences to technology integration because “it made sense.” Her students would listen to music, so they needed YouTube. They would write letters to Congress, so they needed the Internet to conduct research and send emails. They would look at the map of their school’s neighborhood, so they needed access to Google Maps. Not only that, at the time, Mira was co-teaching and her colleague was an amateur freestyle rapper, so they often asked students to write and/or record as a way to respond to course content.

Because of the socioeconomic status of the school where Mira taught, I asked if she experienced any digital divides in the classroom, in particular whether she struggled to gain access to classroom devices. She said:

In these sort of ‘high needs’ schools...what happens is, there’s a budget so you get the technology, but there’s no professional development on how to use the technology, so often it sits there and collects dust, or it’s used to just do things like word processing instead of...knowledge creation or content creation...So I was like, I have to figure this out.

Mira believes that her passion for teaching awakened during her time in the K-12 classroom. She knew she wanted to make a greater impact and decided that educating another generation of teachers to “do a better job than the last” was where she could “make the most impact.” After a number of years teaching in the classroom “I had a bunch of questions, and I really wanted to formally study this, so I applied to do my PhD in Education.” While completing her doctoral studies, Mira taught as part-time faculty. Her doctoral research greatly informed the development of her course curriculum as well as her practice as a critical educator. Soon thereafter, her PhD

research focus became critical literacy and teacher education.

Education: Journey towards critical literacy.

Throughout the duration of the education doctoral program, Mira began reading seminal documents about critical literacy. The scholarship she studied was in line with the curricular alterations she made in her middle school classroom, she just “didn’t have a name for it.” When I asked Mira which articles, books, or scholars inspired her work, she responded, *Pedagogy of the Oppressed* and *Pedagogy of Hope* were “really transformative for me, because it gave me language to explain sort of what I was seeing in my own classroom, what I saw my students experiencing.” After reading Freire she scouted the works of Vivian Vasquez and Linda Christensen on the power of story and the power of words, and Gloria Ladson-Billings work on culturally relevant pedagogies. I asked Mira what it was about the scholarship she read that resonated with her. She said, “To me, I was like, ‘Oh my gosh, these are my people.’ I felt so alone sometimes in the school, and they became my friends. I was like this is what I was trying to do this whole time, and...I wish I was in the classroom knowing this.” Motivated by her teacher education experience and energized by the knowledge she gained studying critical literacy, Mira decided to focus her doctoral research at the intersection of critical literacy and teacher education. In pursuit of learning more about critical literacy, she joined a large federally funded project where she met her mentor and doctoral supervisor. Her research was couched in the larger federal study, but she had her own set of interviewees and research questions.

Curriculum, syllabus and pedagogy.

Curriculum: From theory to practice.

Mira’s classroom, graduate school, and research experiences established her belief and commitment to teacher education programs as a site for social justice and equity. She strongly

believed that students' complex literacy practices, both in and outside of school have the potential to be rich and meaningful curricular resources. Mira explained, "We learn so much because we all bring different experiences. Why do I want to create a curriculum based on my own singular experience?" Incorporating students' out of school literacy practices not only ensured student learning and development in school, but also recognized and valued students' knowledge, while positioning learners as public intellectuals.

With a new semester looming, I asked Mira if she was planning to incorporate new activities or assignments specific to curricular understandings and applications. She said that in previous years teacher candidates were, "so riled up about the theories I introduced, but then [teacher candidates] were like, but then how... And I'm like, 'No, that's my job to make those connections, not their job.'" Mira's previous course syllabi were theory-heavy because she thought, "this is the stuff I wish I knew when I was a teacher, all this theory". Upon reflection she realized that a balance between theory and practical application was necessary and so in the future she plans to more deliberately anchor her courses in curriculum. Mira was explicit that everything she does connects to the curriculum, but she needed to be more intentional; she needed to make curricular connections explicit to teacher candidates. I wondered about her future plans and asked her to elaborate and provide a concrete example to illustrate what this might look like. On the first day of classes, she explained, teacher candidates will spend time in groups comparing and contrasting two levels of the curriculum (i.e. grade 8 and grade 1) looking specifically at teaching strategies, metacognitive skills, and oral and written language and, "call them what they are, name them so that everyone's on the same page." She added that students would be asked to present their learning, "using technology, or whatever they want to use to speak about it." For Mira, integrating curriculum as a resource supported her mission to connect

theory to practice. An additional piece was to continue to strategically connect course content to teacher candidates' lived experiences inside the classroom, in particular through the use of technology, which is expanded upon further below.

Curriculum: Prescriptive or non-prescriptive?

Teaching in a large American city accustomed Mira to U.S. teaching standards. She was unfamiliar with BC's new curriculum (2015) and although she found it "daunting" to familiarize herself with it, after reading the document, she thought:

Wow, this is great. This really just says a lot about how teaching is valued, not only in this province but this country, and what's valued. The assumption is that teachers are professionals, are intellectuals, are decision-makers, are problem-solvers because [the curriculum] is not prescriptive, there's so much room to do so much.

On the one hand, the non-prescriptive curriculum was flexible and opened up new instructional possibilities with less constraint. On the other hand, the lack of prescriptive guidance also served as a hindrance. Mira explained, "It can also be kind of scary for teachers because it's so big, and open-ended." Under the assumption that many students might not have had any previous experience grappling with the contents of the new curriculum, Mira deliberately brought the curriculum into the course. I asked Mira about her process, "Exactly how do you incorporate the curriculum into your course content?" She explained that her goal was to ensure that teacher candidates do not envisage the curriculum as a "strange document." To optimize knowledge and understanding of the curriculum, teacher candidates were provided opportunities to read, discuss and present on curriculum content in various ways. She explained that rather than rely on the curricular resources on the website, "Building Student Success: BC's New Curriculum" she was,

“pretty confident with the trial and error approach.” When Mira taught in an urban school in the United States, she did not have access to additional resources and had to learn early on in her teaching career to rely on the “human resource.” She prefers to gain professional development resources from guest speakers because it provides opportunity for her and teacher candidates to learn “how to use something meaningfully from beginning to end, not just like a one-off workshop.” She explained that to click on a resource is one thing, “but it’s different to see it in action.” Her intent was to move from theory to practice and she has found technology to be a particularly useful method to mobilize her mission.

Syllabus: Technology as an add-on

Mira’s use of technology in the middle school classroom reformed her teaching practice in teacher education. However, teaching with technology does not come “naturally” to her and there are pedagogical glitches that she is still working through. She recognized that upon completion of her syllabus the content was still “very text-heavy” and so she replaced some of the readings with videos or podcasts to reflect multi-modal learning practices that accommodate different learning preferences and abilities. As a case in point, in Mira’s teacher education course they listened to a music album over two sessions, and then teacher candidates were asked to respond to it through the creation of a digital text or artwork and then present on it in class. Mira was dedicated to “moving beyond just the written word” because, while “it’s important, it’s like how else are students' representing their learning?” She was inspired by all of the teacher candidates’ “beautiful” creations, and was pleased that students were equally in awe of each other’s work, “[teacher candidates] see how other people respond to [prompts] and they’re like, ‘Whoa, I didn’t even think of that.’”

I asked Mira if she experienced any additional obstacles or challenges integrating technology in her classroom. She explained that a portion of one assignment required both a written component and a digital component, and she wondered whether to remove the written, and focus on the digital. She explained, “I’m still struggling with, how do [teacher candidates] represent their learning in a non-written form, that’s enough, that meets the course requirements? Because I still use it as like, ‘Okay, do this paper, and then do this digital technology piece.’” Mira strived to thoughtfully and strategically design learning opportunities that address technical “know-how” and immerse student teachers in digital literacies learning. She did not seek to treat technology as an add-on or an optional topic to be addressed but wrestled with how to meaningfully interweave technology and curriculum expectations.

Pedagogy: Forging a community of practice.

In addition to creating opportunities for multi-modal learning, Mira ensured that assignments and resources developed by teacher candidates were stored in an online classroom repository because, as Mira explained:

We’re in this together. The first few years [of teaching] can be really overwhelming and we don’t all need to figure out everything on our own, right? We need to share, and we need to borrow, and we need to adapt things to make sense for us, and we need to co-plan. Maybe there will be a culture of that set up at your school but maybe there won’t, so you need to make sure that you have a community of professional friends who you can share resources with, because otherwise it’s isolating and it’s scary, and you lose all work-life balance, and you can’t sustain it.

Developing an online community, Mira explained, was a great way to gather diverse perspectives and involve family, friends, and community members in the classroom. People can access and comprehend a variety of information when it is presented in multimodal ways. Mira envisaged that her role was not to be an expert on trendy social media sites, or new technologies that constantly alter and change. Rather, to connect the literacy practices of her students to the tools and skills that will remain relevant over time, and to store content online to support teacher candidates' future practice. Learning with and from each other in a community of practice was Mira's goal.

Pedagogy: Creating a low stakes environment.

Integrating technology positioned Mira, as novice teacher educator using new digital tools, outside the role of expert. Her intent was to do what the literature suggests - to be explicit about her commitment to model that teacher candidates can integrate technology even with a basic level of know-how. As an educator outside the role of expert, it was difficult. There was a lot on the line, especially in an institutional space where reviews and evaluations are a factor. She was often tempted to revert back to print text, "because you think it's a good idea, but you're like, 'No, I'm not good enough, I don't have the skills to do that in a short period of time.'" But those feelings were mitigated by her desire to expand teacher candidates' digital literacy integration mindset. She said, "Yeah, I absolutely believe that growth comes from discomfort, like in all senses of our growth, right, personally and professionally, but I think that all discomfort is not the same, and it's like, there has to be some sort of scaffolding and nurturing to it." To accomplish the task of scaffolding, Mira re-framed her course as a site for experimentation for both her as an instructor and for teacher candidates. Mira sought to decenter authorial control, eliminate the pressure of assessment, and expand critical and creative mindsets.

Creating low-stakes opportunities for students to try out tools and make connections between critical practices and pedagogies was one way she made space for learning and growth.

Syllabus

In this section I investigate Mira's syllabus to uncover the digital and critical literacy integration decisions and practices that transpired inside her classroom. I chose to investigate Mira's syllabus because the meanings imbued in curricula materialize differently in practice (Chen, 2008). To engage in the investigation of her syllabus, I used critical discourse analysis and corpus linguistic techniques in combination with a CITI framework to look specifically at three questions: *Who is represented in the syllabus? Which values currently define critical literacy? And, what does it mean to be digitally literate?* All of the results of the analysis can be found in Table 3 and are described in detail below.

Table 3: Syllabus analysis for case study one

<u>Who is represented?</u>	Frequency	Collocates	Semantic preferences	Semantic Prosody
You	47	-	-	Positive (self-reflective)
We	15	-	-	Positive (flatten hierarchies)
Students	15	-	-	Positive (self-reflective)
Indigenous	4	-	-	Positive (not tokenized or spoken for)
Aboriginal	2	-	-	Positive (not tokenized or spoken for)
<u>How is critical framed?</u>				
Critical	13	-	Power Issues Justice History diverse	8 5 4 3 3 Positive (functional and critical skills)
<u>How is digital framed?</u>				

Digital	3	Media	2	-	Negative (technology as add-on or option)
		Technology	3	-	
		Multimodality	5	-	

Who is represented in the syllabus?

In this section I seek to understand who is represented in Mira's syllabus and how identities are framed. Following the critical discourse and corpus linguistic analysis of text suggested by Mautner (2009), I inputted the curriculum document into the AntConc software and searched for frequency of pronoun usage. As formerly noted, given that I employ an intersectional lens, determining frequency of pronoun usage works well to initiate my exploration of who is represented in the syllabus, and how identities are framed. Once the syllabus was input into the AntConc software, I noticed a frequency pattern of the pronoun "you" (47 results) and "we" (15 results) and nouns "students" (15 results) "Indigenous" (4 results) and "Aboriginal" (2 results).

I began my analysis by investigating references to "we" (15 results), which were most often found in course assignment descriptions, article or book chapter titles, and the course reading list section. References to "we" referred to teacher candidates and the instructor – they were one homogenous group who examined, interacted, analysed, self-reflected, created, and made adjustments to course material, content, and assignments together as a group. Based on my analysis, references to "we" throughout the syllabus established an egalitarian aura by encouraging teacher candidates to co-decide on course material including classroom content and readings, but also to *collaborate* in the assignment preparation and completion process.

Separation between teacher and teacher candidate throughout the syllabus was exemplified by the use of the pronoun "you" (47 results), which referred to teacher candidates. I wondered, at what point, and for what purpose did the professor decide it was important to separate teacher and

teacher candidate identities? In my investigation the majority of references to “you” (66%) were found in the description of an assignment that asked teacher candidates to recall their own personal and historical accounts as independent literacy learners. The purpose of the assignment was for teacher candidates to engage with their experiences and memories of literacy practices to uncover their unspoken assumptions, examine contradictions between their own experiences and pedagogies, and complicate understandings of literacy teaching and learning (p. 3). While teacher candidates were asked to be self-reflective, they were also encouraged to share aspects of their projects with colleagues. In this way teacher candidates were not only asked to examine their own personal literacy accounts but to engage with how, when, and why social and cultural experiences align and/or diverge from their colleagues. Additional examples were found in the description of a digital literacy community project, whereby teacher candidates were asked to inquire into unconventional literacy practices in a community of their choice and to represent their findings multimodally (p. 5). The remainder of references related to class participation, a course text title, instructions on how to submit assignments, and how to contact the professor. Overall, I found that separation of identities was used most often to encourage teacher candidates to be self-reflective in the process of planning and completing assignments.

On the one hand, teacher candidates were framed as “you,” independent literacy learners who were capable of and encouraged to reflect on their past experiences and examine how it impacted their perceptions of teaching and literacy. On the other hand, teacher candidates were framed as “we,” collaborators of knowledge and contributors to course planning and reading material. In my analysis of the syllabus, I argue that although the term self-reflection is used, the way it is framed is more in line with the CITI frameworks conceptualization of *continuous self-reflexivity*, which is the practice of tracing individual experiences of education, as well as

collective social, cultural, and historical stories and contexts to imagine new educational perspectives. With this approach, not only were teacher candidates encouraged to be reflexive on their teaching practice, but also how their teaching practice might impact their future students. Additionally, the relationship between teacher and teacher candidate is in line with the CITI frameworks standard of *collaboration* and *Construction of knowledge* because Myra avoided transmitting knowledge to students, and instead actively sought to flatten hierarchies inside the classroom and encouraged divergent interpretations and valued a multitude of perspectives and ways of thinking about information.

Further, throughout the syllabus approximately half of the references to “students” (47%) were used to describe “elementary students” (i.e. teacher candidates’ future students). Each occurrence of the word “students” asked teacher candidates to be mindful of how they model teaching, impact literacy experiences, and understand and interact with diverse elementary aged students (pp. 3-5). For example, the course description stated that the focus of the course was to understand literacy as a social practice and to design authentic, cross curricular learning opportunities (p. 11). Additional examples were found in the description of a group project and were scattered throughout the reading list.

Interestingly, remaining references to students (53%) were used to describe teacher candidates and functioned to describe professionalism and appropriate engagement in class. At first glance, prescribing teacher candidates’ in-class behaviour might imply an aura of authority and control over teacher candidates’ participation in class. However, upon further analysis, the intent of the professor was to encourage teacher candidates to come prepared to participate in class, to be responsible for their learning, and respectful to their classmates (p. 3). Using the word “student” was meant to establish a sense of comradery and to explicate not only what

teacher candidates were responsible for, but also who they were responsible to in the context of a collaborative-based classroom.

The next case deals with the nouns “Indigenous” (4 results) and “Aboriginal” (2 results). Both references to Aboriginal were located in the course outline and referenced two academic journal articles (p. 14). All references to Indigenous were found in the course readings section with a focus on “power,” “speaking and listening,” and “decolonization” (pp. 8, 10, 14). Relatedly, teacher candidates were required to read a book entitled, “Fatty Legs” about an Inuit girls experience in residential school. The book title did not include reference to “Aboriginal” or “Indigenous” and so it had zero statistical significance in the AntConc software, but because I was familiar with the course content, I considered it a significant feature to mention.

The identities of Aboriginal/Indigenous students were not defined in the text. Rather references to Aboriginal/Indigenous were integrated throughout the syllabus and course content through readings – readings that were all authored or co-authored by Indigenous scholars. As a result, Indigenous content was not tokenized in the text; Indigenous peoples were not spoken for; and Indigenous peoples and cultures were not framed as “in need” of help from “global people” (Andreotti, 2013). Overall, teacher candidates were included under the umbrellas “we” and “you” and were encouraged not only to name their own identities, but to incorporate their identities and experiences inside the classroom to be included and valued in course content and assignments. Teacher candidates were also framed as collaborators of knowledge, and as people with choice and power inside the classroom.

In this way, the approach to identity politics in Mira’s syllabus met some of the requirements of the CITI framework’s *construction of knowledge*. On the one hand, information from a multitude of perspectives was encouraged as was the opportunity to construct, access, and

share content, and to interpret and respond to information from divergent meanings and understandings. On the other hand, the syllabus did not fully meet the standard of *construction of knowledge* because a CITI framework does not homogenize differences or collapse categories. Instead, it is used to make visible the complex similarities and shared logics across differences. So, while teacher candidates were encouraged to name their own identities and share divergent knowledge in the classroom, in the syllabus teacher candidates were framed as one homogenous group. Thus, although the syllabus explicitly stated that students' identities and perspectives vary, the multiplicity of teacher candidates' identities were not fully represented in the text. The CITI framework, however, overlooks an important point about the impossibility of knowing who might be in your class, and how they might choose to represent themselves. Perhaps then, Mira's intent was not to simplify or ignore diverse representations but rather to acknowledge that teacher candidates must name their own identities and unique relationships with their colleagues and institutional structures of power.

How is critical framed?

The word "critical" (25 results) was under examination in my study to respond not only to disparities about the definitional usage of critical literacy, but also the lack of critical literacy in educational technology discourses. (Leu et al., 2017). In the course description section, Mira was explicit about using Freire's (1987) theory of critical literacy as a primary guide to develop children's literacy strategies and skills, particularly, for the purpose of making meaning from texts (p. 1). Additional references to "critical" were found in various assignment descriptions and content requirements. For instance, the assignment about personal and historical accounts of literacy and learning, which I described previously, asked teacher candidates to be critical of their journeys as independent literacy learners (p. 3). Also, in the group inquiry project, "critical"

was used in reference to “critical stance,” “critical literacy,” and “critical perspectives”. One of the core goals of the assignment was to reflect on how to incorporate a critical stance in the classroom (p. 6). The final part of the assignment asked teacher candidates to design a sequence of lesson plans and to include critical perspectives and multimodal learning tools (p. 6). The remainder of references were found in the course reading section, course texts section, and in the weekly course content description. Although there was little context to the semantic preferences that relate to critical literacy such as “power” (8), “issues” (5), “justice” (4), “history” (3), and “diverse” (3) (because they are mostly found in course reading titles), acknowledging and listing them helps to establish the aura of the syllabus and extent to which the CITI frameworks conceptualization of *critical*, whereby critical literacy and critical thinking are equally important, was included in the syllabus.

How is digital framed?

In this section I focus on the values encoded in the syllabus to frame educators’ responsibility to and implementation of digital literacy practices. I chose to investigate the use of the word digital to determine how digital literacy is pedagogically framed, and to what extent it follows traditional literacy pedagogies or the CITI framework. The term “digital” was seldom referenced (3 results) throughout the syllabus. All three references to digital were found in the digital literacy community project description. I cannot say that I found any profound semantic preferences – each reference simply instructs teacher candidates to create a digital project (p. 5).

To investigate further I determined that collocates of “digital,” which included media (2 results), technology (3 results), and multimodal (5 results). I turned first to the word “media”, which again does not have any particular collocates because it is used primarily to describe the focus or goal of a class (i.e. media literacy) (p. 13). Next, I turned to the word “technology(ies),”

which was found in the course texts section to cite a book (p. 2). This same text was referenced again in the course schedule. Again, no significant semantic preferences were found. A second example of “technologies” was found under the project description for the personal literacy account assignment to provide examples of informational technologies (p. 3). Here, I can concede that technology was considered in the pantheon of literacy activities that teacher candidates were encouraged to reflect upon. Lastly, references made to “multimodal/multimodalities” followed a similar pattern to previous collocates. The majority of references were found in the course readings section. The remaining reference was found under the group inquiry project description and was used to explain the task of designing lesson plans that incorporate multimodal learning and critical perspectives (p. 6). The word digital and accompanying collocates were sprinkled throughout the syllabus, particularly within assignment descriptions and course readings. While digital literacy was considered in the pantheon of literacy skills and often inadvertently connected to critical theory, technology read as an add-on or after-thought to traditional literacy in the syllabus. Thus, it did not meet the standard of a CITI framework because the *critical* aspect, which acknowledges that critical literacy, critical thinking, and functional technology skills are *equally* important, was not met.

Overall, teacher candidates were encouraged to work both in groups and independently to critically engage with different ways of making meaning, to create a variety of multimodal texts, and elicit prior knowledge and experiences, which are necessary components to becoming critically and digitally literate according to the CITI framework 6 C’s. Although peer evaluation/assessment may have been an in-class feature, it was not explicitly weaved into the syllabus. Not only that, technology was treated as an add-on or option, which was considered problematic because technology requires not only an intentional pedagogical purpose, but a

distinctive pedagogical approach to traditional literacy. Significant shifts in the way digital literacy was framed in the syllabus could encourage teacher educators and teacher candidates alike to consider more meaningful integrations of critical digital literacies. Also, I noticed a connection between the professor's syllabi and the BC curriculum – both sources framed digital literacies as an add-on to traditional literacy texts. Although digital components were included in assignments and readings, the use of technology requires further emphasis and clarification to meet the demands of a CITI framework. There are important questions to be raised about how curriculum influences how teacher educators frame technology integration.

Provincial Curriculum

In this section I investigate the “English Language Arts – BC Curriculum” (2015) and accompanying “Integrated Resource Packages” (2015) to determine which values define literacy, what being literate means – what are the parameters, what counts as engaging in a literacy practice, and what values are instilled and encoded to alter or influence/shape implementation of critical digital literacy practices. I used critical discourse analysis and corpus linguistic techniques as a starting point. I used a CITI framework to look specifically at three questions: *Who is represented in the curriculum and how are these identities framed? How are approaches to critical literacy and digital literacy framed in the curriculum? and What values are encoded in the curriculum to frame educators’ responsibility to and implementation of critical and digital literacy practices?* The results of the analysis can be found in Table 4 and are described below.

Table 4: British Columbia Curricula analysis

<u>Who is represented?</u>	Frequency	Collocates		Semantic preferences		Semantic Prosody
I	249	My Personal	108 85	-		Positive (fill the semantic role of actor)
Others	43	-		-		Negative (do not fill the semantic role of actor)
First Peoples	19	-		Text Story Oral tradition	3 6 8	Negative (do not fill the semantic role of actor)
<u>How is critical framed?</u>						
Critical	25	-		Judgment Assessment Explore Evidence	2 2 2 3	Negative (focus on functional skills, absence)

How is digital framed?**Digital**

					of critical theory)
	Virtual Media Online	1 1 9	Differences/diversity Safety/safe Respectful and inclusive behaviour Ethics Identity Issues	4 3 3 1 1 1	Negative (not connected to structures of power or issues of equality)

Who is represented and how are these identities framed in curricula?

In this section I sought to understand who is represented and how identities are framed in the “English Language Arts – BC Curriculum” (2015) and accompanying “Integrated Resource Packages” (2015), which is made up of three Core Competencies: Communication, thinking, and personal and social. The Core Competencies are defined as:

...sets of intellectual, personal, and social and emotional proficiencies that all students need in order to engage in deep, lifelong learning. Along with literacy and numeracy foundations, they are central to British Columbia’s K-12 curriculum and assessment system and directly support students in their growth as educated citizens. (British Columbia’s New Curriculum, 2015)

Each Core Competency had interrelated sub-competencies. For example, the “Communication Competency” had two sub-competencies: “Communication” and “Collaboration.” The “Thinking” competency also had two sub-competencies: “Critical thinking” and “Critical and Reflective Thinking.” “The Personal and Social” had three sub-competencies: “Personal Awareness and Responsibility”, “Positive Personal & Cultural Identity”, and “Social

Responsibility.”

Once I inputted the documents, I noticed a high frequency pattern of the pronouns “I” and “my” and took this as a lead to inquire into the discursive construction of identities and relationships within the texts. The high frequency rates of “I” (249 results) and “my” (108 results) according to Mautner (2009), indicated that the interactive style of the text was personal. This trend came as no revelation because the curriculum document accounted for this high frequency with its explicit emphasis on students’ “personal awareness” and “personal responsibility” particularly in the “Personal and Social” competencies sub-category titled “Personal Awareness and Responsibility.” Understanding that “personal awareness” and “personal responsibility” was a key feature helped me to understand why the pronouns “I” and “my” were of high frequency, but also why the word “personal” (85 results) was a high frequency item as well. Another high frequency word was “others” which appeared (43) times and is significant because it served to define who was distinct or different from the “personal” subject “I”. Within the documents, “others” were defined in relation to the subject “I” as follows: “Students define themselves in terms of their relationship to others and their relationship to the *world* (people and places) around them” (Positive Personal & Cultural Identity, 2015). The Positive Personal & Cultural Identity (2015) document also stated: “I am aware of myself as different from others.” I incurred then, that “others” is the world (people and places) out there that are *different* or distinct from the subject “I” student. At this point in the analysis I wondered, what is distinct or different between “others” and the subject “I”? Upon further exploration I found that culture was the main distinguishing factor between the subject “I” and “others” identities. For example, the document stated that, “Students understand that their relationships and cultural contexts help to shape who they are.... Students define themselves in terms of their

relationship to others and their relationship to the world (people and place) around them” (Positive Personal & Cultural Identity, 2015). In other words, culture connected the subject to the people and places around them. Then I investigated, how culture is defined. The document stated: “‘Culture’ is meant in its broadest sense, including identifiers such as ethnicity, nationality, language, ability, sex/gender, age, geographic region, sexuality, and religion.” At this point I determined that “others” were culturally distinct from and lived outside the community of the subject. Having established ‘who’ was in the text, I investigated how ‘they’ were represented.

By investigating the concordances, it became clear to me that “others” attracted different collocates than the subject. To explain, the subject “I” filled the semantic role of actor in every occurrence (249). One example from the Personal Awareness and Responsibility (2015) competency stated:

I can be focused and determined. I can set realistic goals, use strategies to accomplish them, and persevere with challenging tasks. I can tell when I am becoming angry, upset, or frustrated, and I have strategies to calm myself. I can make choices that benefit my well-being and keep me safe in my community, including my online interactions. I advocate for myself and my ideas; I accept myself.

In comparison, eleven occurrences of “others” did not fill the semantic role of actor because they did not emerge as masters of their own destiny – instead *subjects* were positioned as in control of the destiny of “others.” As a case in point, two excerpts taken from the Social Responsibility document (2015) were: “I can initiate positive, sustainable change for others” and “Students...advocate for others” (Social Responsibility, 2015), and “I can identify when others need help.” I categorized additional references to “others” as *comparative* (13), which included

for example, “I can place my work and that of others in a broader context (Critical Thinking, 2015), and “I can identify how my actions and the actions of others affect my community and the natural environment and can work to make positive change” (Social Responsibility, 2015). The third category I referred to as *relationship building* included statements such as: “Exploring stories and other texts helps us understand ourselves and make connections to others” (English Language Arts – BC Curriculum, 2015), and “I am kind to others...” (Social Responsibility, 2015). My analysis of frequency pronouns as modeled in the “English Language Arts – BC Curriculum” (2015) and accompanying “Integrated Resource Packages” (2015) highlighted that students (the subject “I” in this case) were encouraged to build relationship with “others” (those from different cultures) in a way that may inadvertently reinforce systems of power because students learn to understand their relationship and basis for caring as a responsibility *for*, not a responsibility *towards* the other. According to Andreotti (2006) this language promotes that students, “take up the ‘burden’ of saving/educating/civilising the world. This generation encouraged and motivated to ‘make a difference’, will then project their beliefs and myths as universal and reproduce power relations and violence similar to those in colonial times” (p. 41). According to a CITI framework, the value in recognizing different ways of knowing is developing a wide range of resources that contribute to lessons in learning to think and perceive otherwise. The relationship between students and “others” as outlined in the curriculum was modeled in a way that does not disrupt the status quo, rather it re-inscribes oppression and the settler state and thus, did not meet the requirements of a CITI framework.

Next, I searched the “English Language Arts – BC Curriculum” (2015) and accompanying “Integrated Resource Packages” (2015) for concordances of outstanding identities and found reference to First People (19) in the ELA curriculum; I did not find any reference to First People

in the accompanying “Integrated Resource Packages” (2015). Within the curriculum, First Peoples did not fill the semantic role of actor in any instance. Instead, the subject “I” was positioned as the learner and user of Indigenous knowledge and traditions. Take for example these two excerpts from the ELA curriculum: “Recognize and appreciate the role of story, narrative, and oral tradition in expressing First Peoples perspectives, values, beliefs, and points of view” and “Explore and appreciate aspects of First Peoples oral traditions.” To delve further I looked for the most frequent collocates of First Peoples and found reference to the word “text” (3), “story” (6), and “oral tradition” (8). Next, I investigated the semantic prosody around “oral tradition” because of its high frequency use. To do so, I inquired into the collocates associated with “oral tradition” and I found that the phrases “recognize and appreciate,” “recognize the validity,” “demonstrate awareness,” and “explore and appreciate” were used in contexts such as these: “Explore and appreciate aspects of First Peoples oral traditions”, “Demonstrate awareness of the oral tradition in First Peoples cultures and the purposes of First Peoples texts”, “Recognize the validity of First Peoples oral tradition for a range of purposes” and lastly “Recognize and appreciate the role of story, narrative, and oral tradition in expressing First Peoples perspectives, values, beliefs, and points of view.” I investigated the use of the word “story” and found that the most frequent collocate used was “awareness” which stated: “Show awareness of how story in First Peoples cultures connects people to family” and “Develop awareness of how story in First Peoples cultures connects people to land and community.” Lastly, I engaged with the use of the word “text” and similarly found that “awareness” was used most often and stated: “Develop an awareness of the protocols and ownership associated with First Peoples texts.”

My findings suggest that First Peoples did not fill the semantic role of actor, and instead the subject “I” was encouraged to explore and develop awareness and appreciation of First Peoples

oral traditions such as storytelling, and to explore and learn to use these resources both for themselves and, “in expressing First Peoples perspectives, values, beliefs, and points of view.” According to a CITI framework, the way settler colonial and Indigeneity relations were framed was not about engaging and learning with or thinking through ideas together, it was more in line with assimilation and imposing cultural assumptions. These examples also eluded to what May (2015) refers to as “add-and-stir” – mixing some Indigenous teachings and practices into existing exclusionary systems. The “English Language Arts – BC Curriculum” (2015) did not meet the standard of a CITI framework because it did not encourage equal dialogue and engagement with “anti-social bodies” to ensure Indigenous peoples define their own imaginaries.

How is critical thinking framed?

In this section I investigate the use of the word critical (25 results). My analysis was initially prompted by observations in the educational literature that do not agree with the evaluative meaning of critical literacy, or with the absence of critical literacy in educational technology. As a case in point, although curricula and policy include items such as critical thinking, these inclusions are devoted to functional skills and often exclude or de-emphasis more complex analytic thinking skills, particularly in relation to digital literacy instruction (Leu et al., 2017). After I inputted the “English Language Arts – BC Curriculum” (2015) and accompanying “Integrated Resource Packages” (2015) into the Antconc software, I found (4) references to “critical” in the “English Language Arts – BC Curriculum” (2015), and (21) in the “Critical Thinking” competency document. All four references made to the word “critical” in the “English Language Arts – BC Curriculum” (2015) were identical and stated this exact statement as a method of assessing student progress: “Respond to text in personal, creative, and critical ways.”

The definitional use of the word “critical” in the “Critical Thinking” competency was as follows, “...making judgments based on reasoning” with a purpose to, “...move from basic or highly supported thinking to increasingly complex, sophisticated, and independent thinking.” During this process of critical thinking “...students consider options; analyze these using specific criteria; and draw conclusions and make judgments.” Opportunities for critical thinking occur during “activities such as decision making, issue analysis, problem solving, inquiry, and self-assessment.”

The “Critical Thinking” competency explicitly focused on three interrelated facets of critical thinking: 1) analyze and critique; 2) question and investigate; and 3) develop and design. I picked out the semantic preferences with the highest frequency under each facet. I looked at the first facet: Analyze and critique. Beyond analyze or analysis, “judgements” (2) and “assessment/assessing” (2) had the highest frequency usage. Students were encouraged to make assessments or judgements “about a work, a position, a process, a performance, or another product or act”, or to judge/assess their own work, thoughts, or actions by considering a multitude of perspective different from theirs and to “...focus on evidence.”

The second facet was: Question and investigate. Again, beyond the references to “investigation” and “questions/questioning” the most common semantic preference was “explore.” Students were encouraged to “explore” questions, gather relevant information, and evaluate credible sources related to local and global issues that were problematic in their communities, lives, studies, and the media and to, “consider more than one way to proceed in an investigation” before drawing a conclusion.

The third and final facet was: Develop and design. In this facet, there were no repetitive semantic preferences. Students were asked to “...apply critical thinking to create or transform

products, methods, performances, and representations in response to problems, events, issues, and needs.” Students’ critical productions had a clear purpose and audience. The student was encouraged to determine, “the extent to which they have met their goals” and refine their products in response to feedback and criteria.

Overall, the Critical Thinking Competency Profiles were explicitly additive and progressive and, “emphasize the concept of expanding and growing.” On the final page of the competency document was a set of 6 profiles illustrated as a criteria checklist written from the students “I” point of view and was meant to illustrate the interrelatedness of the three facets. In short, the 6 profiles were (p. 6): 1) I can explore; 2) I can use evidence to make simple judgments; 3) I can ask questions and consider options. I can use my observations, experience, and imagination to draw conclusions and make judgments; 4) I can gather and combine new evidence with what I already know to develop reasoned conclusions, judgments, or plans; 5) I can evaluate and use well-chosen evidence to develop interpretations; identify alternatives, perspectives, and implications; and make judgments. I can examine and adjust my thinking; and 6) I can examine evidence from various perspectives to analyze and make well-supported judgments and interpretations about complex issues.

The checklist of criteria followed a terminology pattern similar to the use of critical thinking in Bloom’s taxonomy that is described as high cognitive function and refers to systematic, rational analysis and judgment (Lewison, Leland, & Harste, 2008). As a case in point, the terminologies with the highest frequency rates were “evidence” (3) and “judgments” (5). According to a CITI framework higher order thinking, in particular, the process of collecting information from various sources and determining validity through rationale judgement is vital to becoming digitally literate; however, this definition did not include the use of *critical* in the CITI

framework, whereby critical thinking and critical literacy are used to understand power relations and challenge imbalances of representation in favor of social equity. In the “English Language Arts – BC Curriculum” (2015) and accompanying “Integrated Resource Packages” (2015) there was no mention of interrogating the relationship between power and language, to analyze media and technology, to understand the social construction of power relationships, nor to consider actions to promote social justice.

Further, although creating and/or transforming products to add information or creative content through diverse genres was a major theme in the curriculum, there was little evidence in curricula to suggest that students were encouraged to create counter-normative content, nor to identify and avoid bias and stereotypes during the production process, which according to the *creation* component of the CITI framework, is a necessary feature. Lastly, throughout the Critical Thinking Competency, self-assessment and the assessment of other works was a prominent theme, however, there was no mention in the curricula of peer assessment – a central feature of literacy education.

How is digital framed?

In this section I focused on what values were encoded in the curriculum to frame educators’ responsibility to and implementation of digital literacy practices. I chose to investigate the use of the word digital to determine how digital literacy was pedagogically framed, and whether or not it followed traditional literacy pedagogies or critical and/or new literacies pedagogies. The term “digital” (10 results) was referenced identically in every case under the “Learning Standards: Curriculum Competencies” heading throughout the “English Language Arts – BC Curriculum” (2015) from K-12. The repetitive reference to “digital” stated:

Using oral, written, visual, and digital texts, students are expected individually and

collaboratively to be able to:

- Comprehend and connect (reading, listening, viewing)
- Use sources of information and prior knowledge to make meaning
- Use developmentally appropriate reading, listening, and viewing strategies to make meaning
- Explore foundational concepts of print, oral, and visual texts
- Engage actively as listeners, viewers, and readers, as appropriate, to develop understanding

To understand the values encoded in digital literacy in curricula documents I looked for collocates of the term digital and found reference to “virtual” (1) “media” (1) and “online” (9). Together these collocates attracted 6 semantic preferences which included: differences/diversity (4), safety/safe: (3), respectful and inclusive behaviour (3), ethics (1), identity (1), and issues (1). As a case in point, in the Social Responsibility Competency (2015) “differences/diversity” was referenced as such, “I take action to support diversity and defend human rights and can identify how diversity is beneficial for my community, including online” (p. 4). One example of a reference to “safe/safety” was found in the Personal Awareness Competency (2015) document and it read: “I can make choices that benefit my well-being and keep me safe in my community, including my online interactions” (p. 4). In the Social Responsibility Competency (2015) I also found a reference to “respectful and inclusive behavior” which stated, “I respect differences, and demonstrate respectful and inclusive behaviour, including online” (p. 6). A second example found in the same document was, “I take action to support diversity and defend human rights and can identify how diversity is beneficial for my community, including online” (Social Responsibility, p. 6). In regard to “ethics” one statement from the Social Responsibility Competency (2015) read: “Students value

diversity, defend human rights, advocate for others, and act with a sense of ethics in interactions, including online” (Social Responsibility, p. 4). One example that referenced “issues” was found in the Critical Thinking Competency (2015), which stated: “Students learn to engage in an inquiry and investigation where they identify and explore questions or challenges related to key issues or problematic situations in their studies, their lives, their communities, and the media” (p. 3). Lastly, one reference to “identity” in the PPCI Competency was framed as: “I understand that my identity is made up of many interconnected aspects of my life such as experiences, family history, heritage, where I live, and groups I identify with (including family, friends, peers, and virtual communities)” (p. 5).

As previously mentioned, a recent Canadian survey conducted by Johnson et al. (2016) found that majority of educators’ technology instruction focuses on how to manage students’ safety, privacy, and behaviour online. Many scholars (for example Hobbs, 2010) advocate that issues related to online bullying and safety are a central facet of digital literacies learning. Based on my analysis, the newly implemented BC curriculum responded to this call to action and emphasised safe, ethical, respectful, and inclusive behaviour online. Although emphasis on safety and online interactions is a significant feature to becoming digitally literate, so too is learning how algorithms, online applications, and organizations collect and use personal online information (Johnson et al., 2016; Wachter-Boettcher, 2017) – these elements were absent from the “English Language Arts – BC Curriculum” (2015) and accompanying “Integrated Resource Packages” (2015). It is also considered vital to understand how human-designed algorithms and devices extend unequal conditions for marginalized communities, and to learn not only how to notice it, but how to challenge exclusionary practices and avoid reproducing it through students’ own digital productions, which also was missing from the documents.

Finally, in the online version of the “English Language Arts – BC Curriculum” (2015), when I scrolled over the word “text” a word bubble appeared that defined what “text” referred to and it read: “text and texts are generic terms referring to all forms of oral, written, visual, and digital communication.” Although digital was chunked together in this definition throughout the curriculum digital was referenced separately or was written as an add-on separate from traditional texts. I did not have the space to analyze this further, however, I did want to raise questions for future investigations. For instance: How would teachers negotiate this pedagogically? Could this pose an instructional problem? I was led to wonder whether or not this definition would be confusing for teachers. This was particularly concerning because, according a CITI framework, for digital literacy instruction to be effective, pedagogical implementation must vary from traditional literacy approaches. A limitation in my study was that I did not understand how teachers interpreted the curriculum during the process of classroom implementation.

Survey Questionnaire Responses

At the end of Mira's course, teacher candidates participated in a nine-question web-based survey questionnaire. The questionnaire, which was designed to take approximately 10-15 minutes to complete, included five sections of questions. The first section asked teacher candidates to rank their knowledge, competencies, and understandings of critical digital literacy. The second section of the survey focused on respondent's experiences incorporating critical digital literacies in their practicum and classroom teaching experiences. The third section asked teacher candidates to indicate what critical digital literacy topics and coursework they learned about in their course and the pedagogical and content knowledge they planned to adopt and incorporate in their own classrooms. The fourth section asked questions about the effectiveness and usefulness of provincial curriculum documents in preparing teacher candidates to incorporate critical digital literacies. The fifth and final section asked teacher candidates about the skills and resources they still needed to feel confident and competent to effectively integrate critical digital literacies in their future classrooms. All of the results of the analysis are in Table 5 and described in detail below.

Table 5: Case study one survey questionnaire responses

Survey questions	Teacher candidate responses (N=3)	
What is your current level of knowledge of critical digital literacies?	My knowledge is limited.	2
	I have a pretty good level of knowledge.	1
	I am very confident in my knowledge and could explain the importance of critical digital literacy to others.	0
Please list three words that describe your overall experience learning about critical digital literacies in your respective course.	Relevant	2
	Informative	2
	Applicable	2

	Interesting	1
	Open-ended	1
	Challenging	1
Please explain your definition of critical digital literacies.	To interpret and decipher false information online	1
	To read information online from diverse angles and points of view	1
	To analyse media critically	1
	To use a variety of software/hardware to accomplish a specific task	1
Have you had an opportunity to use a critical digital literacy approach in your current classroom or in your practicum experience?	Yes	3
	No	0
Do you use content learned from the course in your current classroom or practicum experience?	Yes	3
	No	0
Has the curriculum been a supportive resource to design and implement critical digital literacies in their practicum?	Yes	2
	No	1
Please list up to three additional supports and resources that you need to feel confident and competent to teach critical digital literacies?	current and reputable research and resources	3
	Professional development and training	3
	access to district sanctioned digital tools and devices	2
	Classroom facilitation techniques	1
	Advice on how to navigate administrative push-back against technology	1

Questionnaire responses.

I collected three online questionnaires from the first research site at the end of the semester. Initially, seven teacher candidates signed consent forms, but attrition rates were high because they were asked to fill out the online survey outside of class time, after their final class. Answering the initial question, *What is your current level of knowledge of critical digital literacies?* Two participants selected the response, “My knowledge is limited. Critical digital literacy is not really on my radar.” The remaining one participant selected, “I regularly incorporate critical digital literacy into my teaching practice, so I feel I have a pretty good level of knowledge.” No respondents selected, “I’m a digital literacy junkie. I am very confident in my knowledge and could explain the importance of critical digital literacy to others.”

I asked teachers candidates to list three words that described their overall experience learning about critical digital literacies in their respective course and the main themes were “relevant” (2 results), “informative” (2 results), and “applicable” (2 results). The remaining responses included, “interesting,” “opened-ended,” and “challenging”. When I asked teacher candidates to provide a definition of critical digital literacies they responded: to interpret and decipher false information online (1 result); to read information online from diverse angles and points of view (1 result); to analyse media critically (1 result); and the ability to use a variety of software/hardware to accomplish a specific task (1 result).

Further, all three respondents said, “yes” they did incorporate critical digital literacy approaches in their practicum. However, two respondents found it “extremely difficult” to integrate technology because their SA’s limited screen time inside the classroom. Still, teacher candidates used a variety of creative and clever methods to navigate obstacles to implementation. As a case in point, one respondent did not use a digital device; rather they facilitated a critical

media literacy lesson in the outdoors and asked students to compare media advertisements between oranges and Orange Skittles. Students learned about capitalism and corporate interest, manipulative media advertisements, the difference between ‘real’ and refined sugars, and how to balance time spent online and outdoors. One teacher candidate facilitated a lesson on digital storytelling, identity and community using iPad’s and puppets. Another teacher candidate incorporated iPads to conduct online research about a guest speaker. Students located the guest speaker’s full name, address, and determined postage prices to deliver a ‘thank you’ card.

I asked teacher candidates if they incorporated content learned from their respective course (such as reading, writing, viewing, listening, technology, assignments) in their practicum and to provide examples. Results indicated that all three of the respondents said “yes” they had incorporated content from the course in their practicum. Teacher candidates used iPod’s and iPad’s as digital tools, and online applications, programs, and websites including PowerPoint, iMovie, online graphic organizers, and Thesaurus.com to learn and practice skills such as storytelling, poetry, listening to audio books, conducting online research, and self-reflection. The pedagogical purposes stated by teacher candidates included connecting students lived experiences inside the classroom, exploring Indigenous culture, improving presentation and interpersonal skills, and becoming critical consumers of visual media.

Additionally, I asked teacher candidates whether or not the curriculum had been a supportive resource to design and implement critical digital literacies in their practicum and two of the three respondents said “yes” and one respondent said “no.” The respondents who replied “yes” said the curriculum was useful because it was open-ended, which supported teaching critical digital literacies from multiple perspectives and promoted problem solving and critical thinking. On the contrary, the one respondent who replied “no” stated that the curriculum was

too open-ended, which made it difficult to know what, how, and which resources to use to teach critical digital literacies.

Teacher candidates listed a multitude of additional supports and resources that they needed to feel confident and competent to teach critical digital literacies. All three of the teacher candidates indicated that they required current and reputable research and resources to teach critical digital literacies, as well as professional development and training opportunities in K-12 classrooms such as guest speakers, workshops, and example lesson plans. Two of the teacher candidates specified that they required access to district sanctioned games, applications, programs, and devices in schools. One of the respondents desired further training on how to ensure students stay on-task while using a digital device. Teacher candidates also required a better understanding of how to advocate for classroom integration of digital devices if they experience administrative push-back in the future.

Lastly, I asked teachers candidates to list up to three items that they wish they knew about critical digital literacies before their practicum. Two of the teacher candidates responded that they wished they had learned how to connect digital literacies to various subject areas, in particular math, and learned how and where to save students' course work online so that students could access content both in and outside of school. One of the respondents indicated that they yearned to learn more about how to incorporate video effectively.

Final Interview

The final interview with Mira occurred after the semester was complete and after teacher candidates' grades have been submitted. Mira was asked to read teacher candidates' anonymous survey responses as an act of self-reflexivity with a focus on individual and collective learning and growth. Reading survey responses also served to structure discussions around lessons learned and the pedagogies and practices Mira might decide to take forward or leave behind. The final interview was organized around the Mira's perceptions on changing definitions of literacy in the curriculum, the influence that technology has had in their classrooms, the pedagogical and methodological approaches taken inside their classrooms, the planning and design of syllabi, and lessons learned with regard to navigating curriculum, and future implementation.

Reflexive practice: Syllabus, curriculum, and survey responses.*Syllabus.*

I met with Mira at a local coffee shop located at a halfway point between our apartments to conduct our final interview. At the time of our final interview Mira was teaching the same course for the first time since our collaboration. Settled into our seats with coffee in hand I asked Mira whether or not her syllabus had altered or changed since we met last. She self-proclaimed that she is "not a great syllabus writer". Her syllabus does not reflect "exactly who I am" as an educator because she is not particularly detail oriented in terms of written documents. However, when she spoke and explained in a classroom context she was "very careful" and attentive to language use. She explained that majority of teacher candidates wanted to make a difference, and wanted to do "something that helps," but Mira actively questioned their use of language and their intent throughout the course and continuously asked teacher candidates, "What do you mean by 'help'?" As a case in point, Mira screened a documentary titled, *Schooling the World*. The documentary

“completely shifted” the way teacher candidates thought about teaching and language discourses, “...especially about teaching English abroad, going to schools in different countries. When you say you really want to help, what does that mean?”

Relatedly, in regard to perpetuating colonial discourses, teacher candidates learned to become more sensitive to the language they adopted and thoughtful about how that language perpetuated discrimination. Mira provided a second example. At the beginning of the semester, she facilitated an indigenous exercise adapted from a *Healing Justice* podcast, and framed it as a “reclaiming our names” activity with the intent to showcase that “our names belong to stories” and have “honor” in the classroom with meanings worthy of acknowledgement. The digital literacy activities Mira mentioned were an important pedagogical strategy in realizing her goal of developing critical digital literacies practices. The assignments asked teacher candidates to reflect on their own language and digital literacy practices so they could make connections between concepts of multiliteracies with their own literacy development and teaching goals in mind, as well as develop expansive understandings of the teaching and learning of language and digital literacy. As previously mentioned, these two examples were absent from Mira’s syllabus, however, she “feels” compelled to improve her future syllabi through “cohesion and purposeful integration.”

Curriculum.

I asked Mira, “how much freedom did you have in designing your course? Did you have authority or were there limiting factors? She responded, “No, total freedom. I would say I’m really lucky. We get complete autonomy to do what we want with our courses, of course being mindful of the BC curriculum.” I probed further, “Mira, has the curriculum been supportive of your mission to create more cohesion and practical application in your classroom?” She responded, “I really like the curriculum” but more classroom time needed to be spent on

understanding the “big ideas” surrounding learning standards and language use in the “English Language Arts – BC Curriculum” (2015). As a class they performed “a deep dive exercise” of K-7 curriculum and looked specifically at the nuance of the language. For instance, a lot of the learning standards implemented verbs such as “use” versus “describe” versus “create” versus “analyze.” Rather than focus solely on content, they focused also on the action verb because it informed the desired students learning outcomes. Teacher candidates learned to identify how and why words such as “use” and “recognize” reference “lower-order skills” in Bloom’s taxonomy. They discovered that these “lower-order skills” were most often integrated in the curriculums “lower grades.” Additionally, Mira encouraged teacher candidates to question the lack of reference to words such as “create” in the curriculum, “because it doesn’t matter what age our students are and it doesn’t matter what level they’re reading at or writing at, they’re all very capable in different ways and can all create something, you know, that to me is something we need to look into and question.”

I asked Mira, “did your class pinpoint references to identity categories in the curriculum, and if so, what were their observations?” Mira explained that reference to First Peoples in the text “felt tokenized” in every grade level. References to oral storytelling were abundant and “reductive” and read like “placeholders” in the “English Language Arts – BC Curriculum” (2015). Mira gathered that the way the curriculum conceptualized and pedagogically guided the integration of First Peoples identities and cultures, was the way teacher candidates then received it – as “unauthentic.” As a new BC resident, Mira wanted to authentically integrate First Peoples in her classroom and leveraged sociocultural perspectives and constructivist frameworks on literacy to invite teacher candidates to use decolonizing language, de-center whiteness, and become sensitive to words like “use” that “feel uncomfortable”. She explained:

We're not going to just spend one day on indigenous topics, we're not going to spend one day on indigenous storytelling. As soon as we conceptualize literacy teaching and learning and language arts in a different way, we can see endless possibilities of how First Peoples teachings can be woven across the curriculum, right? I think in the back of my mind I'm always thinking about using words that are decolonizing.

In the context of teaching and learning, Mira thoughtfully interwove First Peoples knowledge systems and approaches into her class so that teacher candidates could grow to see the pedagogical value and to challenge dominant ideologies (i.e. BC Curriculum documents) that specifically neglected to do so. Mira meaningfully sought to value the experiences, worldviews, and histories of First Peoples to counteract the damaging impacts of colonization and assimilation, but also to model that there are various ways of knowing, doing, and being and that diverse systems of knowledge can coexist, but also complement the field of literacy education.

Teacher candidate survey responses.

Of the seven students who initially signed consent forms, three of Mira's students completed the online survey questionnaire. To inquire about the reflexive process of reviewing teacher candidates' responses, I asked Mira: "Was there anything that surprised you about teacher candidates' survey responses?" Mira said she was surprised that teacher candidates replied, "yes" they had incorporated critical digital literacies in their practicum course. Mira's course did not revolve around critical digital literacies – it served as an introduction – and so she presumed that teacher candidates were "just dipping their toes in the water." Yet teacher candidates were not only able and willing to incorporate podcasts and iPads and emulate in-class

assignments such as poetry and advertising strategies, “things we just did once,” they did so with confidence. Mira speculated that teacher candidates’ learning had been scaffolded in the past and so the techniques she used in her classroom may have been review. Nonetheless, Mira was “glad” that teacher candidates took the initiative to experiment with incorporating critical digital literacies pedagogies and practices.

Critical literacy: Pedagogical implications.

Confidence and competence.

I asked Mira, “at this point in your teaching career, how comfortable and confident do you feel with the title Critical Literacy Educator? Where do you locate yourself as a scholar?” Mira explained that her teaching framework “is always evolving.” Although she implemented a critical literacy framework in her doctoral dissertation and remains “very connected to critical literacies,” she has started to move away from it. Her “hesitation” around critical literacies revolves around the question, “who coined critical literacies scholarship?” The answer: “...for the most part they’ve been white scholars.” So as of late, Mira has moved towards *culturally sustaining practices*, which emanates from “the work of scholars of colour, Latin and black educators who talk about not only recognizing and valuing culture, but really actively sustaining culture.” Mira has found the language of culturally sustaining pedagogies to be “more in tune with what my language is...resistance and equity...I just feel the shift happening.”

Challenges and obstacles.

To learn more about the pedagogical implications of Mira’s teaching strategies I asked, “to what extent were you able to address issues of equity such as power, race, and privilege in your course? Did you experience any difficulties or challenges?” Mira explained that equity and race were at the center of her course with the goal to connect language and power, and race and literacy.

She was “obsessed” with the idea of literacy and language arts as a social practice that can be used to support teacher candidates to develop a “sense of agency” and connect to the “real world”. She felt, “proud” of that aspect of her class. Her ambition was for teacher candidates to leave her classroom “seeing literacy in a brand-new way – divorced from a concentration on writing.”

In regard to challenges and obstacles integrating a critical perspective, Mira noted that majority of the teacher candidates in her class were racialized white and were in different stages of their awareness and had diverse understandings of their own identity and of racial justice and equity. Teacher candidates “cared about social justice” but how it was enacted and understood was “very uneven” and that became a barrier. One primary challenge was working with teacher candidates eager to prepare for classroom teaching and frequently requesting additional “tips” and “lesson plans” and “practical tools,” which meant there was always some resistance “to think about these bigger ideas” entrenched in theory. But, Mira “feels very strongly” about orienting her class in a certain way. She yearned for teacher candidates to possess the language and history of Indigeneity and to comprehend how it has transformed over the years. Once that had been established, then teacher candidates could learn practical classroom strategies because to integrate Indigeneity with sensitivity and respect requires a “foundation” first. Mira clarified that she has, “never thought teaching has been short of well-intentioned people, that’s not the point. I mean, the program is meant to re-frame your mindset.” I asked Mira, “how do you encourage teacher candidates to trust you, your process, and your intentions?” She pithily responded, “I say trust me.” She explained:

Before I knew the language and knew what I was doing I was just trying to fill my days with lessons that kept my students busy and quiet. And that’s not good teaching. It took me years to get to this understanding and that’s because I didn’t

have the preparation or the language of what teaching really was. I was just trying to fill my days up. Just make sure when the principal walks by, make sure the students look busy. You know? That's not why you all came here. To make some random stranger happy when they walk by.

I followed up asking Mira, "Were there any highlights or moments when you were teaching with a critical perspective that seemed to resonate with teacher candidates?" "Yeah" she said. Many teacher candidates expressed gratitude that they completed the literacy course before their practicum. Vice versa, many teacher candidates were disheartened that they did not complete the literacy course before practicum. Additionally, after class teacher candidates often confessed to Mira how drastically their perception of literacy had been transformed. One student in particular wrote Mira a "beautiful letter":

She wrote that she understands her relationship with her daughter in a totally different way. Her daughter was always somebody who was deemed as behind, and who needed help, so she was always on her daughter to catch up and do this and do that instead of celebrating her abilities and trying to enhance them and connect them to her literacy's development. She said it completely changed the way she viewed her daughter's everyday practices. She started to see her daughter as literate.

Mira also observed that teacher candidates appreciated the opportunity to connect theory to practice by critically reading music and poetry and connecting these multimodal literacy practices to Indigenous ways of knowing in the classroom.

Technology integration: Pedagogical implications.

Mira carefully examined how she integrated the sociopolitical and cultural contexts of technology inside her classroom. Our conversation served to support Mira's goal to interpret,

define, and refine her teaching practice, and to improve the way she prepared teacher candidates to integrate technology. While she sought to answer questions about how best to prepare teachers candidates, she also sought to identify and reframe problems of practice to improve her pedagogy. Together, we engaged with her approach to critical digital pedagogies. I systemically categorized each pedagogical approach (e.g. lesson plans and assignments) below and separated them with subheadings.

Literature autobiographies.

When Mira agreed to participate in my study, she decided to actively shift her pedagogy to more intentionally and meaningfully integrate technology, and so Mira altered the first formal assessment of the course, which was for teacher candidates to construct their personal literacy autobiographies through digital storytelling. In the past this was a written assignment, however, wanting to support students to understand the cultural and social dimensions of literacy, teacher candidates were asked to create an audiovisual presentation, emphasizing the use of image and narrative, and using a presentation style called PechaKucha – a concise presentation style using a 20x20 format, 20 slides in 20 seconds. However, the process was at times met with some hesitation. Several teacher candidates asked to “write a paper” instead of creating a PechaKucha and Mira obliged. Integrating technology positioned Mira as novice teacher educator using new digital tools, outside the role of expert. As previously noted in our first interview, Mira’s intent was to be explicit about her commitment to model that teacher candidates can integrate technology even with a basic level of know-how. However, as soon as the teacher candidates became hesitant and unmotivated, she too wanted to move away from technology and make it optional. As an educator outside the role of expert, it can be difficult, she explained. There is a lot on the line, especially in a space where reviews and evaluations are a factor. Mira learned that

to minimize teacher candidate resistance to technology integration, she had to reframe her assignments. She reasoned that if the content of the assignment was familiar to teacher candidates, then learning a new digital tool or using a new digital device would become less prodigious. Mira also realized that of the teacher candidates who used PechaKucha, most of them “enjoyed it” and now use it “with their middle schoolers.” This semester, Mira decided that the digital piece was mandatory. The digital literacy autobiography was an important pedagogical strategy in realizing Mira’s goal of developing critical digital literacies practices. The assignment was structured to be shared using a digital platform so that teacher candidates might also gain knowledge on how to integrate technology in their own classrooms. Relatedly, the assignment became important to the ongoing process of developing teacher candidates’ critical reflective capacity and building classroom community.

Flipgrid.

Each week in Mira’s class, a group of students were responsible for facilitating a discussion of course texts (academic readings, videos, blog posts, podcasts, etc.). They did this through a combination of discussion and activities that connected to literacy instructional strategies introduced in the course. In the years prior, teacher candidates were asked to consider their facilitation experience by submitting a written reflection. This reflection was only seen by the instructor. In an attempt to develop broadened notions of literacy practices and continue to develop a professional sense of community in the class, Mira wanted a tool that could serve to host collaborative dialogue around critical issues and questions. She found teacher candidates understood the digital techniques of Flipgrid, but many questioned the purposes for which the techniques were used and the implications of cybersecurity (the technical interventions that protect data, identity information, and

hardware from unauthorized access) and cyber-ethics (the moral choices made when using digital technologies) (Pusey & Sadera, 2011). Mira noticed teacher candidates' reluctance to verbally record thoughts or visually record faces on a new and unfamiliar online platform. She provided alternative recording procedures including the use of emoticons on the Flipgrid application or filming with figurines. To ease discomfort, some students opted to write their thoughts on paper rather than speak on camera. Despite efforts to ease discomfort, she was unable to establish certainty of use or ease of privacy and security concerns. After the third week of classes, several students had approached Mira about this reflection activity wondering if alternatively, they could turn in a written reflection. When teacher candidates were unaware of the technical and ethical implications of their digital footprint, they were more reluctant to meaningfully engage. After much reflection, Mira made the video platform optional for students. Approximately half of the students continued with the video platform as a tool for reflection, while the other half completed their reflections via written responses. In our post course interview, I asked Mira how this integration was flawed and came to be perceived by teacher candidates as a "make work" activity rather than a meaningful way to reflect and develop a sense of community in the course. I said: "I know elements of digital technologies felt like an add-on in the classroom, even though that was not the intent. I also know that you thought carefully about integration, it just did not go as planned. Based on this experience, what are some lessons learned?" Mira responded:

I myself am taking a trial and error approach because I know it needs to be integrated more meaningfully but I'm still working through it. I'm struggling because I still use it as like, okay, do this paper, and then do this digital

technology piece. I know that digital piece should play a role in my courses and pedagogy, but I'm also figuring out where it fits in the curriculum. I'll probably use less technology in the future because I want to be more intentional with the way I use it.

As new teachers, recording not only their voices and faces but their personal, critical, and emergent thoughts on an unfamiliar online platform was considered a risk not worth taking. Although Mira employed Flipgrid with a clear objective in mind, her delivery perpetuated the adoption of technology as simply another vehicle to deliver content. Hence, teacher candidates flawed engagement with, and resistance to the integration of digital technologies.

Critical video production.

During our post interview I asked Mira, "Can you recall a moment in the class when you witnessed the affordances of integrating critical literacy in combination with technology?" To guide teacher candidates to view digital texts as unique literacy practices that could be critically read and analyzed Mira facilitated a video remix activity. Mira said:

I think that creating videos ... a lot of students said, "I've never done this before" and that having the chance to actually play around and be like "oh I can do this" was a useful strategy. I learned that if teacher candidates feel like they can do it then they're like, "oh I can have my students do this too." I can invite them to do this as well.

However, our interview also revealed the tensions of this exercise coming across to teacher candidates as an add-on activity rather than integrated into the course. Although it was Mira's intention to have the digital video production connected to the course text of *Fatty Legs*, teacher candidates were only given half a class session to actually create a digital counter-narrative text.

For this reason, teacher candidates communicated feeling stressed and wishing more time was allocated to this exercise, thus coming across as an add-on to the curriculum. Mira's explanation reveals this tension:

For most, this was the first video they ever made, and it was so vulnerable, and it took more time than anticipated for them to plan and execute their video, and to edit and figure it all out. It's all such a grand process. It took even longer too, because I couldn't answer their questions, I had to search for most of them. And they were all using different video editing platforms that made it more difficult. I think I appeared unprepared, like the video production piece was an add-on. I had thought about the pedagogical implications, I just didn't anticipate the technical difficulties.

The majority of teacher candidates were beginner technology users and for some, it was their first time writing a storyboard or using video editing software. Nonetheless, students were "patient" and "flexible" during the critical video production process and expressed "interest" and "excitement" throughout. As the semester continued, Mira noticed a shift in teacher candidates' technology integration mindsets as some opted to use critical video production in their final projects, rather than revert back to traditional print-based literacies. Once teacher candidates became more comfortable and confident using technology, and understood the pedagogical implications for teaching and learning, the conversation around technology shifted to a positive one.

The temptation to revert back to print text was at times mitigated by Mira's desire to expand teacher candidates' digital literacy integration mindset. To accomplish this, she re-

framed her course as a site for experimentation for both her as an instructor and her students as practicing teachers. This excerpt from our conversation revealed this revelation:

Playing with video production gave teacher candidates so many creative ideas and opportunities to express those ideas, but a lot of them were scared to try it, because they thought, “it’s a good idea, but no, I’m not good enough, I don’t have the skills to do that in a short period of time.” Because we didn’t spend a lot of time working through their insecurities, I think the low stakes environment piece was really important. I told them they’re not going to be assessed on the quality of their videos, it’s the process that matters. By the end, teacher candidates thought it was a cool opportunity to be able to create something in a space, where they weren’t necessarily being graded or marked.

Mira deliberately de-centred herself as the only expert in the room. Teacher candidates were invited to solve, address, or prevent issues by collaborating, asking questions, and using relevant research. Mira sought to decenter authorial control, eliminate the pressure of assessment, and expand critical and creative mindsets. On the one hand, the process of de-centering authority and control in the classroom and creating a low-stakes environment was effective. On the other hand, after teacher candidates submitted their final digital productions, she noticed a flaw in her approach: “How do I create a low-stakes environment and eliminate the pressure of assessment, while simultaneously meeting institutional requirements of content-based assessment?” Mira pondered. Assessment was one element of critical digital literacies teaching and learning that Mira required further reflection and practice to navigate and integrate more seamlessly.

Culturally sustaining mini unit.

At the time of the interview, Mira was also in the process of developing a new three-part culturally sustainable mini unit that combined digital literacies, community literacies, and community needs. The first part entailed working in the communities in which teacher candidates did their “practice teaching.” The second half of the assignment required teacher candidates to create a counter-narrative text, and third to, “create a mini unit using lessons in which the students will create a digital text as one of their outcomes, as one of their products of learning.” Part of the assessment for the mini unit was to include multiple voices from the local community through blogs, newspapers and social media accounts. Mira wanted to be more intentional with how she used digital technologies not just as an add-on, “but using it in ways that deepen learning and deepen meaning for the students.” Mira was still revisiting the assignment and was unsure how it would turn out but over time Mira has become more comfortable with the trial and error process.

Overall, Mira was adamant to model “multi-modal literacies” in particular how to “very easily incorporate [technology] into your classroom, having your students represent what they know in ways beyond what they typically display.” In other cases, however, Mira has removed the digital piece because, “I feel like it felt a bit forced.” As our conversation came to a close, she pithily added, “We’ll see how it goes. Every time I think I know what I’m doing....” Effective approaches to reflexivity do indeed position educators in a constant state of becoming.

Summary of Case Study One

Mira's early life and early schooling experiences significantly affected her pedagogies and practices as a digital literacy teacher educator with a critical pedagogical stance. The affect that her schooling and teaching experiences had on her translated into her practice and shaped her teaching and research focus. My analysis of the preliminary interview revealed that her early schooling and teaching experiences was a turning point in her life. She began to understand the relationship between schooling, power, and lived experience, and the significance of a critical pedagogical approach to teaching and learning with technology. Complimentarily, her doctoral research and current research agendas were informed by her time as a student and lessons learned as a classroom teacher.

There was a direct connection between Mira's pedagogical practices and her syllabus, which were both in line with a CITI framework. Elements of the CITI framework such as *continuous self-reflexivity* – the practice of tracing individual and collective experiences of education and social contexts to learn and to grow new perspectives – were paramount in Mira's assignments and activities. Mira also explicitly sought to flatten hierarchies in her *collaborative* based classroom. Teacher candidates were encouraged to *critically* engage with different ways of making meaning, to create a variety of multimodal texts, and elicit prior knowledge and lived experiences, which were considered necessary components to becoming critically and digitally literate. Mira made explicit the relationship between schooling and power and the significance of a critical pedagogical approach to teaching. As aforementioned, although Mira's syllabus tended to homogenize differences and collapse the category of "student," Mira's syllabus still met the requirements of a CITI framework because her intent was not to simplify diverse identity representations but rather to acknowledge that teacher candidates must name their own identities.

In this way, Mira's syllabus met the CITI frameworks requirements of *construction of knowledge*. On the contrary, although digital literacy was considered in the pantheon of literacy skills in Mira's syllabus, technology read as an add-on or after-thought to traditional literacy and thus, did not meet the standard of a CITI framework. Interestingly, Mira's approach to technology integration mirrored the BC curriculum – both sources framed digital literacies as an add-on to traditional literacy texts.

As a case in point, the “English Language Arts – BC Curriculum” (2015) and accompanying “Integrated Resource Packages” (2015) treated digital literacy as an add-on to traditional texts, which was considered problematic because technology requires not only an intentional pedagogical purpose, but a distinctive pedagogical approach to traditional literacy. Further, although creating and/or transforming online texts was a major theme in the curriculum, there was little evidence to suggest that students were encouraged to create counter-normative content, nor to avoid bias and stereotypes during the production process. Furthermore, the relationship between students and teachers, and students and “others” as outlined in the curriculum was modeled in a way that did not disrupt the status quo, but rather re-inscribed oppression and the settler state. The way settler colonial and Indigeneity relations were framed was not about engaging and learning with or thinking through ideas together, it was more in line with assimilation and imposing cultural assumptions. The curriculum overlooked the importance of understanding the relationship between power and language, and challenging imbalances of representation. The curriculum also failed to mention the importance of equal dialogue and engagement with alternative identities inside the classroom to ensure that students define their own imaginaries. Instead, the curriculum stressed the importance of higher order thinking. There are important questions to be raised about how curriculum influences how teacher educators

frame technology integration.

In regard to teacher candidate survey responses, Mira's students valued the learning that took place in their course and thought the course content was challenging at times, but remained interesting, informative and applicable to their future classroom teaching and learning practices. Their understandings of critical digital literacies varied and although none identified as experts, many defined critical digital literacies in ways that resembled the learning objectives of Mira's syllabus. Overall, teacher candidates learned that to be critically and digitally literate meant understanding both the critical and functional aspects of technology use. The teacher candidates in Mira's class also learned first-hand that active learning with technology occurs when students are engaged in reflecting and thinking, not when they are simply tapping and swiping. What is more, teacher candidates valued the opportunity to teach with or about technology to empower students to think critically about the minutia they encounter online.

The teacher candidates in Mira's class had two distinct perceptions of the curriculum. On the one hand, the curriculum was non-prescriptive and opened up creative instructional possibilities. On the other hand, these non-prescriptive curriculum documents served as a hindrance because they did not include new research-based standards of teaching and learning with digital technologies. Challenges that hindered teacher candidates' ability to incorporate critical digital literacy lessons in their practicum included restricted class time and school rules and regulations. To become more confident and competent to integrate critical digital literacy pedagogies, teacher candidates required more current and reputable research and resources, professional development, access to digital devices, classroom facilitation techniques, and advice on how to navigate administrative pushback against technology integration. Overall, teacher candidates felt that their learning was supported by sound pedagogical and content knowledge

that they planned to adopt and incorporate into their future classrooms. Although there were lingering questions and challenges, teacher candidates were satisfied with their progress in the course and eager to continue learning.

The final interview with Mira was intended to provide information about her changing perceptions as a digital literacy teacher educator who adhered to a critical pedagogical stance. As the findings in this chapter show, Mira used a thoughtful pedagogy coupled with creative assignments to enact critical digital literacy practices in her teacher education courses in several ways: flattening hierarchies inside the classroom to engage with difficult topics; unpacking curriculum initiatives, standards, and educational reform; challenging the relationship between technology and power; and emphasising creativity, creation, and multi-modal learning. Although Mira had the practical techniques to creatively integrate critical insights, she had limited experience teaching with digital tools. She experienced moments of intimidation and fear of failure to simultaneously learn and teach critical digital literacy effectively. Her goal to improve pedagogy and practice encouraged her to reflect deeply on the ‘why’ and ‘how’ and purpose of her teaching. My final interview with Mira, however, revealed tensions in regard to the differences between pedagogical intent and the reality of integrating critical digital literacies. Although Mira employed technology with a clear objective in mind, her pedagogical approach, at times, perpetuated the adoption of technology as an add-on, which lead teacher candidates to request fewer digital tools and activities inside the classroom. Mira also struggled to create robust and timely opportunities to experiment with technology that also met standard institutional assessment requirements. Upon reflection, Mira learned that if the content of the assignment was familiar to teacher candidates, then using a digital device would become less prodigious. In the future, Mira plans to continue to enact a trial and error approach, to create low-

stakes opportunities, to emphasise experimentation over assessment, to give teacher candidates directive control over their digital productions, and to scaffold digital literacies learning and growth.

Case Study Two

Preliminary Interview

As aforementioned, the pre-interview with Anne occurred at the beginning of the research project before her class was underway. I used critical discourse analysis and corpus linguistic techniques in combination with a CITI framework to engage with Anne's perceptions of critical digital literacy practices and pedagogies, and to discuss decisions about her syllabus and lesson plan ideas. The pre-interview was also used to understand Anne's background, practices, and visions related to her teaching practice as critical digital pedagogue. My goal was to learn about Anne's teaching experiences and thoughts on the effectiveness of the curriculum. I used a semi-structured interview format. The interview began with a few prompt questions to illicit conversation and gain insights into the uniqueness of Anne's experience, however, when unexpected topics emanated, I asked follow-up or probe questions. My interview with Mira lasted approximately one and a half to two hours and was audio recorded and then transcribed by me.

Personal, teaching, and education background.

Personal background: Journey towards teaching.

Anne is an Assistant Professor of Educational Technology at a University in Eastern Canada and identifies as a "middle-aged, middle class white woman." Anne grew up in a rural area in a "very traditional family." In the past, she had spent time deconstructing her upbringing acknowledging how her experience growing up in a rural area situates her socially, with certain privileges and certain disadvantages. Anne explained that over time her parents became more and more financially successful, "so there was a certain comfort, economically for sure...but I didn't have real access to what I would consider social capital." Anne clarified that at the time,

she was a first-generation university attendee in her family and she, “didn’t really have a lot of models of professional success in my upbringing.” When Anne started teaching, she returned to her hometown community and taught rural youth, but life has taken her in a different direction since then.

I asked Anne, “what intrigued you to pursue a profession in teaching?” She said, “...in my daily life as a child...there were not a lot of spaces where I saw women in positions of power, but in schools I saw women in positions of power.” It was uncommon for Anne to witness women in public spaces, social structures, or in the community in positions of power because it was an “incredibly patriarchal community.” When Anne first started school in kindergarten she reminisced:

[My principal] and my teachers were often women and I saw women doing creative things and women loving their work and having agency and helping kids. Which was obviously a very traditional female role. But I could see a path in education for me as a person who really wanted...to be creative in my work. I was a kid who was always making stuff and drawing and writing. I would write a lot of stories when I was a kid and I felt like this was a place where I could exercise all that creativity because I had examples of really creative teachers in my life and many of them were women.

Anne’s elementary school experience is the reason why she decided that education might be a good space for her professionally. I asked Anne, “are there any additional people that mentored or guided your career trajectory in educational technology?” Anne explained that her parents, “really did recognize computers as something that I should probably know about as a kid.” So, in the 1980s for Christmas one year, her parents bought a Commodore 64. She reminisced:

I had a Commodore 64 and I would spend hours trying to program it and I was really, really interested in the language, the coding but it was very soon that I came to understand that computers were mostly for boys...and I thought, 'I could go and take this amazing history or this English class with this compelling teacher or I could opt for computer science that will be mostly boys who will think that they know more than I do...So, I stepped back and away from it because I had very much internalized these messages and there weren't structures to enable me to feel like I could have my place in those classes either.

Along the way, however, Anne encountered mentors who believed she "had something to offer as a teacher and as a thinker." Elementary school teachers along the way praised Anne for being, "a really good writer" and she was encouraged to produce her first solo authorship publication in the 6th grade. Another important mentor is Anne's master's thesis director. She showed Anne by example, "how to be and how to lead." But the most significant influence, where Anne could see a "direct line from this work to where I sit today" was a teaching job she took at a school in Ontario, which is discussed in more detail below.

Teaching background.

As of 2019, Anne had more than two decades of teaching experience. She started her teaching career in the late nineties – when she acquired her first teaching job in a "very rural high school" in Southwestern Ontario. After having such great mentorship during her master's thesis, in 2002 she landed a teaching position at a school with a one-to-one laptop program, so in her pedagogical practice every day she was interacting with a laptop in new ways – exploring websites and creating digital products. Anne noticed that her students were interacting with computers in nuanced ways, too. They turned their machines into "social spaces, and I was like,

wow, what's happening here. This is really cool. They'd decorate them with stickers; it was like this appendage actually. [The computer] was them." Anne pondered the impact of computers on students' literacies development. Soon thereafter, Anne and her family moved to the US and she decided to pursue a PhD because "life basically took me in that direction." I inquire into Anne's educational journey in more depth below.

Education: Journey towards critical literacy.

In terms of educational training, Anne attended a University in Ontario and graduated from the concurrent BA, B AD program, and completed a master's degree at a university on the Pacific coast. After she taught for about nine years, she moved to the US and that is when she decided to complete her PhD. Curious about the trajectory of Anne's life experiences and connections to her research I asked, "when and what prompted you to develop a critical pedagogical perspective in your teaching and research?" She humbly responded that in her early years of teaching she was not aware of the structures of power or even actively questioned, "Why is this machine showing up in my classroom?" She was not at a point in her career that she wondered about the impact of "capitalist ideologies driving the promise of technology." The moment Anne began to examine these questions was during her master's thesis defense when, one of her examiners noticed that she had not found a statistically significant difference on many variables between her control and treatment condition groups. Her examiner said, "'it's too bad you didn't find the right result.' And I was like, 'but I found no difference so that is the result.' I didn't know that there was supposed to be a right result. He was so invested in this perspective of computers as the answer." Anne marks this moment as her turn towards critical questioning of technology.

I probed further and asked Anne, “can you explain the moment when you realized that you could connect critical literacy and technology to advance the field?” Anne explained that during her dissertation work, she focused on trying to teach youth to read online. Part of the research involved youth writing a persuasive essay. Through questioning and reading scholarship around the importance of cultural perspectives, critical evaluation, deconstructing arguments and motivations for particular texts, she found that she could support youth to understand what the positionality of a writer might be. She realized that critical evaluation was imperative for constructing meaning, and the evidence was in youths’ work. Initially, Anne’s dissertation was about supporting youth to be able to synthesize information but, “as it turned out it was really a lot more critical or a lot more complex than I had really understood it to be.” When analyzing data from her dissertation, video documentation showed that literate children who were able to read and write, could generate ideas and “had no trouble learning or making meaning from anything” were struggling with the task of conducting a Google search, finding three different resources online, evaluating them, extracting meaning, and putting them into an essay, “and I was like, they should be able to do this. Why is this so hard? And then I was like, well it’s because the system has made it hard for them and it doesn’t need to be like that.” What Anne’s remark highlighted was that poorly designed digital systems were devised to be difficult for children to navigate, to confound, trick, and manipulate “behind the scenes” so that people are not easily made of aware of it “and I just think that there’s a real arrogance that I’m getting tired of.” Most recently Anne read the book, “Technically Wrong” by Sara Wachter-Boettcher, which reaffirmed her discomfort, and “really helped me to connect the dots.” Anne had been feeling this discomfort “for such a long time” and she was finally in a position to take action. These are the moments that ruminated with Anne – that have altered her perspective of technology and

education and have served as a bridge to critical literacy. Even though Anne has been pigeon holed as an Education Technology Professor, her orientation is not “rah rah for tech for tech sake” it is more, “okay tech show me what you can do and I’m going to evaluate the fortresses and the constraints...and I’ll let you know if I think that it’s got applications for a classroom.” I was curious about Anne’s current approach to technology integration, so I asked her to tell me more about it. We delve into the details of her instructional practices below.

Curriculum, syllabus and pedagogy.

Curriculum: Understanding and integration.

I asked Anne, how do you feel about the curriculum in your own teaching and how has it either hindered or helped you reach your pedagogical goals? Anne reminisced on her experience as a student and as a teaching professional and remembered thinking that the curriculum, “was the word, like capital T, capital W,” and she established a “blind trust” in the designers of curriculum. No one encouraged critique of curriculum. Anne knew that some scholars were doing the work of curriculum document analysis, but the mainstream line of course was:

This is the stuff for which you are held accountable. And so, I was invested, and I was there to do that work to serve students in the Province of Ontario and I didn’t question the documents.

Ten years later, Anne returned to Canada after having seen and participated in conversations about curriculum revision in the US. She had thought plenty about the design of the curriculum common core standards and began to identify the various ways that it was connected to research. Upon her return to Ontario, she reopened the curriculum documents in preparation to teacher her students and she was “aghast.” I asked, “what did you find, Anne?” She elucidated that there was a lack of transparency inside the documents – there were no intentional connections to scholarly research

or documentation of strategy and pedagogy. Practical applications and resources were inaccessible to teachers. Anne cleverly added, “there’s this whole discourse around evidence-based practices but these documents offer nothing in terms of transparency around how they were constructed.” The tension between what physically appears in the curriculum documents and a much more nuanced understanding of what those curriculum documents represent adds another layer of complexity. She decided to show teacher candidates how to address the expectations of the curriculum, but in ways that empower their future students.

Curriculum: Prescriptive or non-prescriptive?

I asked Anne, “how do you incorporate a curriculum that vastly differs from your pedagogy and teaching practice? Do you make this explicit to your students, or not?” She responded that on the one hand, the Ontario curriculum has “some hand waving about technology integration” although it is not specific and not informed by evidence, practical application, or theory. On the other hand, “it isn’t prescriptive either because too prescriptive often results in teachers doing the same thing all the time because it’s in the documents.” She reasoned that the Federation might, “balk at the idea of telling an expert teacher how to teach something” under the assumption that teachers know how to teach with technology or should know how. However, as Anne pointed out, in the teacher preparation program the learning curve is steep and complex. Teaching is a demanding profession and “as intellectual workers there is so much for teachers to learn. And it often is very much in contrast to a priori notions and naïve notions of what teaching means.” “How do you navigate these contradictions and constraints?” I asked. Anne explained that although the province had certain standards of practice that educators must meet, fortunately they are also broad enough that Anne could leverage her own expertise and the expertise of scholars around the world to meet her learning objectives. She understood her responsibility was to support teacher

candidates to make connections between the curriculum and practical application, and to push them beyond what is explicitly written.

Syllabus: Journey towards critical literacy.

In terms of incorporating critical literacy into her syllabus, Anne intentionally focused on the digital divide – it's a main theme thread throughout the course and Anne spent time with teacher candidates discussing how "simple decisions" about lesson designs or homework "can inadvertently reinforce divides." As a case in point, she explained to teacher candidates that when asking students to print an assignment at home or log into a web based platform to complete homework, it is vital to remember that many youth do not have access to a device at home and will have to travel to the library or a neighbours' house to complete it, "...and your response to them for having not done that will have an impact on the extent to which the kid feels you understand or that you get them. That you see them." Anne understands that many teacher candidates in her class have always had access to the Internet at home, and so it might be a challenge to imagine that there are still families for who the Internet is still a luxury and "it opens our eyes a bit." Teacher candidates begin to deconstruct things that they have done in their practicum. They realize that they either did reinforce digital divides, or simply had not thought about it. This semester, Anne tried something new! She decided to put four trade books on the syllabus and asked teacher candidates to choose one, read it, and host a book discussion. All four books were designed to understand how technology divides, marginalizes, and misrepresents people. Anne's intention was to provide students with resources for "the real world," to blow open preconceived notions about technology, and to have deeper conversations about technology and equity.

Pedagogy: Teacher candidate resistance.

In terms of pedagogical practice, Anne mentioned that the notion of critical as related to identity and systems and structures of power is something that many teacher candidates have never heard of before, “and there’s so much resistance.” Reflecting on past teaching experiences, Anne explained that teacher candidates understood critical literacy as theory but struggled to put theory into practice. Anne wondered whether teacher candidates feared making their colleagues uncomfortable by sharing ideas that pushed them beyond what they have considered in the past, or whether there was a disconnect between theory and practice in her teaching. She is still working through these pedagogical dilemmas.

Pedagogy: Forge a community of practice.

Finally, I asked Anne what she hopes teachers will take away from her course and bring inside their classrooms. She said that her hope as a teacher and researcher was to “create more equitable and democratic spaces for teachers and learner.” She envisaged schools as spaces where students worked on meaningful problems, where teachers supported students rather than told, controlled or managed, a space where students’ lived experiences were included, and where students “feel what it’s like to be a thinker, to be a problem solver in the presence of an adult who’s not telling them what to do.” She added, “if we want children to become critical agents of change, if we want kids to really be able to see themselves as capable in the face of systems of power that are not necessarily going to move without resistance, or change without active questioning and pressure, they need to have experiences like that in school.” Overall, Anne was most concerned with investing her time and energy into teaching and research that showed teachers how powerful learning can be, and how to create equitable classroom spaces, while also making recommendations for how to solve practical problems.

Syllabus

In this section I engage with Anne's syllabus to uncover the critical and digital literacy integration decisions that transpired. I used critical discourse analysis and corpus linguistic techniques in combination with a CITI framework to look specifically at three questions: *Who is represented in the syllabus? Which values currently define critical literacy? And, what does it mean to be digitally literate?* To answer the aforementioned questions, I inputted the syllabus into the AntConc software and searched for frequency of pronoun usage, collocates, semantic preferences, and semantic prosody. All of the results of the analysis are in Table 6 and described in detail below.

Table 6: Syllabus analysis for case study two

<u>Who is represented?</u>	Frequency	Collocates		Semantic preferences		Semantic Prosody
You	27	-		-		Positive (self-reflect)
We	5	-		-		Positive (flatten hierarchies)
Students	21	-		-		Positive (Independent learners)
Indigenous	-	-		-		-
Aboriginal	-	-		-		-
<u>How is critical framed?</u>						
Critical	3	Critically	1	Power Social inequalities Bias	1 1 1	Positive (functional and critical skills)
<u>How is digital framed?</u>						
Digital	10	Virtual Online Technology(ies)	3 12 16	Literacies Professional Citizens Creators	3 2 1 1	Positive (technology is connected to structures of

		Tools	1	power and issues of social equality)
		Video	1	
		production Inequalities	1	

Who is represented in the syllabus?

As formerly noted, given that I employ an intersectional lens, determining frequency of pronoun usage works well to initiate my exploration of who is represented and how identities are framed in the syllabus. Once I inputted the syllabus into the Antconc software I noticed a frequency pattern of the pronoun “you” (27 results) and “we” (5 results) and noun “student(s)” (21 results). Within the document, “we” referred to both teacher candidates and the instructor as one homogenous group. The pronoun “we” was most often found clustered at the beginning of the course description section (p. 3). Teacher candidates alongside their instructors were encouraged to leverage theoretical models, actively question, and make thoughtful and ethical choices in the course. Remaining references to “we” were found in the title of one book in the course reading list section, and in the weekly schedule of topics section. The syllabus seemingly aimed to establish an egalitarian aura by encouraging teacher candidates to question, use, and leverage technologies alongside the instructor, however, the remainder of the document separates teacher and teacher candidates through the use of the pronoun “you” (27 results) and noun “students” (20 results). I wondered, for what purpose did the instructor decide it was important to separate teacher and teacher candidate identities?

In my investigation, references to “you” in the syllabus detailed designated holidays, clarified whether lecture was in-class or online, reinforced the Bring Your Own Device (BYOD) policy, indicated what tools and devices teacher candidates needed to be prepared to participate in class (p. 4), and explained how to complete and submit the four mandatory online modules (pp. 5, 8). Anne’s use of the pronoun “you” was intentional and was meant to inform students, as

independent learners, about the requirements and expectations of the course. References to “you” were also found under the list of course texts section, which stated that the instructor would share reading titles related to the course that might support teacher candidates as they developed their professional library (p. 5). Rather than ask teacher candidates to individually select and share course content, the instructor had influence over course materials. Kolb (2017) argues that an instructor’s authority over decisions about course content removes responsibility from the learner to critically engage with different ways of thinking and doing and how to take action. Yet, a careful analysis of the syllabus revealed that Anne’s intent was to scaffold novice teacher candidates’ learning of technology and to build their skills along a continuum. Although I advocate the importance of a CITI framework’s requirement to *collaborate* inside the classroom, I do not accept the overall conclusion that in every case full equity means less teacher instruction and more co-created learning. Instructional scaffolding from a knowledgeable educator enabled teacher candidates to develop understandings, dispositions, and conceptual understandings that may have otherwise be unfamiliar to them. Instructional scaffolding is a powerful tool and is oftentimes a necessary first step to effectively build towards a co-created learning environment.

The remainder of references to “you” (41%) were found in the course reading section (p. 7) and asked teacher candidates to actively question the course texts and make deliberate connections to their teaching practice. Not only were teacher candidates asked to question and engage in *continuous self-reflexivity* as they engaged in course readings, they were also encouraged to write down ideas and remaining questions to contribute to *collaborative* based class discussions, and to complete course assignments. In this way teacher candidates were prompted with the dual task of examining their personal connections to course content and to share questions and reflections with their colleagues. Contrary to previous references to “you”

these examples encouraged the elicitation of students' prior knowledge and asked teacher candidates to engage with different ways of thinking and *co-constructing knowledge* by sharing decision-making, thought processes, and possible social action with their classmates. These examples suggest that Anne's syllabus met the requirements of a CITI framework. Individual and collective reflexivity was valued, teacher instruction was lessened, and co-created learning and elicitation of students' prior knowledge were valued inside the classroom, though strategically, not always activated.

In pursuing my analysis, I found that the noun "student(s)" (20 results), in all cases but one (95%), were defined as second year "Bachelor of Education" students (p. 2). References to "student(s)" were used to clarify designated holidays and the instructors contact information and describe where teacher candidates' could access course content. Almost half (45%) of the remaining references were used to describe the course learning objectives for "all students" (p. 3). In this way, "all students" are referred to as one homogenous group, which might help to explain why specific references to teacher candidates' cultural identities are left out of the syllabus (i.e. Indigenous students). Conversely, in the description of the course "student(s)" are also referred to as individual learners. Therefore, although all students fell under the same homogenous group, they were still considered individuals with unique learning needs. The syllabus thus met the requirements of a CITI framework because Anne identified both within group differences, while simultaneously dismantling rigid categories in her classroom.

The last and single reference to "student(s)" outside of teacher candidates is in reference to "K-12 students" (p. 3). Teacher candidates were encouraged to understand digital inequalities that existed in Canada and the implications of these gaps in access and skills for K-12 students (p. 3). Again, although K-12 students were referenced as a homogenous group, they were also

defined as experiencing different digital inequities dependent on their individual identities, which again, meets the requirements of a CITI framework.

Overall, the extent to which the approach to identity politics was integrated in the syllabus met the requirements of a CITI framework. Anne's syllabus had an orientation towards challenging imbalances in representation and power and was concerned with creating a new social order that included people who have been exploited or silenced by current systems of power. Although Anne did not name identities beyond that of "student" in her syllabus, she was explicit about the complex similarities and shared logics across categories of difference through acknowledgment of teacher candidates' diverse learning, skills, and knowledges. In other words, the complexity of identity categories was not necessarily simplified by homogenizing students as a group, rather identity categories remained unnamed to eliminate tokenization and assumption of teacher candidate identities that remained unknown to the professor prior to the first day of class.

How is critical framed?

In this section I deal with references to the word critical (3 results). As formerly mentioned, my investigation of the word "critical" was provoked by observations in educational literature that critical literacy is absent from educational technology discourses and that there is a lack of consensus on the definitive meaning of critical literacy (Leu et al., 2017). The word "critical" was used (3 results) throughout the syllabus, and the word "critically" was found once (1 result). Two references to "critical" (67%) were found in the description of the course section, whereby the syllabus explicitly stated that the course was framed to prioritize "critical thinking" during the production of digital texts, and to prioritize "critical dispositions" to encourage strategic technology integration (p. 3). The word "critically" (1 result) was the focus of one

online module on critical thinking (p. 7).

Due to the limited number of references to the word “critical,” I examined the syllabus a second time looking specifically for semantic preferences that typically align with critical theory including “power,” “social justice,” “social inequalities,” “social change,” “bias,” and “stereotypes.” I focused on terms that had not yet been observed in my analysis. Reference to “social inequalities” (1 result), “power” (1 result), and “biased” (1 result) turned up. Reference to “power” and “social inequalities” were both found in the course learning objectives section and in summary stated that upon course completion teacher candidates would understand power structures in the tech industry that design algorithms, social media, and search engines to reinforce social inequalities (p. 3). Reference to the word “biased” was found in the required course texts section to reference the title of a course text.

Overall, although the word “critical” was seldom used throughout the syllabus, the use of the word “critical” in the learning objectives section resembled the CITI frameworks definition of *critical* because technology skills were framed around both the functional and critical skills necessary for teacher candidates to examine, read, and interrogate digital texts from their particular subject position, including the perspectives, experiences, and knowledges that shape their understandings. In this way, the syllabus achieved a sustainable approach to equity because diverse students were encouraged to learn to use the tools they had in new, critical, and creative ways. The way technology integration was framed supported teacher candidates to analyse and critique unequal power relations, unequal politics of representation, and knowledge production and encouraged teacher candidates to question how, why, and the way they thought about technology and to begin to think of this online reality ‘otherwise’.

How is digital framed?

In this section, I focus on what values are encoded in the curriculum to frame educators' responsibility towards digital literacy teaching and learning practices. I chose to investigate the use of the word digital to determine how digital literacy is pedagogically framed, and the extent to which it follows traditional literacy pedagogies or the CITI framework. To investigate references to digital (10 results) I looked at the semantic preferences, which include: literacies (3 results), professional (2 results), citizens (1 result), creators (1 result), tools (1 result), video production (1 result), and inequalities (1 result).

Digital literacies (3 results) was referenced sequentially in the syllabus under the course learning objectives section and stated that upon completion of the course teacher candidates would understand digital literacies definitions, skills, instructional methods, structures of power and social inequalities in the tech industry, and how to navigate privacy concerns while teaching with technology (p. 3). Semantic preferences such as inequalities (1 result) and video production (1 result) were also found under the course learning objectives section and referenced sequentially. Teacher candidates were expected to have acquired new skills including coding, screencasting, 3D design and printing, digital video production, and knowledge of various apps. They were also expected to understand the digital divides that exist in Canada for K-12 students (p. 3). The semantic preference "professional" (2) was also found under the course learning objectives section and stated that upon completion of the course teacher candidates would have established a professional and meaningful digital presence (p. 3). Alternatively, semantic preferences such as "tools," "citizens," and "creators" were referenced in the description of the course, which stated for example that teacher candidates would consider the evidence based use of "digital tools" to teach all students to become "social-justice oriented digital citizens" and

“critical digital creators” (p. 3).

To develop a deeper analysis, I looked at frequent collocates of “digital” referenced in the syllabus and found “virtual” (3 results), “online” (12 results), and “technology(ies)” (16 results). Virtual (2) was located under the weekly schedule section and referred to the planned weekly class topic of “virtual reality” and “augmented reality” (p. 6) and was also found in the title of a course reading (p. 7). Integration of the word “online” was used approximately half of the time (42%) in reference to the four required “online module” assignments. One reference was found under the Bring Your Own Device (BYOD) policy to ensure that teacher candidates were prepared to participate in class and online (p. 4). Additional references to “online” were found under the course learning objectives section which stated that upon completion of the course, teacher candidates would have developed and designed a professional online portfolio to claim their professional path (p. 3). The remainder of references to “online” were either used to indicate that the course was half online and half in-class (17%), or under the weekly schedule of topics, which included online inquiry and online teaching and learning methods (25%).

Moreover, reference to the word “technology(ies)” (18 results) throughout the syllabus was most often used in association with the semantic preference “integrate/integrator” (9 results). Out of the nine results found, the semantic preference “integrate” was referenced (33%) in the course title and course description, which helped to explain its frequent use throughout the syllabus. Other references to “integrate” were found under the course learning objectives section (22%). One example from the syllabus stated that upon course completion teacher candidates would be certified and prepared to lead in schools on issues of technology integration (p. 3). Also, under the Bring Your Own Device policy (BYOD) technology integration was referenced once as a means to reiterate that the course was indeed primarily about learning how to integrate

diverse technologies inside the classroom (p. 4). The remainder of references were to the online module topics, the class reading list, the weekly schedule section, the course reading section, and the course learning objectives section of the syllabus.

Overall, the use of the word “digital” and accompanying collocates met the requirements of a CITI framework because technologies were effectively connected to structures of power and issues of equity. Teacher candidates were encouraged to value their complex identities and represent their professional selves through a wide range of digital texts and digital creations. Technology integration including the use of digital devices, apps and social technologies were meant to be used as a classroom tool to empower students to claim identification in online spaces and not only affirm their positions within society, but also to add to the body of knowledge on the Internet through group and self-made *creations*. When it came to technology, the syllabus effectively coupled the critique of transmitted online messages with digital texts to enhance students’ creative potential to affect social change. It also enabled the possibility for teacher candidates to trace and intervene on uneven power relations in digital spaces. Teacher candidates’ lived experiences were expressed through non-traditional modes of digital representation, which provided opportunities for them to think and act through resiliency. In this way, the syllabus met the majority of the requirements of a CITI framework with one exception – peer and self-assessment. Peer and self-assessment were not referenced in the syllabus but are a standard requirement of a CITI framework. It is possible that peer and self-assessment strategies were present in a classroom context, but there was no way to tell based on analysis of the syllabus.

Curriculum

In this section I sought to understand who is represented and how identities are framed in “The Ontario Curriculum Grades 1-8 Language” (2006). Following the critical discourse and corpus linguistic analysis of text suggested by Mautner (2009) I inputted the curriculum document into AntConc and began to search for frequency of pronoun usage, collocates, semantic preferences, and semantic prosody. As previously noted, given that I employ the CITI framework 6 C’s to identify themes, determining the frequency of pronoun usage works well to initiate my exploration of who is represented in the texts, and how identities are framed. All of the results of the analysis are in Table 7 and described in detail below.

Table 7: Ontario curriculum analysis

<u>Who is represented?</u>	Frequency	Collocates		Semantic preferences		Semantic Prosody
Teachers	395	Appropriate, Assess/assessing/assessment, Evaluation/ evaluating, Instructional, skills				Positive (semantic role of actor)
Principle				Partnership Community-builder Curriculum Individual Education Plan (IEP) Learning		Positive (semantic role of actor)
Community partners	4			Resource Support Modelling Mentoring		Positive (semantic role of actor)
Parents	29			Supporting Encouraged Involved		Positive (semantic role of actor)
Students	453	You They	47 6	ESL Diverse	1 1	Both (success

First Nations		Them Their Boys Girls	38 3 19 0 55 6 13 10	Diversity Literacy/ Reading & Writing Girls Boys	1 7 1 5 3 7 7	dependent on teacher instruction) Negative (rigid gendered binaries and stereotypes)
	4	-				Both (included and respected but processes of historical dominance are not exposed)
	12	-				Both (included and respected but processes of historical dominance are not exposed)
Aboriginal						
How is critical framed?						
Critical	25			Creative Thinking Literacy Review Stance Independent Metacognitiv e Understandin	1 1 8 6 1 1 1 1 1	Both (functional and critical literacy skills, but emphasis on binary notions i.e.

How is digital framed?**Digital**

	Critically	16	g Way Ideas and information Fairness, equity, and social justice Themselves and others Perspectives and influences of media and texts Music and art Language Points of view	1 3 1 1 1 1 1 1	good or bad)
0	Media literacy Media texts Media form	30 20 6 48	Viewers Product(ion) Creators	5 4 8	Both (meets most requirements of new literacies but fails to address pedagogical differences between new and traditional literacies)

Who is represented and how are these identities framed?

Once “The Ontario Curriculum Grades 1-8 Language” (2006) was inputted into the AntConc software I noticed a high frequency pattern of the pronouns “you” (476 results), “they”

(383 results), “them” (190 results), and “their” (556 results) and took this as a lead to inquire into the discursive construction of identities and relationships within the texts. Upon further investigation I found that “you”, “they”, “them”, and “their” often refer to the noun “students” (453 results). To determine who served as distinct from students, I investigated other nouns and found teacher(s) (395 results), principals (7 results), community partners (4 results), parents (29 results), and First Nations (4 results) and Aboriginal (12 results). The trend of nouns including “students”, “teacher(s)”, “principals”, “community partners”, and “parents” came as no revelation because at the end of chapter one in “The Ontario Curriculum Grades 1-8 Language” (2006) there was a section titled, “Roles and responsibilities in language education” (pp.6-7), which specifically emphasised the roles and responsibilities of these four groups. This emphasis led me to begin my investigation by asking, “how are community partners, parents, principals, teachers, and students conceptualized in the “Roles and responsibilities in language education” section, and what is their relationship to one another?” After I briefly answer these two questions, I delve deeper into how “students”, and “First Nations” and “Aboriginal” peoples are conceptualized throughout the curriculum document.

Roles and responsibilities: Community partners, principals, students, teacher(s).

Collocates of teachers include “appropriate”, “assess/assessing/assessment”, “evaluation/evaluating”, “instructional”, and “skills”. Within the “The Ontario Curriculum Grades 1-8 Language” (2006) teachers were encouraged to use a variety of instructional and assessment strategies to develop students’ literacy skills and meet curricular standards. Teachers were expected to provide opportunities for students to think out loud and practice new skills, and students were expected to refine those skills by implementing teachers’ feedback on formative assessments. Teachers were also asked to assign tasks to students “that promote the development

of higher-order thinking skills” so that they could become effective communicators (p. 7). In the “The Ontario Curriculum Grades 1-8 Language” (2006) teachers fill the semantic role of actor because they “help” students and were considered in control of students’ learning. As a case in point, the curriculum stated that, “Teachers are responsible for developing appropriate instructional strategies to help students achieve the curriculum expectations, and appropriate methods for assessing and evaluating student learning” (p. 6). Although the curriculum document addressed the roles and responsibilities of a variety of people, the document reads as if it were intended for an audience of teachers to understand not only their roles, but the roles and responsibilities of others in the school system, not vice-versa.

Semantic preferences associated with principals included “partnership”, “community-builder”, “curriculum”, “Individual Education Plan (IEP)”, and “learning”. In summary, principals were considered responsible for building partnerships with parents and teachers, and community partners “to ensure that each student has access to the best possible educational experience.” The principal was also considered “a community builder who creates an environment that is welcoming to all, and who ensures that all members of the school community are kept well informed” (p. 7). The principals’ responsibilities included enhancing learning and learning environments and ensuring that resources, curriculum and IEP’s were properly developed and implemented. Principal(s) filled the semantic role of actor.

Semantic preferences associated with community partners included “resource”, “support”, “modelling”, and “mentoring” and each collocate was in reference to language/literacy development. The role of community partners was to become a resource in students’ language development. In this particular section, community partners filled the semantic role of actor, for example: “community partners can provide support for students with literacy needs.” However,

the school board was in control of coordinating with and recruiting volunteers from community partnership programs to participate in literacy programs in and outside of school. In other words, although community partners filled the semantic role of actor, it was not their responsibility to reach out to schools or school boards; rather schools and school boards were positioned as in control of community partner recruitment and responsibilities.

Semantic preferences associated with parents included “supporting”, “encouragement”, and “involvement”. The responsibility of the parent is to “work with teachers to improve their child’s learning” (p. 6). Parents could do so by attending parent-teacher interviews, encouraging their child to read, talk, and play with literacy at home or join a literacy program in the community. Parents filled the semantic role of actor in every occurrence, for example: “parents can support students’ learning” (p. 6). Parents are thus positioned as able to contribute to their child’s success.

Semantic preferences associated with students included “skills”, “develop”, and “learning”. Students were responsible for their own gradual learning development. Improved achievement, progress, and learning was made possible through effort, persistence, responsible risks, management of impulses, and listening with understanding. Mastering new language skills required study, work, and cooperative skills, and engagement with recreational literacy activities of interest inside and outside of school. Students both did and did not fill the semantic role of actor in this particular section because student progress was written as determined by effort, but also by teachers’ instruction. As a case in point, the document stated that, “With appropriate instruction and with experience, students come to see how making an effort can enhance learning and improve achievement” (p. 6). So, while students did have control over their learning, their academic success was primarily dependent on their teachers’ ability to instruct. Additionally,

while the roles and responsibilities of students were clear, this section did not describe the identity of the student population, and so I will delve into this later in the analysis.

Student population: Diversity, respect, and cultural incorporation.

In the curriculum under “Planning language curriculum” (p. 24) teachers were considered responsible for planning language programs to “help” students with special education needs, requiring modification or accommodation, or both (11 results). Teachers were also responsible for working “with” special education teachers to prepare students “for living with the highest degree of independence possible” (p. 24), for example: “[teachers] have a responsibility to help all students learn, and they work collaboratively with special education teachers, where appropriate, to achieve this goal” (p. 24). In this case, I saw a pattern emerging where teachers were collaborators with other adults in schools, but their relationship with students was framed as teaching for or to help. In other words, teachers were positioned as capable helpers leading students towards learning progress, and students were positioned as in need of the teachers help.

Teachers were also asked to plan programs to support English language learners (11 results) and meet their needs through English as a Second Language (ESL) programs and/or English Literacy Development (ELD) programs. Although “multilingual” was only mentioned once, the context in which it is used was revealing (p. 26):

Ontario schools have some of the most multilingual student populations in the world. The first language of approximately 20 per cent of the children in Ontario’s English-language schools is a language other than English. Ontario’s linguistic heritage includes several Aboriginal languages; many African, Asian, and European languages; and some varieties of English, such as Jamaican Creole.

Teachers were responsible for ensuring that students’ backgrounds were supported, viewed as an

asset in the classroom, and incorporated into instruction and resources. Framing of the relationship between teachers and students was in the context of reciprocal “support” – students should receive support from teachers, and teachers should “find opportunities to bring students’ languages into the classroom using parents and community members as a resource” (p. 26).

Lastly, teachers were encouraged to implement antidiscrimination education in the language program (5 results). The terms “diverse” (17 results) and “diversity” (15 results) were used most often to describe students. In the Glossary section of the curriculum, diversity is defined as (p. 153):

...the variety of groups of people who share a range of commonly recognized physical, cultural, or social characteristics. Categories of groups may be based on various factors or characteristics, such as gender, race, culture, ethnicity, sexual orientation, ability/ disability, age, religion, and socio-economic level.

Students were conceptualized as a group made up of diverse background knowledge and experience, cultural and linguistic backgrounds, identities, and diverse literacy learning needs. Students’ world/society was most often described as “diverse” (2 results), “multicultural” (4 results), and “multilingual” (1 result). Teachers were not only asked to recognize, be sensitive towards, and respect student diversity, but also to incorporate materials that “reflect the diversity of Canadian and world cultures, including the cultures of Aboriginal peoples” (p. 11). Again, the relationship between teachers and students in this context was understood as reciprocal and collaborative to ensure diversity was respected and included in the classroom.

I used a CITI framework to answer key questions about identity politics and I assert that, “The Ontario Curriculum Grades 1-8 Language” (2006) does meet the requirements of a CITI framework. My analysis suggested that, “The Ontario Curriculum Grades 1-8 Language” (2006)

encouraged teachers to challenge imbalances in power and representation because students were not assumed to be a homogenous group, they were assumed to be different and diverse. Additionally, students were part of the learning and decision-making process in terms of resources and assignments. Regardless of identity or ability, students were represented and valued as capable learners. Students were the root of understanding and narrative, and classroom resources and assignments reflected this diversity. Overall, “The Ontario Curriculum Grades 1-8 Language” (2006) acknowledged the complexities of lived experiences, valued engaging different forms of knowing, and encouraged teachers to include and develop a multitude of resources for students not only to learn to perceive and think otherwise, but also to share and apply their diverse lived experiences in a classroom environment. Relatedly, the knowledge that learners might lack about various societies, cultures, and contexts was perceived as an opportunity to learn new perspectives and to transform students’ identities, views, and relationship with those different from their own.

One concern I have, however, is that the term boys (13 results) and girls (10 results) were used throughout the curriculum, which exposed a rather rigid, exclusionary, and binary definition of gender. Majority of references made to “boys” and “girls” were found together to either guide the selection of classroom resources that appeal to boys or girls, or to facilitate lessons on how to “identify the purpose and intended audience of some simple media texts” (p. 45). According to “The Ontario Curriculum Grades 1-8 Language” (2006) boys are “interested in informational materials, such as manuals and graphic texts” as opposed to girls who are interested in “works of literature” (p. 29). Although traditional literacy practices differ by gender, new literacies including, “Internet materials, such as website articles, e-mail, and chat messages, outside the classroom” (p. 29) are said to be used by both sexes. The purpose of differentiating boys’ and girls’ resources was

to support teachers to find classroom literacy strategies that engage boys in reading and writing to improve boys' literacy skills.

References made to support boy's and girl's understandings of media texts were found under the heading "Specific Expectations" for "Understanding Media Texts" (p. 45). As a case in point, one expectation of students was to watch an advertisement of two boys playing with a car and decipher the overt and implied media message. According to "The Ontario Curriculum Grades 1-8 Language" (2006) the overt message was, "This toy is fun" and the implied message was, "This toy is for boys" (p. 45). Students were then prompted to decipher whether the roles of girls and boys are similar or different in the television shows that they watch (p. 45). Students were asked to "think of an advertisement made for a specific audience – for example, for girls or boys..." (p. 45). Not once were students encouraged to critically read or question these overt or implied media messages that reinforce gendered stereotypes.

I acknowledge that context matters and that during the time the curriculum was written (2006) the problem of boys' literacy (see Disenhaus, 2015) was at the forefront of educational debate – identity politics and gendered stereotypes had not yet reached the *forefront* of widespread educational concern. However, overt gender stereotypes, and exclusionary and rigid gendered binaries were considered a vital concern– a concern to be taken into account by future policy developers, and current teachers using, "The Ontario Curriculum Grades 1-8 Language" (2006) as a guide.

Aboriginal and First Nations students.

As previously mentioned, the noun "Aboriginal" (11 results) frequently appeared in "The Ontario Curriculum Grades 1-8 Language" (2006). In the Glossary of, "The Ontario Curriculum Grades 1-8 Language" (2006) Aboriginal persons were described as: "A person who is a

descendant of the original inhabitants of North America. The Canadian Constitution (1982) recognizes three primary groups as Aboriginal peoples: Indians, Inuit, and Métis” (p. 150). “Aboriginal” was conceptualized as a group included in, “Ontario’s linguistic heritage” who might be considered an ELA student and could benefit from ELD instruction because of “limited opportunities for formal schooling” (p. 27). One of the principles that underlie the language curriculum was to connect reading activities to diversity. The curriculum stated that reading activities were meant to expose students to materials that reflect Canadian diversity and world cultures, including Aboriginal peoples (p. 5). Relatedly, teachers were asked to routinely use materials that reflect Aboriginal peoples through the use of diverse texts such as poetry, fables, and traditional Aboriginal stories (p. 67).

First Nations (4 results) appeared twice (50%) in “The Ontario Curriculum Grades 1-8 Language” (2006) to guide teachers understanding of First Nations learning strategies, in particular to learn to use a talking stick. For example, one of the teacher prompts for active listening stated: “When First Nations peoples use a talking stick, a person speaks only when holding the talking stick, while the rest of the group listens. Today we are going to speak and listen in a similar way” (p. 50). A second example was referenced as a footnote and it read:

Talking sticks were originally used by some First Nations peoples to ensure impartial and fair council meetings, but their use is becoming popular again in talking and sentencing circles. A person speaks only when holding the talking stick, while the rest of the group listens silently. (p. 51)

The remaining references (50%) existed as an example of how to “write short texts using a variety of forms (e.g., ...a letter from the point of view of a settler, describing how First Nations people have taught the settlers to adapt to their new environment” (p. 71), and instruct how to

produce a variety of media texts for specific audiences and purposes. The example provided states, “a travelogue illustrating the journey of an early Canadian explorer, including contacts with First Nations peoples” (p. 119).

The pattern that emerged in my analysis was that the noun “Aboriginal” was included in the curriculum as a member of the group “student(s)”. Teachers were encouraged to incorporate Aboriginal resources and content, and students were encouraged to value and respect diversity of culture, including Aboriginal culture. In reference to assignments and classroom tasks, however, students were only asked to write from the perspective of the “Canadian explorer” or “settler.” The choice to write from an Aboriginal perspective was nonexistent. There was also no option to move beyond how, “First Nations people have taught the settlers” – no alternative to engage with the conflictual relationship between settler colonizers and Aboriginals, nor to grapple with the impact of Canada’s colonial past on current relations and dominant discourses. According to a CITI framework reading history requires that processes of dominance and challenges to dominance be exposed. Students should be encouraged to read from different “angles of vision” to unpack an author’s textual strategy. Indeed, rather than cling to established frameworks of history, reality, or truth, a CITI framework reminds us that simplicity is a hegemonic move.

How is critical thinking framed?

Now I turn to the word “critical” (25 results). As previously mentioned, my investigation was prompted by observations in educational literature that claim there is an absence of critical literacy in educational technology, and uncertainty about the evaluative meaning of critical literacy (Leu et al., 2017). At this point in my analysis I knew there was a Glossary section in, “The Ontario Curriculum Grades 1-8 Language” (2006) and so I searched there for definitions of “critical literacy” and “critical thinking.” I found that “critical literacy” was defined as (p. 152):

The capacity for a particular type of critical thinking that involves looking beyond the literal meaning of texts to observe what is present and what is missing, in order to analyse and evaluate the text's complete meaning and the author's intent.

Critical literacy goes beyond conventional critical thinking in focusing on issues related to fairness, equity, and social justice. Critically literate students adopt a critical stance, asking what view of the world the text advances and whether they find this view acceptable.

Alternatively, "critical thinking" was defined as (p. 152):

The process of thinking about ideas or situations in order to understand them fully, identify their implications, and/or make a judgement about what is sensible or reasonable to believe or do. Critical-thinking skills used in reading include examining opinions, questioning ideas, interpreting information, identifying values and issues, detecting bias, detecting implied as well as explicit meanings. Critical-thinking skills used in writing include questioning, hypothesizing, interpreting, inferring, analysing, comparing, contrasting, evaluating, predicting, reasoning, distinguishing between alternatives, making and supporting judgements, synthesizing, elaborating on ideas, identifying values and issues, detecting bias, detecting implied as well as explicit meanings.

Relatedly, within the "Principles underlying the language curriculum" section of the curriculum "critically thinking" was defined as, "...the use of higher-level thinking skills including critical literacy skills" (p. 5). To develop a better understanding of how higher-level thinking was conceptualized as a critical literacy skill, I looked at the Glossary section of the curriculum, which stated (p. 155):

The process of mentally manipulating and transforming information and ideas in order to solve problems, acquire understanding, and discover new meaning.

Higher-order thinking skills include focusing, information gathering, combining facts and ideas, organizing, analysing, synthesizing, generalizing, integrating, explaining, hypothesizing, interpreting, evaluating, drawing conclusions.

With a firm grip on the definitional usage of the term “critical”, I followed Mautner’s (2009) instruction, and looked for semantic preferences to “critical” – a sequence of words that co-occur more often than expected. Collocates included “creative” (11 results), “thinking” (8 results), “literacy” (6 results), and “review” (1 result), “stance” (1 result), “independent” (1 result), “metacognitive” (1 result), “understanding” (1 result), and “way” (1 result).

I found that “critical” and “creative” occurred most often in sequence together. Combined references were either used to describe the “Use of critical/creative thinking processes” (p. 20) or when to implement them (5 results). Alternatively, the words “critical” and “creative” were used to guide teachers’ assessment of students thinking skills (6 results) or as explained in the curriculum, to evaluate, “The use of critical and creative thinking skills and/or processes” (i.e. limited effectiveness; high degree of effectiveness) (p. 20).

A second common reference to “critical thinking” was found most often in the glossary section (5 results) and was described as in line with higher order thinking skills (i.e. Bloom’s Taxonomy). However, upon further investigation, references made beyond the Glossary section explicitly stated issues related to bias, power, (in)justice, and antidiscrimination. As a case in point, the Antidiscrimination Education section stated that critical thinking was described as:

...the ability to identify perspectives, values, and issues; detect bias; and read for implicit as well as explicit meaning. In the context of antidiscrimination, critical

literacy involves asking questions and challenging the status quo, and leads students to look at issues of power and justice in society. The language program empowers students by enabling them to express themselves and to speak out about issues that strongly affect them. (p. 29)

A second example from the “Media Literacy” section defined critical thinking as it applied to media messages and products. For example, students were expected, “...to differentiate between fact and opinion; evaluate the credibility of sources; recognize bias; be attuned to discriminatory portrayals of individuals and groups, including women and minorities; and question depictions of violence and crime” (p. 13). Consequently, although the majority of references to critical thinking were found in the “Glossary” section and stressed functional critical thinking skills, references made throughout the curriculum document tended to focus on complex analytic skills that were more in line with a CITI frameworks definition of *critical*, which is meant to address unequal power relations, politics of representation, and knowledge production.

To further investigate the evaluative meaning of critical literacy I inquired into how, why and the extent to which critical literacy was referenced and defined throughout the curriculum. My search determined that similar to critical thinking, critical literacy was most often referenced in the Glossary (4 results). Within the section, “Principles underlying the language curriculum” critical literacy served as an extension of critical thinking processes, and served to emphasize “...the use of higher-level thinking skills, including critical literacy skills, to enable students not only to understand, appreciate, and evaluate what they read and view at a deeper level, but also to help them become reflective, critical, and independent learners and, eventually, responsible citizens” (p. 5). It appeared in the Glossary section that although critical literacy had its own separate definition and purpose, it served as a hypernym to critical literacy within “The Ontario

Curriculum Grades 1-8 Language” (2006).

To understand the definitional and instructional usage of critical literacy further, I searched for the concordance of “critical,” which was “critically” (16 results). Collocates of critically specified exactly what students were encouraged to think critically *about* and/or *how* to think critically. Findings suggested that students were asked to think critically about “ideas and information” (3 results), “fairness, equity, and social justice” (1 result), “themselves and others” (1 result), “perspectives and influences of media and texts” (1 result), “music and art” (1 result), “language” (1 result), and “points of view” (1 result). Students were asked to think critically by using skills such as listening, reading, interpreting messages, texts, and media, thinking independently, reviewing information with a friend, and adopting a critical stance.

Within “The Ontario Curriculum Grades 1-8 Language” (2006) critical literacy was framed as a method to evaluate reliability, bias, and accuracy, separate propaganda from fact, and generate insights from a multitude of texts. Taken together, it checked all the boxes, particularly according to a CITI frameworks vision for *critical* literacy. Although pedagogical approaches to traditional and new literacies were not deliberately framed as separate, they were discussed as separate features, which established that there were different literacy strands that required separate instruction.

Based on a CITI framework, I determined that the use of the word “bias” was about disrupting norms and challenging the status quo but was also connected to the process of unveiling true or false information. As a CITI framework suggests, students should learn to dismiss notions of biased or unbiased, true or false, right or wrong, and instead space and time for learners to reflect on their own assumptions and the assumptions of others should be prioritized. Learners should be encouraged to critically reflect on the processes of their own

cultures and contexts so that they can take ethical responsibility for their decisions and actions and imagine different futures. As a CITI framework points out, *critical* literacy is about unsettling taken-for-granted norms, and reworking hierarchies and power structures with a purpose to dismantle norms. Thus, while the curriculum was explicit about encouraging students to notice discriminatory portrayals of individuals and groups, and question depictions of violence and crime, there was risk of students' developing judgement about various social and cultural practices, if their analysis was framed as binary (good or bad). For future policy development, I recommend reframing how teachers and students conceptualize and read bias as an extension of methods of critical analysis.

How is digital framed?

In this section, I focused on what values were encoded in the curriculum to frame educators' understandings of digital literacy practices and pedagogies. I chose to investigate the use of the word digital to determine how digital literacy was pedagogically framed, and whether and to what extent it followed traditional literacy pedagogies or new literacies pedagogies. Although this section dealt with the term "digital" the curriculum specifically emphasised "media literacy" (30 results) as one of the four strands of the language curriculum, and so I focused my attention there. In my investigation I found that the most recurrent collocate of "media literacy" was "media texts" (206). As I examined the curriculum in more detail, I realized that media texts and media literacy were very much intertwined, and so, as I continued my analysis, I looked at them as a single definitional entity. In the Glossary, media literacy was described as (p. 157):

An informed and critical understanding of the nature of the media, the techniques used by them, and the impact of these techniques. Also, the ability to understand

and use the mass media in an active, critical way. See also five key concepts of media literacy.

Following curricular instructions, I turned to the five key concepts of media literacy, which are (p. 155):

1. All media are constructions.
2. The media contain beliefs and value messages.
3. Each person interprets messages differently.
4. The media have special interests (commercial, ideological, political).
5. Each medium has its own language, style, form, techniques, conventions, and aesthetics.

As previously noted, “media literacy” was considered one strand of the literacy curriculum with an entire section dedicated to it (see p. 13). Within this section, “media literacy” was achieved as a result of critically analysing and interpreting messaging and art, such as images, graphics, sounds, and words of various media texts including any object, work, or event that communicates meaning to an audience (i.e. songs, films, video games, advertisements, action figures, CD covers, billboards clothing, television shows, newspapers, magazines, websites, and photographs). Students were encouraged not only to read media texts but to seek texts out that they relate to on a personal level (see p. 6, 13).

The purpose of media literacy as described in, “The Ontario Curriculum Grades 1-8 Language” (2006) was to understand, interpret, and uncover the hidden and explicit influences of media texts on students’ lives by learning how “to differentiate between fact and opinion; evaluate the credibility of sources; recognize bias; be attuned to discriminatory portrayals of individuals and groups, including women and minorities; and question depictions of violence and crime” (p. 13). A second purpose was to learn to produce media texts, which explains why

product(ion) (4) and creators (8) arose as semantic preferences to media. Teachers were asked to provide students with opportunities in class “to use available technologies to create media texts of different types (e.g., computer graphics, cartoons, graphic designs and layouts, radio plays, short videos, web pages)” (p. 13). Creating media texts was considered important because the pervasive power and influence of media in students’ lives and society means it was necessary to expand students’ range of expressive and communicative capabilities, and career options (p. 13). Students were specifically encouraged to explore the significance and use of media techniques and to consider the roles of the producer and the viewer in making meaning of media texts – “viewers” (5 results) is also a semantic preference to “media literacy.” Moreover, the media literacy strand had four expectations (p. 14):

1. demonstrate an understanding of a variety of media texts;
2. identify some media forms and explain how the conventions and techniques associated with them are used to create meaning;
3. create a variety of media texts for different purposes and audiences, using appropriate forms, conventions, and techniques;
4. reflect on and identify their strengths, areas for improvement, and the strategies they found most helpful in understanding and creating media texts.

The majority of the references made to “media literacy” beyond the designated section in the language strand were found in the “Overall Expectation” section and “Teacher Prompts” section from Grade 1 – Grade 9 and consistently related to the four expectations listed above. Other references to media text (206) or media forms (48) were often listed as a type of text or example of media text that students are encouraged to engage with, for example: “Grade 1 students should have access to oral, print, and media texts with familiar topics and structures” (p.

33). Pedagogically speaking, there was little instruction on how to incorporate media literacy beyond one phrase scattered throughout the curriculum from Grades 1- 8, which stated: “Modelled, shared, interactive, and guided learning experiences provide Grade 2 students with direction and support in creating oral, written, and media texts” (p. 33).

Overall, the way digital literacy was framed in “The Ontario Curriculum Grades 1-8 Language” (2006) curriculum met many of the CITI frameworks requirements. For instance, the Internet was conceptualized as a new literacy skill important to harness to succeed in the twenty first century. Digital literacies were conceptualized as multimodal and multifaceted. New knowledge was considered a requirement to become digitally literate. The Internet was understood as a phenomenon that impacted our relationship with other people. Online research and reading were understood to be directed by student experiences and background knowledge. Students were also encouraged to engage in online comprehension processing by: (1) identifying a problem and then (2) locating, (3) evaluating, (4) synthesizing, and (5) communicating information. In addition, online and offline texts were considered different and creating digital texts was considered key to becoming digitally literate. Lastly, collaborative work was valued in the classroom. What was missing from the curriculum was the concept that teachers’ roles change in a literacy classroom. I acknowledge that collaboration between students and teachers was valued throughout the curriculum, but this was not directly connected to digital literacy integration and did not include any concrete instructional strategies for teachers. Further, although critical literacy was connected to digital literacy, the purpose of detecting bias and discriminatory portrayals of individuals and groups and questioning depictions of violence and crime was to evaluate credibility and differentiate fact from opinion. As previously noted, and as a CITI framework suggests, the aim of critical literacy for social justice is to move beyond

binary notions of good and bad, true or false, biased and unbiased, and instead unsettle taken-for-granted norms, gather evidence from all perspectives, and critically engage with those perspectives without hierarchizing them.

Survey Questionnaire Responses

Questionnaire responses.

At the end of Anne's course, teacher candidates participated in a seven-question web-based survey questionnaire. The questionnaire, which was designed to take approximately 10-15 minutes to complete, included five sections of questions. The first section asked teacher candidates to describe and define their level of critical digital literacies. The second section of the survey focused on respondent's experiences incorporating critical digital literacies in their practicum and classroom teaching experiences. The third section asked teacher candidates to describe the skills, tools or pedagogical approaches that they learned about in their respective course. The fourth section asked questions about the effectiveness and usefulness of provincial curriculum documents in preparing teacher candidates to incorporate critical digital literacies. The fifth and final section asked teacher candidates about the skills and resources they still needed to feel confident and competent to effectively integrate critical digital literacies in their future classrooms. All of the results of the analysis are in Table 8 and described in detail below.

Table 8: Case study two survey questionnaire responses

Survey Questions	Teacher candidate responses (N=44)	
How would you describe your current level of critical digital literacies?	My knowledge is limited.	14%
	I have a pretty good level of knowledge.	77%
	I am very confident in my knowledge and could explain the importance of critical digital literacy to others.	11%
What is your definition of critical digital literacy?	Asking critical questions to locate, validate, and judge information online	29%

	from diverse perspectives	
	Developing skills, competencies, and analytical perspectives that allow us to use, understand, curate, and create digital tools and content	27%
	Understanding how technology recreates bias, stereotypes, and -isms and reflecting on how these processes influence equity and access	25%
	Understanding the affordances and constraints of technology	14%
	Understanding how to use technology to meet content-specific learning goals	9%
	Understanding how to use digital tools to accomplish specific tasks	9%
	Being a good online citizen by engaging in safe, ethical and inclusive behaviour	9%
Have you had the opportunity to use a critical digital literacy approach in your current classroom or in your practicum experience?	Yes	43%
	No	57%
Please list up to three skills, tools or pedagogical approaches that you've learned about in your course.	How algorithms shape values and ideologies	41%
	How internal and external biases, sexism, and racism culminate online	23%
	How to engage, enhance and extend	18%

	learning and inclusivity	
	How to think critically about how groups are represented and impacted online	14%
	How to conduct research and decipher false information online	5%
	Understanding safety and privacy online	9%
	Understanding of the constraints and affordances of technology	7%
	Understanding digital Citizenship	4%
	Understanding how personal data is collected online	4%
	How to develop digital assessment tools	4%
	How to identify purpose, form, and stakeholders	2%
	How to empower students to drive change and voice their opinions online	2%
Do you plan to use content learned from the course in your current or future classroom or practicum?	Yes	91%
	No	7%
	Not yet	2%
Has the curriculum been a supportive resource for you when you design and implement critical digital literacies lesson plans in your current classroom or practicum experience?	Yes	29%
	No	50%
	Unsure	4%
Please list up to three additional supports, skills and/or resources that you need to feel	Hands-on professional development opportunities	

confident and competent to teach critical digital literacies? What do you wish you knew more about?	Practical application resources
	Sample lesson plans
	Scholarly research on students' perspectives and experiences using technology
	Rubrics
	Competencies checklist
	How to support diverse students' learning preferences and abilities
	Meet curricular expectations
	Understand students' perspectives and base-level knowledge
	Online privacy and safety
	Online advocacy
	Digital citizenship
	Fake news
	Teaching equitably
	Additional knowledge of online applications and platforms
	A community of practice
	Administrative and tech support
	Access to digital devices in school
	Knowledge of programs that provide affordable devices to schools

I collected 44 questionnaires from the second research site, which was a response rate of 100%. Answering the initial question, *What is your current level of knowledge of critical digital literacies?* Six participants (14%) selected the response, “My knowledge is limited. Critical digital literacy is not really on my radar.” Thirty-three (77%) participants selected the response, “I regularly incorporate critical digital literacy into my teaching practice, so I feel I have a pretty good level of knowledge” and five (11%) respondents selected “I’m a digital literacy junkie. I am very confident in my knowledge and could explain the importance of critical digital literacy to others.”

When asked to provide their definition of critical literacy, teacher candidates’ responses fell under these seven categories: asking critical questions to locate, validate, and judge information online from diverse perspectives (29%); developing skills, competencies, and

analytical perspectives that allow us to use, understand, curate, and create digital tools and content (27%); understanding how technology recreates bias, stereotypes, and -isms and reflecting on how these processes influence equity and access (25%); understanding the affordances and constraints of technology (14%); understanding how to use technology to meet content-specific learning goals (9%); understanding how to use digital tools to accomplish specific tasks (9%); and being a good online citizen by engaging in safe, ethical and inclusive behaviour (9%).

When I asked respondents, *Have you had an opportunity to use a critical approach to technology integration in your practicum experience?* Nineteen teacher candidates responded “yes” (43%) and twenty-five responded “no” (57%). Those respondents who said “yes” incorporated critical digital literacy in grades 4 to 12 in subject areas related to Canadian history, media literacy, English, chemistry, French, health and media, science, music, health sciences, and Indigenous studies. Teacher candidates used digital applications and programs such as Pear deck slides, Scratch Jr., Kahoot, Google Calendar, Play Posit, and Zapatopia. Lessons revolved around how to locate, validate, and judge information online from diverse perspectives; how to critically examine media advertisements, music videos, informational videos, and brochures; how to navigate censorship online, create a positive digital footprint, website, online presentation, or video; and how to identify bias and stereotypes online. Thirteen (29%) of the twenty-five teacher candidates who responded “no” to incorporating critical digital literacies in their practicum said that they looked forward to doing so in the future and planned to incorporate lessons on Twitter literacy, how to gather, question, and analyse information online, and how to facilitate discussion on issues of representation and power. Challenges that hindered teacher candidates’ from incorporating critical digital literacy lessons included limited access to devices,

Internet service and tech support both at school and at home, as well as restricted class time, and school rules and regulations. Teacher candidates also lacked confidence and pedagogical competency to connect technology to curriculum expectations, accommodate exceptional students (i.e. vision impairments; dyslexia), manage students' online behaviour, and locate French language content.

Addedly, I asked teachers candidates to list up to three skills, tools or pedagogical approaches they learned about in their respective course. In terms of tools or applications, respondents listed screencasting, 3D printing, WeVideo, virtual reality, Scratch, Padlet, stop motion, wearable technology, Arduino, Duckduckgo, Makerspaces, Lilypad, Desmos, and Google Scholar. Skills developed in the course included: how algorithms shape values and ideologies (41%); how internal and external biases, sexism, and racism culminate online (23%); how to engage, enhance and extend learning and inclusivity (18%); how to think critically about how groups are represented and impacted online (14%); how to conduct research and decipher false information online (5%); understanding safety and privacy online (9%); understanding of the constraints and affordances of technology (7%); understanding digital Citizenship (4%); understanding how personal data is collected online (4%); how to develop digital assessment tools (4%); how to identify purpose, form, and stakeholders (2%); and how to empower students to drive change and voice their opinions online (2%). Beyond these tools and skills, respondents identified three pedagogical approaches they learned about such as the Triple E Framework, TPACK, and the 6 elements of digital proficiency. Not only that, teacher candidates also named three course readings that made an impact on their learning including *The Filter Bubble*, *Technically Wrong*, and *Weapons of Math Destruction*.

On another note, I asked teacher candidates if they planned to incorporate content learned from their respective course (such as reading, writing, viewing, listening, technology, assignments) in their practicum or future classrooms and if so, to provide examples. Forty respondents (91%) said “yes” they would incorporate content from the course in their future classrooms. Three respondents (7%) said “not yet” because they lack competency adapting course content for a K-6 class. One (2%) respondent said “no” because it was too expensive and not applicable to their teachable. Teacher candidates who replied “yes” hoped to facilitate lessons using screencasting, video production platforms, 3D printing, virtual reality, Scratch, Padlet, and Google Education platforms. Less frequently cited applications included Viridi, stop motion animation, Desmos, note taking applications, Mail Chimp, and AutoCrat. Classroom assignments that teacher candidates hoped to replicate in their own classrooms included a “book assignment” and an activity titled, *What do you see, what do you hear, what do you think*. Complimentarily, in their future classroom’s teacher candidates planned to facilitate lessons on critical consumption and creation of digital content, digital citizenship, online activism and advocacy, as well as fake news, online research, the 6 elements of digital proficiency, online safety, and online personal data. The pedagogical approaches listed include models such as the TPACK model, inquiry-based and collaborative models, and a content-specific and learning goals approach. Although most teacher candidates did not indicate their motivations for incorporating critical digital literacy, some (7%) explained that the impetus was to equip students with the transferable skills needed to succeed in a technology-driven society.

Respondents were asked whether or not the curriculum had been a supportive resource to design and implement critical digital literacies in their practicum and thirteen respondents said “yes” (29%), twenty-two respondents said “no” (50%), seven respondents said “somewhat”

(16%), and two respondents said “unsure” (4%). Approximately one quarter of respondents (23%) who replied “yes” explained that the curriculum was a useful resource because it was open-ended, adaptable, and flexible and required creativity. Some of the respondents (14%) who replied “somewhat” explained that critical literacy was established in the curriculum, but digital literacy was not a priority especially in primary/junior grades. Some respondents (36%) who said “no” argued that there was some general hand waving at digital literacy, but a lack of practical resources. Despite curriculum analysis activities incorporated into the course, teacher candidates who said “unsure” (4%) had not engaged with the curriculum in-depth and did not feel informed enough to provide a response.

Lastly, I asked teacher candidates to list up to three supports, skills, and/or resources that they needed to feel confident and competent to teach critical digital literacies and they listed: additional hands-on professional development opportunities, practical application resources, sample lesson plans, scholarly research on students’ perspectives and experiences using technology, rubrics, and a competencies checklist. More specifically, teacher candidates wanted additional information about how to support diverse students’ learning preferences and abilities using a range of digital applications in a variety of subject areas to facilitate critical literacy lessons, meet curricular expectations, understand students’ perspectives and base-level knowledge, online privacy and safety, online advocacy, digital citizenship, fake news, and teaching equitably with technology. Teacher candidates also requested additional knowledge of online applications and platforms such as coding, Google Classroom, smart board tutorials, and GeoGebra, 3D printing, social media, TPACK, WeVideo, game-based learning, programming, screen recording, graphic design, and Google chrome extensions. In regard to in-school support,

respondents favoured a community of practice, administrative and tech support, access to digital devices in school or knowledge of programs that provide affordable devices to schools.

Final Interview

The final interview with Anne occurred after the semester was complete and after teacher candidates' grades had been submitted. Anne was asked to read teacher candidates' anonymous survey responses as an act of self-reflexivity with a focus on individual and collective learning and growth. Reading survey responses also served to structure our discussion around lessons learned and the pedagogies and practices Anne might choose to take forward or leave behind. The final interview with Mira was organized around her perceptions on changing definitions of literacy in the curriculum, the influence that technology has had in her classroom, the pedagogical and methodological approaches she took the planning and design of syllabi, and lessons learned with regard to navigating curriculum, and future implementation.

Reflexive practice: Syllabus, curriculum, and survey responses.*Syllabus.*

I met with Anne on a sunny day in June and so we decided to conduct our final interview at a café with a patio. At the time of our final interview Anne was preparing to teach the same technology course in the fall semester. She had engaged in deep reflection with regard to what would remain in her syllabus and what would be removed. Anne explained that the most notable lesson learned was that teacher candidates “feel” that the internet is host to many tensions: “it’s a great force for educating and informing, but it’s also used to misinform” and that can be quite challenging to traverse. As a case in point, during critical conversations about the nuances of technology, teacher candidates were often left wondering, “what should we do?” and so Anne has decided to focus more on equipping teacher candidates to reconcile questions about their pedagogical practice by supporting their development of critical dispositions to improve their ways of evaluating information online, but also “technical” and “socio-technical systems.” Anne

“feels” a deep sense of responsibility to equip teacher candidates with effective teaching practices and so she will, “continue to work on that.” Another item Anne would take forward was an online domain she created to serve as a resource bank for teacher candidates and faculty members alike who sought to scaffold their digital skills and required easily accessible and digestible information.

In regard to what Anne will leave behind there is one text that “isn’t doing the work that I think it needs to do” and so she has decided to remove it from the syllabus. Anne was not certain why the text had not resonated with teacher candidates but upon reflection she reasoned that some critical content might be more effectively processed in a collaborative classroom environment. Anne might also reformat the book club assignment because, “It took a lot of class time.” Anne explained that, “finding time for honest reflection about a whole book was too much for some” and so rather than focus the assignment on constructing individual understandings, she will incorporate additional in class “scaffolding”.

Curriculum.

I asked Anne how she leveraged the curriculum to integrate critical digital literacies. Anne explained that references to technology in the curriculum can be “very hand-waving” and so on the days in the course that were focused on particular technologies, for example Virtual Reality, Makerspaces, online search and online inquiry, “every single discussion” came back to supporting teacher candidates to make intentional connections between technologies and “disciplinary teaching practices.” Rather than prescribe a set of readings, these disciplinary connections transpired through classroom “conversation.” Anne aspired for teacher candidates to “imagine,” “construct,” and “create” these disciplinary connections so that in the future, if they had access to a 3D printer or a Virtual Reality studio for example, they would “remember these

conversations” and make informed decisions about technology integration in their designated disciplines.

I asked Anne what her viewpoint was on teacher candidates’ perception of the curriculum as open-ended and understood as either positive or negative. Anne said, “these are the fundamental tensions...the agile tensions of breaking it down versus embracing the complexity. Anne reasoned that on the one hand some teacher candidates came to teach because, “from their experience or from their perspective, it seems like there must be recipes and methods, that if followed then result in very well-educated children.” On the other hand, there were teacher candidates, “who come into teaching because they see it as an inherently dynamic and creative practice.” According to Anne this tension is timeless in teacher education. To reconcile these differences, she proposed that “this generation” of teacher candidates, who experienced “traditional” educational framing “need models” based on “the study of the science of learning and teaching,” which supports teacher candidates understanding that “learning happens through active construction, through participation, through engagement and motivation much more deeply than just passively receiving and then regurgitating.” Anne added, that until we recreate a system of schooling that is more about education, then there are going to be these tensions.

One of the ways that Anne sought to emphasize “education” versus “schooling” was in the design of her assignments. Anne actively sought to create multiple means of expression, to integrate principles of universal design into the assignments. As a case in point, for people who preferred to write an essay, that was always an option, but for people who wished to create a “curated set of resources” or who wanted to “design an infographic” those options were made available. For Anne, the “education” method served as another way to “push against the tyranny of print as that dominant hierarchical structure of knowing.”

Survey responses.

I asked Anne, “what can you glean from teacher candidate feedback and survey responses and about your current and future practices and what were some of the highlights?” Anne categorized student responses into two camps. On the one hand, there were teacher candidates in Anne’s course who said the critical aspect of the course really “...opened my eyes. I’m thinking totally differently now about technology and its role in education.” On the other hand, some teacher candidates said: “I really didn’t see the pertinent or the relevance of the very theoretical framing for the course.” Teacher candidates’ divisive comments caused Anne to question whether or not some teacher candidates were “ready” for it. This course was the first time that Anne “honestly” felt she “did the best job.” The addition of the critical layer, which Anne tried to “integrate” and “infuse” into all of the assignments and into all of their interactions added “fundamental” and “important” dimensions to the course. Anne reasoned that there were a certain number of teacher candidates who opted for her technology course because they thought it was going to be a “how to type of workshop course” that would provide “the best” and most “practical” tools to develop their skills. Anne recommended that teacher candidates buy a book that outlined all of the technological tools and all of their pedagogical affordances – it was completely outlined for the reader. Because information about practical tools was “so easily accessible and outlined for them” Anne focused her practice on questioning these tools and their “affordances” and “constraints” rather than practical application.

Something else Anne observed among the teacher candidates’ in her class was teacher candidate “anxiety” and it became difficult for Anne to “...separate out, what is the anxiety talking about at this particular moment in their lives?” Anne’s course was situated at the end of the teacher candidate program and so she wanted to take them “deeply” into the theoretical

implications of their technology integration practices and “equip them for the long game,” which was experience they did not have. However, teacher candidates tended to be “so fixated on getting the job that they’re not as open to considerations for how these deep rich conversations and grappling with complexity and intentions” might serve them better than, “teaching them how to use the latest greatest tool, which in six months will be different.” A couple of teacher candidates also questioned: “why the whole course wasn’t about helping us build our digital hubs, because the digital hub is what’s going to help us get a job.” For Anne, the purpose of the digital hub was not to get a job. It was about open “reflection, creation, curation, and developing skills.” In a moment of reflection Anne pondered whether part of the disconnect was that she needed to be more “intentional” with her “messaging.” I asked Anne whether or not teacher candidates’ responses made her feel pressured to integrate the latest and greatest tech. “Yes, I do” she responded, “Because in addition to teacher candidate feedback, I also have faculty members who are scaffolding digital skills and competencies and I have a lot of people who asked me for help.” Anne reiterated that there was “anxiety and nervousness” around digital skilling because it was “so inaccessible.” To begin to rectify these issues, Anne bought a new online domain that she planned to populate with a set of “modules” and “easily accessible tech resources.” Interestingly, while teacher candidates and colleagues alike sought additional tech tools and resources from Anne, and she had created an entire website dedicated to that, “nobody seems to use it.”

Critical literacy: Pedagogical implications.

Confidence and competence.

I asked Anne, “Do you feel comfortable with the title, critical digital literacy educator? And has your confidence increased since participating in the study.” Anne responded: “Thank you for

asking me to reflect on that.” She explained that she would like to inhabit that title, but she is not certain if she is “there yet.” She felt as though her position in relation to critical perspectives was always going to be framed by “my white privilege,” and so in her own journey toward a “much more intentional social justice-oriented approach in my work it’s really motivated sincerely by a desire to be able to say that I am a critical digital literacies teacher and researcher.” Anne was also “super aware” that she had blind spots and was “always questioning” and seeking to resolve by listening and observing where those “blind spots are.”

Challenges and obstacles.

I asked Anne, “have you experienced any barriers in terms of critically integrating technology? Have you felt any pushback or restrictions?” In terms of barriers, the first item that came to mind was related to “space.” Anne believed that “space” intersects with “criticality in really important ways.” She explained that there were no dedicated spaces for innovative teaching and learning with technologies within the institution, and that lack of space sent a message about the value placed on technology within the institution. There was a disconnect between the strategic plan that identified schools as a space for scholarship on technology integration in education, and the dedication of infrastructure and physical resources to support that mandate.

In addition to space there were limited resources. Anne only had access to 10 Chromebooks that she shared with another faculty. She had taken the initiative to purchase “a few materials” because of funds raised through “registrations” for an Institute she ran, but access to these tools for the learning needs of a diverse population of students were nonexistent. As it stood, Anne had to send teacher candidates to many different locations at the institution to be able to access technologies such as a virtual reality studio or a Makerspace. Moreover, Anne

taught her course in at least “8 different classrooms” and she never knew “what the desk configuration is going to be. I’ve got five minutes between classes to set up whatever little centers I’m going to set up before the students arrive.” Because Anne did not have the space to scaffold her own learning, pedagogy, and practice within a virtual reality studio or within a Makerspace herself, “every single day, I think that it actually limits my ability to iterate and innovate in critical ways considering the power structures, the dynamic, the design decisions. All of those things that intersect in pedagogy.” These are institutional barriers that Anne had little control over, but she will do her best to navigate in the future.

Technology integration: Pedagogical implications.

Pedagogical implications.

Anne strategically examined her practice to determine how to reframe and improve her critical digital literacies teaching methods. She reflected on how best to prepare teachers candidates to integrate critical digital literacies by identifying problems of practice, points of improvement, and goals moving forward to further develop her pedagogy.

One of the primary lessons Anne shared with me was her goal to focus more attention on scaffolding teacher candidates’ digital skills, but also their “habits” of use and “awareness” of self-regulation. Anne also learned that while it was important to be “safe” and “secure” online, to take concrete measures to keep passwords safe and to monitor students’ web activities, what made students’ resilient were the conversations she had with them. She added that the “just say no to tech approach does not work” because it puts students in a position of “feeling shame” and “wanting to hide or be secretive” online, which creates a “dangerous cycle” of students not feeling able to openly talk about the moments when they experience “nervousness” or “when something goes bad online.” Anne asked me an intriguing question: “How do students know what to do if

you haven't had a conversation about that or help them develop some strategies?" In terms of the social capital as well, there were plenty of "wonderful opportunities" for students to "network" and "play" and to develop "healthy relationships" with one another through online socialization. Anne added, that if educators do not talk to students about models of "healthy" and "fun" relationship then, "I think that we're just equipping them to be afraid of the internet."

Anne was eager to be more thoughtful about instructional practices that emphasize a collaborative classroom environment. She argued: "the real learning values that come from any kind of tool use is not what is actually happening on the screen, but around the screen." Scaffolding online interactions to build understandings of technologies before use was an important piece of critical digital literacies learning. As Anne explained, to create "inclusive" classrooms that "optimize" conditions for learning for all students, a space where it "feels safe" for students to "voice their experiences" but also engage deeply with ideas, texts, and practices that push their own boundaries is "really important" to model, but can also be overwhelming. Novice teacher educators might be "inclined to avoid integrating the critical power structures of the designs of technologies that privilege particular voices for fear of marginalizing white young men, for example." They might also fear "backlash" or be uncertain about how to enter into conversations about technologies and the ways that they have been implemented and reinforce systemic divides because:

...they haven't sat with the literature enough or questioned, or even had a mentor or a student like you who can be a critical friend. Do you know what I mean? So, I would say that's very important. I think having those professional relationships with people so you can, over a coffee sit and grapple with some of the tensions at the core of the work is very, very important.

For Anne, educational technology was inextricably engrained in critical and intersectional approaches. She said: “There’s just no other way forward in my view because then, we’re just limited to the discourses framed by the corporations that are making the tools, and we are being framed by whatever systems are created for us to use, and then we are just being led along by the technologies.” Anne reasoned that if educators were not bringing in the critical reflective piece then educators were simply preparing teacher candidates for the same kind of “multi-billion dollar profit-generating process” and were not necessarily equipping them with the tools, strategies, or dispositions to ensure that their future students would be safe online while learning to build digital skills.

The book club assignment.

Curious about how Anne navigated these constraints I asked her, “How do you navigate these institutional restrictions? How do you manage to integrate critical digital literacies with such limited resources?” Anne was able to intentionally integrate a critical lens in a multitude of ways. As a case in point, teacher candidates were asked to read four trade books, “that really go to the heart of ethics and culture and the social, and the power of algorithmic thinking in our society,” which Anne received plenty of positive feedback on in her evaluations and in the survey’ responses. Nevertheless, many teacher candidates said that they either did not have time to read the books, or they did not want to read the entire book. But, for the teacher candidates who did engage with the material, “it was pretty transformational. They learned things concretely about what’s happening underneath the screen, and about the ways that algorithms can be racist and sexist, divisive and reinforce systemic inequalities.” The book club assignment culminated in a group project. Some teacher candidates took on the team project of “reimagining the acceptable use policy” and prepared a detailed and critical analysis of the strengths and limitations of these

acceptable use policies, which are the policies that “regulate what happens in schools with technologies.” One piece of information that Anne gleaned from teacher candidates’ group book club assignment, which she thought, “was fantastic” was that, generally speaking, teacher candidates identified that school boards do not provide teaching models to direct how to use the internet in “productive,” “collaborative,” “helpful,” and “community building” ways.

Digital divide.

Anne was intentional to integrate digital divides research into conversations about technologies and internet access, practices, and use. She deliberately troubled notions that teacher candidates might have about the “the internet as ubiquitous” and the ideology the “we are the Net generation” and therefore, we all have the same kinds of access to the internet and multiple kinds of devices that have allowed us access to online information on a whim. Anne also integrated conversations about assumptions teacher candidates might make when they ask their future students to use the internet at home, the kinds of assignments created on the assumption, “that there will be access, there will be time, there will be technical support for students who are developing their skills. I asked, Anne, “Did you witness any push back from teacher candidates? Any discomfort?” Anne replied, “no” she did not experience any outward pushback, but that was not to suggest that there was not some internal dialogue, some internal pushback, and “Maybe not feeling like it was safe for them to express sort of dissenting ideas or ideas that would reveal their inherent -isms, whatever they are.” Anne explained that as a faculty they discussed how to integrate critical content, “that aligns both with our commitment to truth and reconciliation and decolonizing the curriculum, but also to creating opportunities for more voices to be heard and elevated and then how to handle those situations when there’s tension.” But overall, Anne, “felt that there was a general kind of reception.”

Identities and lived experiences.

I asked Anne, “How were identities incorporated in course content?” According to Anne, the critical literacy module and workshop was instrumental for incorporating identities inside the classroom. She recollected one video created by a group that focused on one teacher candidates’ identity as an LGBTQ plus person. Their video showcased various scenarios that highlighted misconceptions and misrepresentations of the LGBTQ plus community. The video was “quite powerful” and “fearless” and as Anne explained, the group “...did a lot of justice work.” Another member of the same group, “driven entirely by their courage” self-identified to Anne as transgender. The student wanted to ensure that systems for taking attendance, emailing, and “how they appeared in our class on D2L to other students, aligned with their identity as a transgender person.” Anne felt in that small moment, “that there was some community-building and some trust developed for them. They clearly needed to be sure that it was a safe space for them to maintain their development as a transgender person and as a learner in my class.”

In other subtle ways such as showing up to events where some of Anne’s students might see her be present, was entirely “intentional.” As a case in point, the university hosted a guest speaker who spoke “on gender diversity and the implications for teacher education and for teachers, and I showed up, you know?” Anne learned from an additional guest speaker “to add my pronouns to my Twitter handle...” and that was one socio-technical marker of her “awareness” or her “belief” in creating “safe spaces” for all teacher candidates. Anne added, “it’s a way that maybe if I’m modeling it on my Twitter, then everybody feels empowered to do it too.” But Anne was also weary not to exemplify tokenization, because everyone does it, but at the same time, “if I don’t do it, which is worse?” As our interview came to an end Anne tersely added, “It might feel a little bit scary. But this work is fundamental.”

Summary of Case Study Two

In the preliminary interview with Anne, she highlighted her personal and professional background to provide insight into how her practices and pedagogies were informed by her teaching and learning experiences. We discussed aspects such as academic degrees, family life, growing up in a rural area, classroom teaching experience, and research and teaching interests. Anne's early schooling experience is the reason she decided to pursue a degree in education. Her teaching history shaped her critical approach to digital literacy education in the teacher education context. Her central goal as an educator was to create equitable and democratic spaces for teaching and learning, whereby students worked on meaningful problems, students' lived experiences were valued and included, and hierarchies were flattened. Her approach to technology integration focused on challenging the notion that the internet is ubiquitous. While touted as an Education Technology Professor, Anne did not believe that technologies were inherently educational. Rather, she argued that it takes insightful and creative educators to enact what enables students to fulfill their online potential.

Anne's pedagogical goals and ambitions were echoed throughout her syllabus. In Anne's syllabus, teacher candidates were prompted with the dual task of engaging in *continuous self-reflexivity* by examining their personal connections to course content and sharing questions and reflections with their colleagues in a *collaborative* based classroom. Teacher candidates were also asked to engage with diverse ways of thinking and *constructing knowledge* by sharing decision-making, thought processes, and possible social action with their classmates. In Anne's syllabus, teacher candidates were considered individuals with unique learning needs who experienced different digital inequities dependent on their identities. The central orientation of

Anne's syllabus was to create a new social order that included people who had been exploited or silenced by current systems of power and digital inequities.

Although the word "critical" was seldom used throughout Anne's syllabus, the use of the word *critical* was framed around both the functional and critical skills necessary for teacher candidates to interrogate digital texts from their particular subject position; to value their complex identities; and to represent their professional selves through a wide range of digital texts and digital creations. Teacher candidates were encouraged to learn to use digital tools to analyse and critique unequal power relations, unequal politics of representation, and to create counter-normative content. Group and self-made digital *creations* were also meant to add teacher candidates lived experiences expressed through non-traditional modes of digital representation to the body of knowledge on the Internet. The syllabus then, effectively coupled the critique of transmitted online messages with digital texts to enhance students' creative potential to affect social change, and enabled teacher candidates to intervene on uneven power relations in digital spaces.

My analysis of "The Ontario Curriculum Grades 1-8 Language" (2006) found that students were not assumed to be a homogenous group, they were assumed to be different and diverse. Regardless of identity or ability, students were represented as capable learners who were valued in the learning and decision-making process in terms of resources and assignments. Relatedly, the knowledge that learners lacked was perceived as an opportunity to learn new perspectives and to transform students' relationship with perspectives that were different from their own. One concern I had, however, was that the terms boys and girls were used throughout the curriculum, which exposed a rather rigid, exclusionary, and binary definition of gender. Not once were students encouraged to critically read or question overt or implied messages that

reinforce gendered stereotypes. In addition, although teachers were encouraged to incorporate Aboriginal resources and content, and students were encouraged to value and respect diversity of culture, students were only ever asked to write from the settler perspective. There was no alternative to write from an Aboriginal perspective; there was no option to grapple with the impact of Canada's colonial past on current relations and dominant discourses.

Critical literacy was framed in the curriculum as a method to evaluate reliability, bias, and accuracy and to separate propaganda from fact. The use of the word "bias" was about disrupting norms and challenging the status quo but was also connected to the process of unveiling true or false information. While the curriculum was explicit about encouraging students to notice discriminatory portrayals of individuals and groups, there was risk of students' developing judgement about various social and cultural practices, if their analysis was framed as binary (good or bad).

Pedagogical approaches to traditional and new literacies in the curriculum were discussed as separate features, which established that there were different literacy strands that required separate instruction. Online and offline texts were considered different and creating digital texts individually and collaboratively was considered key to becoming digitally literate. Online research and reading were understood to be directed by student experiences and background knowledge. Students were also encouraged to engage in online comprehension processing. Missing from the curriculum, however, was the concept that teachers' roles change in a literacy classroom. Although *collaboration* between students and teachers was valued throughout the curriculum, collaboration was not directly connected to digital literacy integration and did not include any concrete instructional strategies for teachers. Further, although critical literacy was connected to digital literacy, the purpose of detecting bias and discriminatory portrayals was to

evaluate credibility and differentiate fact from opinion, which is in opposition to a CITI framework. A CITI framework moves beyond binary notions of true or false, biased and unbiased, and instead gathers evidence from all perspectives and critically engages with those perspectives without hierarchizing them.

In regard to teacher candidate survey responses, majority indicated that they had a good knowledge and understanding of critical digital literacies upon course completion. Teacher candidates defined critical digital literacies in ways that resembled the learning objectives in Anne's syllabus. Definitions revolved around critical analysis of online text from different angles of vision; development of skills to create digital texts; understanding how technology recreates -isms and creates processes of inequity; understanding the affordances and constraints of technology; understanding how to use technology to meet learning goals and accomplish tasks; and being a good online citizen. While only half of the teacher candidates in Anne's class had the opportunity to mobilize the content they learned, majority of teacher candidates planned to use content learned from the course in the future. In particular, teacher candidates valued learning about how algorithms shape ideologies; how -isms culminate online; how to enhance inclusivity and engagement with digital texts; how to conduct online research; how to navigate safety, privacy, and personal information online; how to assess digital productions; and how to empower students. To become more confident and competent to integrate critical digital literacy pedagogies, teacher candidates noted that they required more hands-on professional development; lesson plans and scholarly research; rubrics, competencies checklists, and curricular guidance; knowledge of how to support diverse learners with different abilities; and additional knowledge of cyber security, online advocacy, fake news, digital citizenship, online applications, and how to teach equitably. In regard to support, teacher candidates required more

tech and administrative support, a community of practice, and access to digital devices at school. In terms of curriculum, the teacher candidates in Anne's class had two distinct perceptions of the curriculum. On the one hand, the curriculum was non-prescriptive and opened up creative instructional possibilities. On the other hand, non-prescriptive curriculum documents failed to include practical research-based standards of teaching and learning with digital technologies.

The final interview with Anne was intended to provide information about her changing perceptions as a digital literacy teacher educator who adhered to a critical pedagogical stance. Anne's expertise was focused more towards digital integration and supporting teacher candidates' digital competencies. Her knowledge of critical pedagogy was theoretically sound, but as a teacher educator new to critical pedagogies she had less practical experience with integration. Still, Anne was passionate about bridging the digital divide and ensuring equitable access to diverse technologies and digital skills inside her classroom. She actively sought to ensure that teacher candidates learned to authentically integrate technology and critical literacy and connect them to their disciplinary teaching practices. Anne's pursuit was to broaden teacher candidates' perspectives on exclusionary technology tools and encourage them to produce ethical designs that diminish insensitivity and hate online. Interestingly, the teacher candidates in Anne's class were more fixated on learning how to use the latest and greatest tools than the socio-technical aspects of learning. Anne, however, believed that building understandings of technologies before use was an important piece of critical digital literacies teaching and learning and so that is how she will continue to structure her course. In regard to lessons learned, Anne noticed that teacher candidates needed opportunities for collaboration, co-teaching, and development of critical friendships within teacher education programs. Thus, in the future Anne will incorporate additional in class collaborative dialogue around critical issues and questions to

scaffold and purposefully integrate digital technologies. For Anne, instructional scaffolding was a powerful tool and a necessary first step to effectively build towards developing a co-created learning environment that enabled teacher candidates' development of conceptual understanding. In terms of institutional barriers, for Anne, there were no dedicated spaces and a lack of access to digital devices for teaching and learning with technologies within the institution. The lack of institutional space and digital devices illustrated a disconnect between the curriculum, which defined schools as a space for scholarship on media literacy and the dedication of infrastructure and physical resources to support that mandate. Overall, Anne was able follow the guidelines of *continuous self-reflexivity* and in doing so she was able to reframe problems of practice and navigate curricular limitations to improve digital literacies integration.

Chapter Six: Discussion

I conducted this research study to engage with how critical digital literacies pedagogies informed teacher educators design, development, enactment, and refinement of technology integration. Teacher educators integrating critical approaches to technology are an often understudied and under consulted occupational group although their work is imperative in the development of the knowledge, skills and dispositions of future educators. Studying enactments of critical digital pedagogies is an emerging field of study that is significant as the landscape of literacy shifts in the 21st century. Throughout this dissertation I sought to improve understandings of the practices and pedagogies of digital literacy teacher educators with a critical pedagogical approach. Based on the findings of this dissertation, it is clear that the work of critical digital literacy scholars is complex. They are experts on what critical digital literacy teaching needs to look like for diverse learners, and the digital skills needed to succeed in the 21st century. Still, teacher educators experienced a number of challenges and thus employed a multitude of educational methods including engaging in critical dialogue and reflection to refine and reframe their pedagogies and practices.

In this chapter I summarize the main findings of my qualitative multi-site case study. I employed a tri-theoretical framework that I refer to as a Critical Intersectional Technological Integration framework (CITI) to examine and learn how two professors from two different Canadian provinces teach critical perspectives with technology. To engage this pursuit, I conducted a corpus linguistic and critical discourse analysis of pre interviews with professors, investigated the meaning of digital and critical literacy within syllabi and curriculum, analyzed a web-based survey questionnaire completed by teacher candidates in these two professors' classes, and engaged in analysis of post interviews with professors. I used the CITI framework 6

c's to guide the development of themes and answer research questions. The 6 C's consist of *critical*, which acknowledges that critical literacy, critical thinking, and functional technology skills are equally important to examine, read, curate, and create online texts. *Collaborate*, which sees the relationship between teachers and students as reciprocal and collaborative to rework power structures in the classroom; *content*, which sees course content as a reflection of student diversity, identity and the root of decision-making. *Construction of knowledge*, which encourages information from diverse online perspectives, cultures, societies, contexts and divergent interpretations inside the classroom. *Creation*, which acknowledges that to create or transform content online is for the purpose of producing counter-normative content that challenges imbalances in power, identity, and representation; and *continuous self-reflexivity*, which sees the tracing of both individual and collective thoughts and journeys as vital to independent and collective learning and growth. The six C's were used as a tool to answer research questions and map the complex web of themes that arose in my study.

Summary of Main Findings

In this section I summarize the main findings from my dissertation. The themes discussed respond to the following research questions, which have guided my research study:

1. How do two ELA curricula inform the design and planning of the syllabi, pedagogies, methods, and interventions of professors who are laboring to bring critical digital literacies and intersectionality into their classroom?
2. How do teacher candidates in these professors' classes understand digital literacies and intersectional/critical frameworks?
3. What is the evidence, if any, of teacher candidates' evolving understandings of intersectionality and critical digital literacies pedagogies upon course completion?

Professors personal and professional backgrounds

As a researcher interviewing digital literacy teacher educators with a critical pedagogical stance, I chose to highlight their personal and professional backgrounds to provide insight into how their practices and pedagogies were informed by their teaching and learning experiences. The two professors shared many commonalities such as academic degrees, geographical context (Canada), classroom teaching experience, and research and teaching interests. Although their early schooling experiences and teaching history contrasted, it shaped their critical approach to digital literacy education in the teacher education context in similar ways. The following participant profiles highlight those similarities and differences. All earned their Ph.D. degrees in Education (e.g., Educational Psychology and Educational Technology; Critical Literacy & Teacher Education) and had classroom teaching experience in K-12 settings. In addition to their teaching responsibilities, all participants were involved in funded research of some kind. At the time the interviews were conducted, the two professors either had tenure or tenure-streamed faculty in an education department at a university in Canada.

Influence of curricula on professors' syllabi, pedagogies, and methods.

Through critical dialogue and a review of teacher candidate survey responses, the two professors in my study were candid, honest, and humble as they shared the variety of ways the curriculum shaped their critical agendas. To enact a continuous self-reflexive stance, the two professors reviewed their syllabi and teacher candidate survey questionnaires. What was important here, was that the two professors were in tune with teacher candidates' survey responses and actively sought to restructure their classrooms to improve their practice. As recommended by a CITI framework, their aim was to enact *continuous self-reflexivity* to assess their own pedagogies and practices. By asking themselves interrogative questions, the two

professors in my study had the opportunity to reflect on their own teaching journeys and shared the variety of ways the curriculum significantly shaped their pedagogy and practice.

Prescriptive vs non-prescriptive curriculum.

The two professors in my study were critical of certain aspects of provincial curriculum documents. While Mira was primarily concerned with the nuance of the language in the “English Language Arts – BC Curriculum” (2015) and how it might inform students learning outcomes, Anne was critical of print as the dominant structure of knowing in “The Ontario Curriculum Grades 1-8 Language” (2006). Although Mira and Anne tackled curricular dilemmas from different angles of vision, in both of their classrooms, teacher candidates were asked to investigate and critically analyze how curriculum documents conceptualized and pedagogically guided technology teaching instruction. As recommended by Rowsell and Morrell (2019), the two professors actively sought to ensure that teacher candidates learned to authentically integrate technology and critical literacy and connect them to their disciplinary teaching practices.

Overall, the contents of “The Ontario Curriculum Grades 1-8 Language” (2006) and the “English Language Arts – BC Curriculum” (2015) were rather distinctive, however, the through line of the two professors critiques were that provincial curriculum documents on the one hand, were non-prescriptive and flexible and opened up new and creative instructional possibilities with less constraints than if provincial curriculum were prescriptive. On the other hand, these non-prescriptive curriculum documents served as a hindrance because they did not include or align with new research-based standards of teaching and learning with digital technologies. Although the two professors were highly capable and effective critical digital literacy educators, they had to go above and beyond their usual course planning, and dedicate a significant amount of time to meeting, reflecting and refining their courses. This of course, is not a sustainable

practice. Similar to Hadziristic's (2017) findings, despite the need for up-to-date professional development of technology integration, there are few supports given to Canadian teacher educators to effectively enact critical digital practices and pedagogies. The responsibility should move beyond that of teachers, whose role to add new digital tools to their practice, especially without any previous experience or training, can be rather onerous and time consuming. As Boling (2005) reminds us, teacher educators seldom have access to the skills, resources, and knowledge to meaningfully integrate technology. Educators require institutional support through curriculum and policy documents that include the *functional* and *critical* skills needed for to enhance teacher candidates' critical digital classroom practices.

Technology as an-on to curriculum.

As critical digital literacy teacher educators, Anne and Mira actively sought to move away from viewing and integrating digital technologies as simply tools for meaning making; rather, they understand digital texts and platforms as literacy practices. This significant shift encouraged the two professors to consider meaningful integrations of critical digital literacies into the curriculum rather than treating it as an add-on or an optional topic to be addressed. Such a paradigm shift encouraged Mira and Anne to consider thinking critically, ethically, and responsibly and to design digital literacy learning opportunities that responded to institutional, social, and economic contexts and needs. As a CITI framework suggests, while technical know-how is an aspect to becoming digitally literate, it is vital to teach the social, cultural, and economic costs of technological development, and historical power inequities embedded in technological tools. In this study, Mira and Anne deliberately and thoughtfully designed learning opportunities that addressed technical "know-how" and immersed teacher candidates in

experiencing digital technologies through a social, cultural and ethical lens, which supported them not only to develop digital competencies but also to enact pedagogies of critical literacies.

My interview with Mira, however, revealed tensions in regard to the differences between pedagogical intent and the reality of integrating critical digital literacies. Mira had the practical techniques to creatively integrate critical insights but had limited experience teaching with digital tools. Although Mira employed technology with a clear objective in mind, she noticed that her pedagogical approach, at times, perpetuated the adoption of technology as simply another vehicle to deliver content, which resulted in teacher candidates' flawed engagement. As Kolb (2017) warns, flawed engagement leads to loss of student interest over time because students begin to conceptualize technology as a trick to engage them and not as a tool that adds value to their knowledge of content. With Kolb's (2017) caveat in mind, Mira reflected that at times her approach to technology integration unintentionally focused on the digital tools and technology skills and neglected to address how technology related to course learning objectives and was ineffective for these reasons. As Bullock and Ritter (2011) report, integrating digital pedagogies as an "afterthought" to curricular planning is a common mistake in teacher education. Consequently, Mira thoughtfully decided to be more strategic in the future. In some cases, she has decided to revert back to original written assignments and remove some of the technology pieces from her syllabus. As Hadziristic (2017) and Huynh et al. (2018) remind us, achieving digital equity is about more than providing digital tools; it is about reframing fundamental systemic issues that exacerbate online inequities. Moreover, as Wellman et al. (2001) poignantly state, technology integration must be about *how* students are taught to use digital devices to create and innovate.

Interestingly, while Mira's students requested fewer digital tools and activities, Anne's students requested more. Anne's knowledge of critical pedagogy was theoretically sound, but as a teacher educator new to critical pedagogies she had less practical experience with integration. Anne remarked that the teacher candidates in her class were more fixated on learning how to use the latest and greatest tools than the socio-technical aspects of learning. Anne, however, stood firm because she believed that building understandings of technologies before use was an important piece of critical digital literacies teaching and learning, and rightfully so. As Linnenbrink and Pintrich (2003) note, while technology does engage students more so than a traditional approach to teaching and learning, cognitive engagement, student performance, and assessment outcomes do not increase. Dissimilar from Huynh et al.'s (2018) findings, although the two professors in my study experienced some intimidation and fear of failure to simultaneously learn and teach critical digital literacy effectively, they did not have a predisposition that they had to be experts to teach it. Their individual goals of improvement encouraged them to constantly question their practice, which in turn caused them to reflect deeply on the 'why' and 'how' and purpose of their teaching.

Scaffolding learning through content and collaboration

To minimize teacher candidate resistance to critical and digital literacy integration the two professors in my study learned that they had to ensure that knowledge application, dependent on teacher candidates' level of expertise, was sufficient prior to implementation. Similar to Bruce and Chiu (2015), the two professors learned that teacher candidates need time and technical support. In particular, Anne learned that teacher candidates needed opportunities for collaboration, co-teaching, and development of critical friendships within teacher education programs. In an attempt to cultivate broadened notions of critical and digital literacy practices

and continue to develop a professional sense of community in the class, in the future Anne will incorporate additional in class collaborative dialogue around critical issues and questions to scaffold and purposefully integrate digital technologies.

In Mira's circumstance, she learned that if the content of the assignment was familiar to teacher candidates, then learning a new digital tool or using a new digital device would become less prodigious. In the future, Mira plans to model different ways that teacher candidates could scaffold their future students' digital skills through easily accessible and digestible information to become confident creators of text, rather than simply consumers. As Luke (2004) astutely notes, learning to teach and ensure digital equity involves thinking of students' individual and communal needs and finding creative solutions to deliver opportunity, resources, and support for all students to pursue their passion projects. Together, Anne and Mira's scaffolding approaches resemble a CITI framework, which is learner-centered and involves the co-construction and scaffolding of knowledge with the teacher. Activities within this strand emphasize democratic practices, cooperative/ collaborative work, enquiry, and relationship building. The practice of scaffolding and collaboration enabled the two professors in my study to develop more complex and effective strategies to activate student interest and dialogue, support and guide learning, and more explicitly connect teaching and learning goals. In this study, instructional scaffolding was found to be a powerful tool and a necessary first step to effectively build towards developing a co-created learning environment to enable the development of conceptual understanding.

Connecting critical literacy to curriculum through digital creations

A multitude of studies have found that educators are not trained to grant students the opportunity to think critically about the minutiae they encounter online, nor to produce digital designs that diminish inequity, insensitivity, and hate (Haight, Quan-Haas, & Corbett, 2014; Talib,

2018; Watulak, 2016). On the contrary, the two professors in my study actively sought to achieve a sustainable approach to equity to ensure that diverse bodies of teacher candidates learned to use digital tools in new, critical, creative, and collaborative ways. What was more, was their pursuit to broaden perspectives on exclusionary technology tools and encourage teacher candidates to *create* ethical designs that diminish insensitivity and hate online. In Mira and Anne's classrooms, technology integration was used as a tool to empower teacher candidates to claim identification in online spaces, identify ethical blunders, and create counter-normative content. Scholarship suggests that this *critical* approach to technology integration not only affirms student's unique position in society (Miller, 2019), but also encourages them to add to the body of counter-normative content and knowledge on the Internet, which is a central feature of a CITI framework.

Multiple studies have also found that some teachers integrate technology in their classrooms because it looks fun (Cuban, 2001; Oppenheimer, 2003). In opposition, both Anne and Mira assumed their roles as 21st-century critical digital literacy teacher educators and actively sought to connect technology to structures of power and issues of equity in their syllabi. In line with recommendations made by a plethora of scholars in the field, the two professors in my study felt it was their professional responsibility to prepare teacher candidates to navigate the complexities of the digital era including granting teacher candidates the opportunity to think critically about content online (Talib, 2018; Watulak, 2016), facilitate learning that supports students to identify biases (Haight et al., 2014; Watcher-Boettcher, 2017), and simultaneously address issues of cyber-bullying, safety, and security online (Johnson et al., 2016; Lotherington et al., 2016). The two professors in my study conceptualized critical pedagogy as a means to challenge imbalances of representation and power and singular processes of meaning and decision

making to improve educational practices amongst teacher candidates, which again, meets the standard of a CITI framework.

Curricular and institutional barriers.

The two professors in my study reflected on the limitations and possibilities for critical pedagogical instruction within a contemporary university oriented around performative neoliberal metrics. Although their intent was to enact a critical pedagogy, they were performing within a different politics of activity, one that resembles Freire's (1970) model of banking education and refers to knowledge as deposited into learners' minds to be regurgitated. However, similar to Kolb's argument (2017) the two professors in my study claimed that critical digital pedagogies can, to some degree, be enacted within neoliberal institutions.

Enacting a "trial and error approach" and creating "low-stakes opportunities" for teacher candidates to try out tools and make connections between critical practices and pedagogies was one of the ways that Mira navigated institutional barriers and made space for digital literacies learning and growth in the curriculum. She deliberately de-centred herself as the only expert in the room. She invited teacher candidates to solve, address, or prevent issues by collaborating and asking questions in the production of new knowledge and skills. As a CITI framework suggests, it is vital for students to learn to use relevant research to locate, gather, evaluate, and answer questions from a critical perspective. To ease into the digital *creation* process and emphasise experimentation over assessment, teacher candidates had authorial and directive control to produce content that impacted them and/or their communities. Rowsell and Morrell (2019) claim that when content is grounded in life stories, it can shift inequity into justice and can serve to bridge classroom digital divides. Although Mira understood the benefits of creating a low-stakes environment, she struggled to create robust and timely opportunities to experiment with

technology that also met standard institutional assessment requirements. As Watt (2019) points out, although collaboration is promoted in teacher education programs, teacher candidates often complete assignments independently of fear that grades will not accurately reflect individual achievement. Student assessment and evaluation remains one of the primary issues that educators and policy developers alike must work through. If collaboration is valued, then there remains a vital role for government and educational institutions to develop learning assessments to inform instruction as educational paradigms shift (Hadiristic, 2017). In the meantime, Mira was committed to learning with and from teacher candidates in a community of practice, to decenter authorial control, eliminate the pressure of assessment, and expand critical and creative mindsets. In this way, Mira's pedagogical approach met the requirements of a CITI framework.

In terms of institutional barriers, for Anne, there were no dedicated spaces and a lack of access to digital devices for teaching and learning with technologies within the institution. The lack of institutional space and digital devices illustrated a disconnect between the curriculum, which defined schools as a space for scholarship on media literacy and the dedication of infrastructure and physical resources to support that mandate. As suggested by May (2015), agency can be obscured by what may or may not be possible or desirable when working within specific structural relations of power. Not only did Anne have to send students to many different locations at the institution to be able to access technologies, Anne also lacked the space and time to scaffold her own learning, pedagogy, and practice using these technologies. As Haight et al. (2014) reminds us, digital inequity is an intentional act and not an inevitable consequence. We must acknowledge the inequitable history of institutions and innovate tangible ways to resolve it. Anne took the initiative to purchase "a few materials" but the financial onus should not be on educators. Although digital access is often criticized as a soundbite solution to systemic issues

because the digital divide cannot be bridged by simply introducing digital tools (Hadiristic, 2017; Haight et al., 2014; Huynh et al., 2018) the findings from my study suggest that teacher candidates cannot become as effective or creative as innovative creators of digital content, if they do not have access to a device. There remains a fundamental role for government policies and educational institutions to aid in the reduction of the second level digital divide. As Huynh et al. (2018) suggest, scaling and developing curriculum and setting new standards, while also supporting infrastructure for high-speed internet and equipping schools with digital devices, funding, training, and employment programs are necessary next steps.

Intersectionality and student identity.

In regard to teacher candidate identities, the two professors in my study mirrored the CITI frameworks requirements and thoughtfully interwove diverse knowledge systems and approaches into their classes so that teacher candidates could learn to see the pedagogical value of doing so, albeit in different ways. As a case in point, Mira thoughtfully integrated elements of Indigeneity in her syllabus through readings, classroom content, and coursework. By contrast, Anne refrained from including particular subject identities in her syllabus to avoid tokenization and to refrain from simplifying complex identities.

Although the two professors took different approaches in their syllabi, their pedagogical approaches were similar and served to fill a gap in the literature – that students seldom create or publish online digital texts (Steeves, 2014b). With this in mind, Mira and Anne encouraged teacher candidates to include and value their identities and the identities of their classmates, and to represent them through a wide range of online digital texts and digital creations. The two professors modelled to teacher candidates that there are various ways of knowing and being and that diverse histories, identities, and systems of knowledge can coexist and be expressed in

multi-modal ways dependent on diverse abilities and experiences. In fact, Anne and Mira unequivocally connected theory to practice by asking teacher candidates not only to critically read and create a variety of digital texts, but to reimagine or remix content that they routinely internalize to take action against the status quo. In line with a CITI framework, Williamson (2013) argues that rather than focus on tests, lectures, and homework that are disconnected from students' everyday realities, students should have opportunities to create solutions for real people and real situations through digital creations.

In terms of challenges and obstacles integrating diverse identities and critical perspectives in teacher education, the teacher candidates in the two professors' classes were in different stages of their awareness and had diverse understandings of their own identity and of equity and social justice. How teacher candidates enacted and understood social justice differed significantly and although that became a barrier in Anne and Mira's classes, they understood this tension as an inevitable part of the process. In line with a CITI framework, multiple scholars concur that there is a growing recognition of the importance of providing critical literacy education (Stevens & Bean, 2007) and critical media literacy education in schools (Kellner & Share, 2005, 2007). Despite the challenges and obstacles endured, the two professors in my study remained committed to the theoretical elements of the course.

Overall, the two professors in my study followed the guidelines of reflexivity and in doing so were able to reframe problems of practice and navigate curricular limitations to improve digital literacies integration. They reframed their understanding of teaching and learning with technology by employing a multitude of educational methods and engaging in critical dialogue and reflection to refine and reframe their syllabi, pedagogies, and practices. For the two professors in my study, the process of engaging in self-reflexivity was intended to improve the

integration of critical digital literacies pedagogies in teacher education.

Teacher candidates' understanding of critical digital literacies.

At the end of each course, teacher candidates participated in a web-based survey questionnaire. The summary of findings below reflects teacher candidates' responses to questions about their knowledge, competencies, and understandings of critical digital literacy upon course completion.

Critique, curate, and create

Teacher candidates in both professors' classes generally valued the learning that took place in their courses and thought the course content was challenging at times, but remained interesting, informative and applicable to their future classroom teaching and learning practices. Their understandings of critical digital literacies varied and although few identified as experts, many defined critical digital literacies in ways that resembled the learning objectives of their respective course syllabi. Overall, teacher candidates learned that to be critically and digitally literate meant having a deep understanding of the affordances and constraints of technology including the ability to critically question, locate, validate, and judge information online from diverse perspectives. Teacher candidates also developed skills, competencies, and analytical perspectives that supported them to use, understand, curate, and *create* digital tools and content; and to understand how technology recreates bias and stereotypes and to reflect on how these processes influence equity and access to eliminate digital divides – all of which are core recommendations of a CITI framework. My study challenged research (for example, Haight, Quan-Haas, & Corbett, 2014; Talib, 2018; Watulak, 2016) that suggests that educators do not provide students with opportunities to think critically about online content, nor to create counter-normative content that diminishes inequities online.

Connecting technology to learning goals

Teacher candidates noted the importance of ensuring that the technologies they planned to integrate into their future classrooms would be deliberate and meet pedagogical and content-specific learning goals and connect to curricular standards. Similar to the suggestions made by Linnenbrink and Pintrich's (2003), teacher candidates knew not to focus on student excitement about the technology, but instead to replicate their professors' approach to teaching and learning with technology and ensure that content specific learning goals were inextricably linked to technology-enhanced lessons. The pedagogical approaches that resonated most with teacher candidates included learning how to teach students to use technology in ways that not only excite them but invoke cognitive engagement and enhance and extend learning and inclusivity in the classroom. In line with Wartella's (2015) pedagogical recommendations, the teacher candidates in my study experienced first-hand that active learning with technology occurs when students are engaged in reflecting and thinking, not when they are simply tapping and swiping. What is more, teacher candidates valued the opportunity to facilitate critical digital literacy lessons that empowered students to think critically about how themselves and their communities were (mis)represented and impacted online, and to facilitate lessons that encouraged students to drive change and voice their opinions safely and ethically. In this way, teacher candidates and the two professors in my study actively responded to the CITI frameworks call to forge a community of practice inside the classroom where all students' voices, interests, identities, and ideas are valued.

Challenges to integration

Challenges that hindered teacher candidates' ability to incorporate critical digital literacy lessons included limited access to devices, Internet service, and tech support both at school and

at home, as well as restricted class time, and school rules and regulations. As Huynh et al. (2018) suggest, effective implementation of critical digital literacies is dependent on available hardware, software, and infrastructure. Teacher candidates also noted that they required more pedagogical competency to confidently manage students' online behaviour inside the classroom. Similar to Johnson et al.'s (2016) findings, teacher candidates tend to focus their attention towards appropriate online behaviour, privacy and cyber bullying and online safety. To become more confident and competent to integrate critical digital literacy pedagogies and practices, teacher candidates required additional knowledge about how to scaffold students' learning, identify students' base-level knowledge, and support diverse students' learning preferences and abilities using a variety of digital applications in a variety of subject areas while simultaneously meeting curricular expectations.

Determined through survey data, teacher candidates' understandings of critical digital literacy pedagogies and practices was useful to inquire into the effectiveness of the two professors' syllabi and pedagogical methods. Overall, teacher candidates felt that their learning was supported by sound pedagogical and content knowledge that they not only planned to adopt, but more importantly, understood how to effectively incorporate into their future classrooms to establish equity and/or decrease digital divides. Although there were lingering questions and challenges, teacher candidates were generally pleased with their success and growth in their courses and were eager to continue on their tech learning journeys.

Teacher candidates' evolving understandings of critical digital literacies pedagogies.

Teacher candidates' understandings of critical digital literacies increased upon course completion and they were eager to implement the new tools and pedagogical practices they learned about in their future classrooms. Still, teacher candidates required additional knowledge,

skills, and resources to teach critical digital literacies effectively and with confidence. Equally important, teacher candidates responded that they needed to learn more about how to connect digital literacies to various subject areas, and how and where to build an online digital hub to house students' coursework. The details of their evolving understandings of critical digital pedagogies are discussed in detail below.

Resources and professional development

Teacher candidates required additional professional development opportunities, practical application resources such as lesson plans, rubrics, a competencies checklist, and supplementary scholarly research on K-12 students' perspectives and experiences with technology. As the literature suggests, Canadian teacher education programs to date have not provided sufficient support, professional development, or training to prepare teacher candidates to effectively integrate digital instruction in K-12 classrooms (Brown, 2017; Hadziristic, 2017). More specifically, teacher candidates requested practical skills to support diverse students' learning preferences and abilities using a variety of interdisciplinary multi-modal tools that meet curricular standards. Similar to Kirkwood (2009) and Walsh and Durant's (2013) findings, teacher candidates struggled to gain technical proficiency while also reconceptualizing pedagogical approaches to establish equitable instruction for all students.

Access to digital devices

Teacher candidates also asked to learn more about online applications and platforms (i.e. coding; social media; game-based learning) and how to obtain access to affordable digital devices for their students if they were not provided by the school. In regard to in-school support, teacher candidates anticipated that they would require a community of practice and administrative and technical support to enact critical digital pedagogies and practices effectively.

As Haight et al. (2014) point out, educators are tasked to be resourceful to address and achieve dimensions of equitable access. Teacher candidates in my study worked hard to overcome institutional barriers to include critical literacy and digital devices in their practicum classrooms. However, similar to Huynh et al.'s (2018) findings, implementation was dependent on available software, hardware, and infrastructure, school and school board policies, and their own digital literacy training and competence. Based on these findings, it is clear that there remains a central role for educational institutions, government, and policy to provide aid by developing new curriculum, equipping schools with devices, and funding training programs (Huynh et al., 2018).

Implications for further research.

The findings in this study highlight the pedagogies and practices of two digital literacy scholars with a critical pedagogical stance, and thus provide valuable contributions to knowledge of critical literacy, digital literacy, and teacher education. However, this study engaged in-depth with a relatively small sample of educators. More time and research are needed to more fully understand this professional group. Specifically, little is known about how teacher candidates conceptualize and actualize critical literacy practices using digital technologies in K-12 classrooms. Further topics that can be studied from the perspectives of teacher candidates include observing teacher candidates' practicum experiences implementing digital technologies to enact critical literacy pedagogies. Also, conducting a longitudinal study into teacher candidates' practices and pedagogies of critical digital literacy to support understandings of how these practices and pedagogies shift over the course of their professional career. Lastly, conducting a study that expands the participant sample to include teacher candidates in Canada, in French-speaking educational settings, and from countries beyond Canada including non-English and

English-speaking countries will provide a broader understanding of their practices and pedagogies.

Chapter Seven: Conclusion

Introduction

I conducted this research study to engage with the practices and pedagogies of two professors labouring to include critical digital literacies into their classroom. In this chapter I discuss how the findings from my research have informed my practice as a teacher educator and influenced my approach to critical digital literacy teacher education. Next, I discuss the limitations of my study. Finally, I identify implications and offer recommendations for critical digital literacy teacher education research and practice.

Connections Between My Research and My Teaching Practice

This research has profoundly influenced my own pedagogy as an educator and has deepened my understanding of critical digital literacy practices. While in the midst of my doctoral work, I had the opportunity to work with a range of youth, teacher candidates, and teacher educators. I taught in K-12, university, and community contexts in Educational Technology both online and face-to-face. I also spent a significant amount of time teaching as a learning strategist and revising curricula for an online course with a team of instructors, content curators, and faculty who teach Return to Learning programs at Langara College. The program largely served traditionally marginalized populations including international, mature, and Indigenous students; students registered with accessibility services; and students on academic probation.

While teaching and re-developing the online course curriculum, I was deeply immersed in data analysis for my doctoral research and beginning to arrive at preliminary findings. At this

point, I had gained new understandings of critical digital literacy practices. I developed awareness around the importance of not only including but valuing and celebrating multiple perspectives, cultures, and knowledges into teaching practices. Further, I gained insight into how valuable students lived experiences could be as a resource when inquiring into critical teaching and learning issues.

My doctoral research directly informed the development of the Return to Learning online curriculum as well as my practice as a learning strategist combining cognitive science and technology apps to support student success. Working with historically marginalized populations (i.e. international, mature, English language learners, Indigenous, students registered with accessibility services), my goal was for students to see themselves as already capable, knowledgeable, and agentic learners; however, I wanted them to arrive at these understandings in their own time and on their own. In my research study, the two critical digital literacy educators worked to disrupt notions of “who is literate?” and “what counts as knowledge?” by introducing multimodal digital tools and texts and encouraging teacher candidates to engage in self-reflexive work. Learning from the two professors in my study, I began to understand how powerful these practices could be in disrupting assumptions around teaching and learning and the potential of technologies when leveraged by a critical perspective. I decided to design opportunities for the students in the learning strategist program to work extensively with multimodal texts and use their past and present personal stories and experiences as curricular resources.

For one particular learning module, students were asked to create digital representations to share stories about their past educational experiences, to reflect on lessons learned, to develop goals, and design a learning plan and a study plan. This prompt positioned learners as agentic and knowledgeable, aimed to value and utilize their lived experiences as a source of knowledge

and as curricular resources. Using varied digital technologies students were asked to document their personal schooling experiences. What I hoped resulted from this learning module was to invite students' powerful counter narratives to the dominant discourses persistent in education. By telling their own educational stories, students invite diverse and varied perspectives, which can result in an interrogation of their own assumptions around teaching and learning and divergent cultural and educational expectations and assumptions. Using critical digital literacy practices in the learning strategist program, I found that the deliberate and thoughtful design of learning opportunities that address technical "know-how" *and* immerse students in experiencing digital technologies through a social, cultural and ethical lens supports them not only to develop critical and digital competence but also to begin to develop who they are as learners, and how valuable their experiences and identities are to their education.

Limitations

There were four limitations to this study. First, the minimal number (7) of teacher candidate participants in case study one made it difficult to generalize findings to the wider group of teacher candidates learning about critical digital pedagogies and practices. A second limitation of this research study was the absence of observations of the practices of critical digital literacy scholars and teacher candidates in their teacher education courses. I would have had a more complete view of their practices and pedagogies, if I had observed classroom pedagogies, thus deepening my understanding of their work. A third limitation in my research study was that I did not understand how K-12 teachers interpreted the curriculum during the process of classroom application. A final limitation was the absence of focus groups, interviews or observations with K-12 students in my study. An expanded qualitative methodology would have produced a more comprehensive understanding of K-12 teacher pedagogies and practices

and students' experiences and understandings learning about critical digital literacies, thus expanding my understanding of teacher candidates teaching and learning initiatives.

Recommendations

Implications for instruction in teacher education.

The critical digital literacy scholars in this study approached teaching with a critical pedagogical stance towards multi-modal texts, social practices, and dominant discourses that valued diversity. Their courses reflected their pedagogical stance while providing opportunities for teacher candidates to gain new understandings of critical and digital literacies. The complex work of digital literacy scholars with a critical pedagogical stance needs to be further encouraged within the institution, and opportunities for collaboration within and across institutions needs to be supported. The following are implications and recommendations for teacher education courses.

First, digital literacy is an evolving practice and should reflect shifts in contemporary cultures, communication strategies, and societies. Teacher educators could benefit from deliberately and carefully selecting an expansive range of multi-modal texts and digital devices in their courses that transcend traditional notions of literacy as autonomous skills such as reading and writing. The two professors in this study included a range of multi-modal options including videos, podcasts, makerspaces, blogs, and virtual reality. Incorporating expansive multi-modal texts into teacher education courses will support teacher candidates to broaden their conceptions of literacy while simultaneously demonstrating that diverse systems of knowledge and identities can coexist and be expressed in multi-modal ways dependent on diverse abilities and experiences. Critical digital literacy educators must create opportunities for teacher candidates to

demonstrate their learning in dynamic ways, which account for the changing conceptions of literacy that now encompass digital literacy.

Relatedly, critical digital literacy scholars must provide teacher candidates with opportunities to understand the influence of issues and perspectives such as gender, culture, race, class, and privilege on their own digital literacy development and how these identities impact their role as educators. Using a range of digital devices in combination with a foundation of critical literacy educators can consider socio-political issues to support teacher candidates to unpack their own, and others' assumptions about complex issues.

Second, critical digital literacy scholars and teacher candidates often face pressure to adhere to curricular and institutional standards. For critical digital literacy scholars it is often easier to offer teacher candidates practical resources to integrate technology, however, educators must work to create opportunities to problematize dominant discourses in education and understand how dominant discourses are revealed in digital literacy practices, and ultimately to support teacher candidates to move beyond the standards. The critical digital literacy scholars in this study used classroom discussion and critical document analysis techniques as approaches to interrogate the curriculum documents. Interrogations of provincial curriculum documents often resulted in tension because the teacher candidates experienced a disconnect between curriculum mandates, pedagogical instruction, and the needs of diverse schools and students. Critical digital literacy scholars should view this tension as a productive resource in the classroom. Grappling with these critical issues supports teacher candidates to appreciate the complexity of teaching and learning. Teacher educators also gain a clearer understanding of how teacher candidates conceptualize and actualize critical pedagogies and digital practices. Through classroom

discussion, teacher candidates have opportunities to negotiate tensions and develop new understandings of equity, technology, and access.

This study contributes to the understanding and application of a CITI framework suggesting that the three dimensions of the framework (critical literacy, intersectional theory, and New Literacies studies) are relevant for critical digital literacy scholars to conceptualize their teacher education courses. These three dimensions can be used to inform a critical digital pedagogical approach in teacher education classrooms; however, the framework will need to be elaborated and expanded upon to highlight the needs of teacher candidates in their specific teacher education context.

The two professors in this study had to go above and beyond the course curriculum to effectively integrate critical digital literacy practices while designing opportunities for teacher candidates to gain an equity focused approach to digital literacy. There were both physical – lack of space, resources, and devices – and emotional – limited professional development and institutional support – demands on the critical digital literacy scholars. Critical digital literacy integration is not sustainable under these conditions. The complex work of teacher educators requires more support within and across the institution. Teacher education programs need to create the time and space required for critical digital literacy educators to broaden and enhance the learning experiences from which they construct their critical digital literacy education curriculum. They need time to work with their colleagues to discuss ideas and enhance professional development opportunities. Additionally, they require time to refine their course syllabi to best meet the needs of their teacher candidates and appropriately reflect the context in which they teach. Lastly, the institution needs to value collaboration amongst faculty and encourage them to dedicate time regularly to refining their courses, to mentor new faculty, and

enhance professional development within and across institutions to share knowledge around critical digital literacy education research and pedagogies.

As I have argued throughout this study, without programs and policies that are deliberately aimed at bridging digital divides, we will not be able to understand how to prepare and support critical digital literacies learning for teachers and teacher candidates. By working with professors and teacher candidates my study gathers evidence on pedagogical frameworks and strategies to shape the design of new literacies curricula in Canada that could bring about the cultural shifts in schooling that have been called for by educational leaders.

References

- Afflerbach, P.A., & Cho, B.Y. (2008). *Identifying and describing constructively responsive comprehension strategies in new and traditional forms of reading*. In S. Israel & G. Duffy (Eds.), *Handbook of reading comprehension research* (pp. 69–90). Mahwah, NJ: Erlbaum.
- Alcoff, L. M. (2004). Against “post-ethnic” futures. *The Journal of Speculative Philosophy*, 18 (2), 99–117.
- Alvermann, D. E. (2002). (Ed.) *Adolescents and literacies in a digital world*. New York: Peter Lang.
- Anderson, J., & Rainie, L. (2014). Digital life in 2025. *Pew Internet and American Life Project*. Retrieved from www.pewinternet.org/2014/03/11/digital-life-in-2025/
- Andreotti, V. (2006). Soft versus critical global citizenship education. *Policy and Practice: A Development Education Review*, 3, 40–51.
- Andreotti, V and Souza, L. (2008). Global learning in the knowledge society: four tools for discussion. *Journal of Development Education Research and Global Education*, 31, pp. 7-12.
- Andreotti, V. (2010a). Global education in the 21st century: Two different perspectives on the “post-” of postmodernism’, *International Journal of Development Education and Global Learning*, 2 (2), 5-22.
- Andreotti, V. (2010b). Glimpses of a postcolonial and post-critical global citizenship education in G Elliott, C Fourali and S Issler (Eds.) *Education for Social Change*, London: Continuum.

- Andreotti, V., & Pashby, K. (2013). Digital democracy and global citizenship education: Mutually compatible or mutually complicit? *The Educational Forum*, 77, 422–437.
- Andreotti, V. (2014). Conflicting epistemic demands in poststructuralist and postcolonial engagements with questions of complicity in systemic harm. *Educational Studies: A Journal of the American Educational Studies Association*, 50, (4), 378-397.
- Andreotti, V. (2014). Critical literacy: theories and practices in development education. *Policy & Practice: A Development Education Review*, 12-32.
- Anthias, F. (2012). Intersectional what? Social divisions, intersectionality and levels of analysis. *Ethnicities*, (pp. 1-17).
- Anzaldúa, G. (1999). *Borderlands/La frontera*, 2. San Francisco: Aunt Lute.
- Baker, P. (2012). Acceptable bias? Using corpus linguistics methods with critical discourse analysis. *Critical Discourse Studies*, 9(3), 247-256.
- Baker, P., Gabrielatos, C., KhosraviNik, M., Krzyzanowski, M., McEnery, T., & Wodak, R. (2008). A useful ,methodological synergy? Combining critical discourse analysis and corpus linguistics to examine discourses of refugees and asylum seekers in the UK press. *Discourse & Society*, 19(3), 273-306.
- Baroud, J. (2019). Bridging girls' double lives: Instructional practices to engage critical literacy in elementary and secondary school through video production. *Michigan Reading Journal*.
- Barriball, K., & While, A. (1994). Collecting data using a semi-structured interview: A discussion paper. *Journal of Advanced Nursing*, 19(2), 328-335).
- Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, 13(4), 544-559.

- Bebell, D., Russell, M., & O'Dwyer, L. (2004). Measuring teachers' technology uses: why multiple-measures are more revealing. *Journal of Research on Technology in Education*, 37(1), 45-63.
- BC Ministry of Education. (2015). *The BC curriculum grades K-12: English Language Arts* [Program of Studies]. Retrieved from <https://curriculum.gov.bc.ca/curriculum/english-language-arts>
- Bennett, S., Maton, K., & Kervin, L. (2008). The digital natives debate: A critical review of the evidence. *British Journal of Educational Technology*, 31(9), 775–786.
- Berg, B. L. (2009). *Qualitative research methods for the social sciences* (5th ed.). Boston: Pearson.
- Bian, L., Lesley, S., & Cimpian, A. (2017). Gender stereotypes about intellectual ability emerge early and influence children's interests. *Science*, 355(6323), 389-391. Doi: 10.1126/science.aah6524
- Bilge, S. (2013). Intersectionality Undone. *Du Bois Review*, 10 (2): 405–424.
- Bilge, S. (2014, April 25). *Confronting the Undoing of Intersectionality within Disciplinary Academic Feminism*. Paper presented at International Intersectionality Conference, Vancouver, BC, Canada.
- Blackmore, J. (2014). Cultural and gender politics in Australian education, the rise of education capitalism and the 'fragile project' of critical educational research. *Australian Educational Researcher*, 41, (pp. 499–520).
- Boling, E. (2005). A time for new literacies: Who's educating the teacher educators? *Teachers College Record*, Retrieved March, 24, 2013 from <http://www.tcrecord.org>

- Bowleg, L. (2008). When black + lesbian + woman $\neq$ black lesbian woman: The methodological challenges of qualitative and quantitative intersectionality research. *Sex Roles*, 59 (5–6), 312–325.
- Bowleg, L. (2013). “Once You’ve Blended the Cake, You Can’t Take the Parts Back to the Main Ingredients”: Black gay and bisexual men’s descriptions and experiences of intersectionality. *Sex Roles*, 68 (11–12), 754–767.
- Brah, A., & Phoenix, A. (2004). Ain’t I a woman? Revisiting intersectionality. *Journal of International Women’s Studies*, 5(3), 75–86.
- Brass, J., & Webb, A. (2014). (Eds.) Reclaiming English language arts methods courses: Critical issues and challenges for teacher educators in top-down times. New York, NY: Routledge.
- Brooks, D. M. (2017). Untapped possibilities: Intersectionality theory and literacy research. Theoretical models and processes of literacy. In D. Alvermann., N. Unrau., M. Sailors., & Rudell, R (Eds.), *Theoretical Models and Processes of Literacy* (pp. 419–429). Taylor and Francis: New York.
- Brown, E. (2017). Exploring the design of technology enabled learning experiences in teacher education that translate into classroom practice. Unpublished Doctoral dissertation, University of Calgary.
- Bruce, D.L., & Chiu, M.M. (2015). Exploring the transition into academia through collaborative self-study. *Studying Teacher Education*, 66(3), 272–287.
- Bruno, G., Esposito, E., Genovese, A., Gwebu, K.L., (2010). A critical analysis of current indexes for digital divide measurement. *The Information Society*, 27 (1), 16–28.

- Buckingham, D. (2003). *Media education: Literacy, learning and contemporary culture*. Malden, MA: Polity Press.
- Bullock, M. S., & Ritter, J. (2011). Exploring the transition into academia through collaborative self-study. *Studying Teacher Education*, 7(2), 171-181.
- Burwell, C. (2013). The Pedagogical Potential of Video Remix: Critical conversations about culture, creativity, and copyright. *Journal of Adolescent & Adult Literacy*, 57(3), 205–213.
- Butler, J. (1990). *Gender trouble, feminism and the subversion of identity*. London: Routledge.
- Callow, J. (2010). Spot the difference: The changing nature of page-based and screen-based texts. *Screen Education*, 58, 106–110.
- Carastathis, A. (2014). The concept of intersectionality in feminist theory. *Philosophy compass*, 9(5), 304-214.
- Castek, J., Zawilinski, L., McVerry, G., O’Byrne, I., & Leu, D.J. (2011). *The new literacies of online reading comprehension: New opportunities and challenges for students with learning difficulties*. In C. Wyatt-Smith, J. Elkins, & S. Gunn (Eds.), *Multiple perspectives on difficulties in learning literacy and numeracy* (pp. 91–110). New York: Springer.
- Center for Media Literacy. (2005). Literacy for the 21st century: An overview and orientation guide to media literacy education. *Part 1 of the CML medialit kit: Framework for learning and teaching in a media age*. Retrieved from www.medialit.org/cml-medialit-kit
- Cervetti, G., damico, J., & Pearson, D. (2006). Multiple literacies, new literacies, and teacher education. *Theory into Practice*, 45(4), 378-386.

- Charles, C. (2007). Digital media and “girling” at an elite girls’ school. *Learning, Media and Technology*, 32(2), 135–147. <http://doi.org/10.1080/17439880701343105>
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage.
- Cho, S., Crenshaw, C., and McCall, L. (2013). Toward a field of intersectionality studies: Theory, applications, and praxis. *Signs*, 38 (4), 785–810.
- Choo, H. Y. & Ferree, M.M. (2010). Practicing intersectionality in sociological research: A critical analysis of inclusions, interactions, and institutions in the study of inequalities. *Sociological Theory*, 28 (2): 129–149.
- Cimpian, R., Lubienski, S., Timmer, D. J., Makowski, M., & Miller, E. (2016). Have gender gaps in math closed? Achievement, teacher perceptions, and learning behaviors across two ECLS-K Cohorts. *American Educational Research Association Open*, 2(4), 1–19.
- Cimpian, A., & Leslie, S. (2017). Why young girls don’t think they are smart enough. *The New York Times*. doi: https://www.nytimes.com/2017/01/26/well/family/whyyoung-girls-dont-think-they-are-smart-enough.html?smid=fb-nytimes&smtyp=cur&_r=0
- Code, L. (2011). “They treated him well”: Fact, fiction, and the politics of knowledge. In *Feminist Epistemology and Philosophy of Science: Power in Knowledge*, (Ed). Heidi E. Grasswick, 205–221. London: Springer Dordrecht Heidelberg
- Coiro, J., Knobel, M., Lankshear, C., & Leu, D.J. (2008). Central issues in new literacies and new literacies research. In J. Coiro, M. Knobel, C. Lankshear, & D.J. Leu (Eds.), *Handbook of research on new literacies* (pp. 1–22). Mahwah, NJ: Erlbaum.
- Cole, R.E. (2009). Intersectionality and research in psychology. *American Psychologist*, 64 (3), 170–180.

- Collins, P.H. (1998). It's all in the family: Intersections of gender, race, and nation. *Hypatia*, 13(3), 62-82.
- Collins, P.H. (2000). *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment*. Boston: Unwin Hyman.
- Cope, B., & Kalantzis, M. (2000). Multiliteracies: The beginning of an idea. In B. Cope & M. Ralantzis (Eds.), *Multiliteracies: Literacy learning and the design of social futures* (pp. 3-8). London: Routledge.
- Cotnam-Kappel, M. (2018). Friends and Support Matter: The Digital Literacies Skills and Needs of High School Students in Francophone Ontario. *Canadian Journal of Learning and Technology*, 44(1). doi: <https://doi.org/10.21432/cjlt27583>
- Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine. *Feminist Theory and Antiracist Politics*. University of Chicago Legal Forum, 139–168.
- Crenshaw, K. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law, Review* 43 (6), 1241–1299.
- Cuban, L. (2001). *Oversold and underused: Computers in the classroom*. Cambridge, MA: Harvard University Press.
- Dahya, N., & Jenson, J. (2015). Mis/Representations in School-Based Digital Media Production: An Ethnographic Exploration with Muslim Girls. *Diaspora, Indigenous, and Minority Education*, 9(2), 108–123.
- Dalton, B., & Proctor, P. (2008). *The changing landscape of text and comprehension in the age of new literacies*. In J. Coiro, M. Knobel, C. Lankshear, & D.J. Leu (Eds.), *Handbook of research on new literacies* (pp. 297–324). Mahwah, NJ: Erlbaum.
- Davies, C. B. (1994). *Black women, writing and identity: Migrations of the subject*. New

- Davies, B. (1991). The concept of agency: A feminist poststructuralist analysis. *Social Analysis: The International Journal of Anthropology*, (30), 42-53.
- Davis, A. (2005). *Abolition democracy: Beyond empire, prisons, and torture*. New York: Seven Stories Press. York: Routledge.
- de la Piedra, M. T. (2010). Adolescent worlds and literacy practices on the United States-Mexico border. *Journal of Adolescent & Adult Literacy*, 53(7), 575–584.
<http://doi.org/10.1598/JA>
- Dezuanni, M., O'Mara, J., & Beavis, C. (2015). “Redstone is like electricity”: Children’s performative representations in and around Minecraft. *E-Learning and Digital Media*, 12(2), 147–163. <http://doi.org/10.1177/2042753014568176>
- Dhamoon, R. K. (2011). Considerations on mainstreaming intersectionality. *Political Research Quarterly*, 64 (1), 230–243.
- DiMaggio, P., & Hargittai, E. (2001). *From the ‘digital divide to ‘digital inequality’*: Studying internet use as penetration increases. Retrieved from Princeton University website:
https://pdfs.semanticscholar.org/4843/610b79d670136e3cdd12311f91f5cc98d2ee.pdf?_ga=2.231790623.1857670146.1567707096-153770145.1567707096
- Duggan, M. (2013). *It’s a woman’s (social media) world*. Washington, DC: Pew Internet & American Life Project.
- Duke, N., & Mallette, M. (2004). *Literacy research methodologies*. London: The Gulford Press.
- Eagleton, M., Guinee, K., & Langlais, K. (2003). Teaching Internet literacy strategies: The hero inquiry project. *Voices from the Middle*, 10(3), 28–35.
- Emert, T. (2014). “Hear a story, tell a story, teach a story”: Digital narratives and refugee middle schoolers. *Voices from the Middle*, 21(4), 33–38.

- Epstein, D., Nisbet, E. C., & Gillespie, T. (2011). Who's responsible for the digital divide? Public perceptions and policy implications. *The Information Society*, 27(2), 92–104. doi:10.1080/01972243.2011.548695
- Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106. Retrieved from <http://leadidf.edu.haifa.ac.il/files/final-test-articles/2013/9-Digital-literacy-JEMH.pdf>
- Fabos, B. (2008). The price of information: Critical literacy, education, and today's Internet. In J. Coiro, M. Knobel, C. Lankshear, & D.J. Leu (Eds.), *Handbook of Research on New Literacies* (pp. 839–870). Mahwah, NJ: Erlbaum.
- Fairclough, N. (2001). *Language and power*. Pearson Education.
- Fallows, D. (2005). *How women and men use the internet*. Washington, DC: Pew Internet & American Life Project. Retrieved from <http://www.pewinternet.org/Reports/2005/How-Women-and-Men-Use-the-Internet.aspx>
- Freire, P. (1970). *Pedagogy of the oppressed*. New York, NY: Continuum.
- Fuchs, C. (2009). The role of income inequality in a multivariate cross-national analysis of the digital divide. *Social Science Computer Review*, 27(1), 41–58.
- Gall, M., Borg, W., & Gall, J. (1996). *Educational research: An introduction*. White Plains, NY: Longman.
- Gee, J. (1990). *Social linguistics and literacies: Ideology in discourses*. London: Falmer Press.
- Garcia, A., Mirra, N., Morrell, E., Martinez, A., & Scorza, D. (2015). The council of youth research: Critical literacy and civic agency in the digital age. *Reading and Writing Quarterly*, 31(2), 151-167.

Gee, J.P. (2007). *Social linguistics and literacies: Ideology in discourses*. London: Routledge.

Gee, J. (2003). *What video games have to teach us about learning and literacy*. New York:

Palgrave, Macmillan.

Google. (2014). *Women who choose computer science— what really matters*. Doi:

<https://static.googleusercontent.com/media/www.google.com/en/us/edu/pdf/women-whochoose-what-really.pdf>

Government of Canada. (2015). Telecom notice of consultation CRTC 2015-134 (Archived).

Canadian Radio-Television and Telecommunications Commission (CRTC). April 9.

<https://crtc.gc.ca/eng/archive/2015/2015-134.html>

Government of Canada. (2016). *Telecom regulatory policy CRTC 2016-496*. Canadian Radio

Television and Telecommunications Commission (CRTC). December 21.

<https://crtc.gc.ca/eng/archive/2016/2016-496.htm>.

Grace, D.J., & Henward, A. S. (2013). Investigating young children's talk about the media.

Contemporary Issues in Early Childhood, 14(2), 138–154.

Hadziristic, T. (2017). The state of digital literacy in Canada: A literature review. *Brookfield*

Institute for innovation and entrepreneurship, 1-67.

Haight, M., Quan-Haase, A., & Corbett, B. (2014). Revisiting the digital divide in Canada: The

impact of demographic factors on access to the Internet, level of online activity, and

social networking site usage. *Information, Communication & Society*, 17(4), 503–519.

<http://doi.org/10.1080/1369118X.2014.891633>

Halberstam, J. (2005). *In a queer time and place: Transgender bodies, subcultural lives*. New

York: NYU Press.

- Hancock, A. (2016). *Intersectionality: An intellectual history*. New York, NY: Oxford University Press.
- Hancock, A. (2007). When multiplication doesn't equal quick addition: Examining intersectionality as a research paradigm. *Perspectives on Politics*, 5(1), 63-79.
- Hargittai, E., & Hsieh, Y. P. (2010). Predictors and consequences of differentiated social network site uses. *Information, Communication and Society*, 13(4), 515–536.
doi:10.1080/13691181003639866
- Hargittai, E. (2002). Second-level digital divide: Differences in people's online skills. *First Monday*, 7(4). doi:<http://dx.doi.org/10.5210/2Ffm.v7i4.942>
- Hargittai, E., & Hinnant, A. (2008). Digital inequality: Differences in young adults' use of the internet. *Communication Research*, 35(5), 602–621. doi:10.1177/0093650208321782
- Harnois, C. (2005). Different paths to different feminisms? Bridging multiracial feminist theory and quantitative sociological gender research. *Gender and Society*, 19, (6), 809–828.
- Harnois, C. (2013). *Feminist measures in survey research*. Thousand Oaks, CA: Sage.
- Harper, D. (2006). *Generation YES (Youth and Educators Succeeding)—Vision to action: Adding student leadership to your technology plan*. Retrieved from
www.genyes.com/media/programs/how_to_include_students_in_tech_plan.pdf
- Hartman, D.K., Morsink, P.M., & Zheng, J. (2010). From print to pixels: The evolution of cognitive conceptions of reading comprehension. In E.A. Baker (Ed.), *The new literacies: Multiple perspectives on research and practice* (pp. 131–164). New York: Guilford.

- Helsper, E.J., & Van Deursen, A.J.M. (2017) Do the rich get digitally richer? Quantity and quality of support for digital engagement. *Information. Communication & Society*, 20(5), 700–714.
- Henn, S. (2014). When women stopped coding. NPR: Planet Money.
<http://www.npr.org/sections/money/2014/10/21/357629765/when-women-stopped-coding>
- Henry, L. (2006). SEARCHing for an answer: The critical role of new literacies while reading on the Internet. *The Reading Teacher*, 59(7), 614–627. doi:10.1598/RT.59.7.
- Henry, L.A. (2007). *Exploring new literacies pedagogy and online reading comprehension among middle school students and teachers: Issues of social equity or social exclusion?* Unpublished doctoral dissertation, University of Connecticut, Storrs.
- Henry, F., & Tator, C. (2002). *Discourses of domination: Racial bias in the Canadian English-language press*. Toronto, ON: University of Toronto Press.
- Hoagland, S. (2010). Colonial practices/colonial identities: All the women are still white. In *The Center Must Not Hold: White Women on the Whiteness of Philosophy*, ed. George Yancy, 227–244. Lanham, MD: Lexington Books.
- Hobbs, R. (2010). *Digital and media literacy: A plan of action*. The Aspen Institute: Washington, D.C.
- Hoechsmann, M., & DeWaard, H. (2015). Mapping digital literacy policy and practice in the Canadian education landscape. *MediaSmarts*: doi: <http://mediasmarts.ca/teacher-resources/digital-literacy-framework/mapping-digital-literacy-policy-practice-canadian-education-landscape>

- Honeyford, M.A. (2014). From Aqui and Alla: Symbolic convergence in the multimodal literacy practices of adolescent immigrant students. *Journal of Literacy Research*, 46(2), 194–233. <http://doi.org/10.1177/1086296X14534180>
- Hoofd, I. (2012). *Ambiguities of activism: Alter-globalism and the imperatives of speed*. New York: Routledge.
- Howard, P. N., Busch, L., & Sheets, P. (2010). Comparing digital divides: Internet access and social inequality in Canada and the United States. *Canadian Journal of Communication*, 35(1), 109–128.
- Huynh, A., & Malli, N. (2018) Levelling up: The quest for digital literacy. *Brookfield Institute for innovation and entrepreneurship*. <https://brookfieldinstitute.ca/report/levelling-up/>
- Information and communication technology council (ICTC). (2016a). *Innovation agent project (SEED)*. http://www.ictc-ctic.ca/wpcontent/uploads/2016/12/ICTC_Innovation-Agent-Report.pdf
- Information and communication technology council (ICTC). (2016b). *Digital Talent Road To 2020 and Beyond: A National Strategy To Develop Canada's Talent in a Global Digital Economy*. Retrieved from http://www.ictc-ctic.ca/wpcontent/uploads/2016/03/ICTC_DigitalTalent2020_ENGLISH_FINAL_March2016.pdf
- Ireland, D., Freeman, E. K., Winston-Proctor, C., DeLaine, K., Lowe, S., & Woodson, K. (2018). (Un)hidden figures: A synthesis of research examining the intersectional experiences of black women and girls in STEM education. *Review of Research in Education*, 42, 226–254. DOI: 10.3102/0091732X18759072

- Itō, M. (2010). Hanging out, messing around, and geeking out: Kids living and learning with new media. *The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning*. Cambridge, MA: MIT Press.
- Jenkins, H. (2006). *Convergence culture: Where old and new media collide*. New York: New York University Press
- Jewitt, C., & Kress, G. (2003). *Multimodal literacy*. New York: Peter Lang Publishing.
- Johnson, M., Riel, R., & Froese-Germain, B. (2016). *Connected to learn: Teachers' experiences with networked technologies in the classroom*. Ottawa: Media Smarts & The Canadian Teacher's Federation.
- Jones, A. (2019, March 12). *Ontario to ban cellphones in classrooms next school year*. CBC News. <https://www.cbc.ca/news/canada/toronto/ontario-school-classroom-cellphone-ban-1.5052564>
- Jones, K., & Flannigan, S.L. (2006). *Connecting the digital dots: Literacy of the 21st century*. *Educause Quarterly*, 2, 8-10. Retrieved from <http://www.net.educause.edu/ir/library/pdf/EQM0621.pdf>
- Kamberelis, G., & Dimitriadis, G. (2004). *On qualitative inquiry: Approaches to language and literacy research*. New York, NY: Teachers College Press.
- Karlin, M. (2016). *Flipgrid: Use student videos to promote discussion and engagement*. Retrieved from: <http://www.edtechroundup.org/reviews/flipgrid-use-student-videos-to-promote-discussion-and-engagement>
- Kafai, Y.B., & Burke, Q. (2015). Constructionist gaming: Understanding the benefits of making games for learning. *Educational Psychologist*, 50(4), 313-334.

- Kiili, C., Laurinen, L., Marttunen, M., & Leu, D. J. (2012). Working on understanding: Collaborative reading patterns on the Web. *Journal of Literacy Research*. DOI: <https://doi.org/10.1177/1086296X12457166>
- Kimmons, R., & Hall, C. (2017). How useful are our models? Pre-service and practicing teacher evaluations of technology integration models. *Techtrends*. DOI 10.1007/s11528-017-0227-8.
- Kimmons, R. (2015). Examining TPACK's theoretical future. *Journal of Technology and Teacher Education*, 23(1), 53–77.
- King, A. E., & Douai, A. (2014). From the “Damsel in Distress” to girls’ games and beyond. *Gender considerations and influence in the digital media and gaming industry*, 1–17. <http://doi.org/10.4018/978-1-4666-6142-4.ch001>
- Kirkwood, A. & Price, L. (2014) Technology-enhanced learning and teaching in higher education: what is ‘enhanced’ and how do we know? A critical literature review. *Learning Media and Technology* 39(1) 6-36.
- Kirkwood, A. (2009). E-learning: You don’t always get what you hope for. *Technology, Pedagogy and Education*, 18(2), 107-121.
- Kolb, L. (2017). Learning first technology second: the educators guide to designing authentic lessons. *International Society for Technology in Education*. Portland, Oregon.
- Knapp, G. A. (2005). Race, class, gender: Reclaiming baggage in fast travelling theories. *European Journal of Women’s Studies*, 12(3), 249-265.
- Kosnik, C., Dharamshi, P., Menna, L., Miyata, C., & Cleovoulou, Y. (2015). You teach who you are: The experiences and pedagogies of literacy/English teacher educators who have a critical stance. In J. Lampert, & B. Burnett (Eds.), *Teacher Education for High Poverty Schools* (pp. 135-151). Dordrecht: Springer Academic Publishers.

- Kress, G. (2003). *Literacy in the new media age*. New York: Routledge.
- Kress, G., Jewitt, C., Ogborn, J., & Tsatsarelis, C. (2001). *Multimodal teaching and learning: The rhetorics of the science classroom*. London: Continuum.
- Kuhn, T. S. (1996). *The structure of scientific revolutions* (Third ed.). Chicago, IL: The University of Chicago Press.
- Kuiper, E., & Volman, M. (2008). *The Web as a source of information for students in K–12 education*. In J. Coiro, M. Knobel, C. Lankshear, & D.J. Leu (Eds.), *Handbook of research on new literacies* (pp. 241–246). Mahwah, NJ: Erlbaum.
- Lankshear, C. (1998). Meanings of literacy in contemporary educational reform proposals. *Language and literacy education*. Queensland University of Technology.
- Lankshear, C., & Knobel, M. (2003). *New literacies: Changing knowledge and classroom learning*. Philadelphia: Open University Press.
- Lankshear, C., & Knobel, M. (2006). *New literacies: Everyday pratices and classroom learning* (2nd Ed). Maidenhead and New York: Open University Press.
- Lankshear, C., & Knobel, M. (2007). *A new literacies sampler*. New York: Peter Lang.
- Laurence, A. (2017). Corpus linguistics and vocabulary: A commentary on four studies. *Vocabulary learning and instruction*, 6(2), 79-87.
- Leard, D. W., & Lashua, B. (2006). Popular media, critical pedagogy, and inner city youth. *Discourse: Studies in the Cultural Politics of Education*, 29(1), 244–264.
- Leslie, S., Cimpian, A., Meyer, M., & Freeland, E. (2015). Expectations of brilliance underlie gender distributions across academic disciplines. *Science*, 347 (6219), 262-265.
<http://science.sciencemag.org/content/347/6219/262>

- Leu, D., Kinzer, C., Coiro, J., Castek, J., & Henry, L. (2017). New literacies: A dual-level theory of the changing nature of literacy, instruction, and assessment. *Journal of Education*, 197, 1-18.
- Leu, D.J., Zawilinski, L., Castek, J., Banerjee, M., Housand, B., & Liu, Y. (2007). *What is new about the new literacies of online reading comprehension?* In L. Rush, J. Eakle, & A. Berger (Eds.), *Secondary school literacy: What research reveals for classroom practices* (pp. 37–68). Urbana, IL: National Council of Teachers of English.
- Lewison, M., Leland, C., & Harste, J. C. (2008). *Creating critical classrooms: K–8 reading and writing with an edge*. New York, NY: Routledge.
- Linnenbrink, E. A., & Pintrich, P. R. (2003). The role of self-efficacy beliefs in student engagement and learning in the classroom. *Reading & Writing Quarterly*, 19(2), 119-137.
- Lotherington, H., Fisher, S., Jenson, J., & Lindo, L. (2016). Professional development from the inside out: Redesigning learning through collaborative action research. In M. Knobel & J. Kalman (Eds.), *New Literacies and teacher learning: Professional development and the digital turn* (pp. 65-87). New York: Peter Lang.
- Ludwig, A. (2006). Differences between women? Intersecting voices in a female narrative. *European Journal of Women's Studies*, 13(3), 245–58.
- Lugones, M. (2006). On complex communication. *Hypatia*, 21 (3), 75–85.
- Maldonado-Torres, N. (2012). Epistemology, ethics, and the time/space of decolonization: Perspectives from the Caribbean and the Latina/O Americas. In Isasi-Diaz, AM., & Mendieta, E. (Eds.), *Decolonizing Epistemologies: Latina/o Theology and Philosophy* (193–206). New York: Fordham University Press.

- Marshall, H. (2011). Instrumentalism, ideals and imaginaries: Theorising the contested space of global citizenship education in schools. *Globalisation, Societies and Education*, 9 (3–4), 411–426.
- Martinex, M., & Schilling, S. (2010). Using technology to engage and educate youth. *New Directions for Youth Development* (127), 51-61. Doi: 10.1002/yd.362.
- Mautner, G. (2009). Corpora and critical discourse analysis. In Baker, P. (Ed.), *Contemporary corpus linguistics* (32-46). London, New York: Continuum.
- Malli, N., Warner, E., & Thomson, J. (2020). Building inclusion and equity into Canada's innovation economy *Brookfield Institute for innovation and entrepreneurship*.
<https://brookfieldinstitute.ca/project/building-inclusion-into-canadas-innovation-economy/>
- May, M. V. (2015). *Pursuing intersectionality, unsettling dominant imaginaries*. New York: Routledge.
- McNeaney, J.E., Li, L., Allen, K., & Guzniczak, L. (2009). Stance, navigation, and reader response in expository hypertext. *Journal of Literacy Research*, 41(1), 1–45.
doi:10.1080/10862960802695081
- McGinnis, T.A. (2007). Khmer rap boys, X-Men, Asia's fruits, and Dragonball Z: Creating multilingual and multimodal classroom contexts. *Journal of Adolescent & Adult Literacy*, 50(7), 570–579. <http://doi.org/10.1598/JAAL.50.7.6>
- McLuhan, M. (1962). *The gutenber galaxy: The making of typographic man*. Toronto: University of Toronto Press.
- MediaSmarts. (2019). *Media Education in Ontario*. Doi: <http://mediasmarts.ca/teacher-resources/digital-media-literacy-outcomes-province-territory/media-education-ontario>

- Merriam, S. (1988). *Case-study research in education: A qualitative approach*. San Francisco: Jossey-Bass.
- Merriam, S. (2001). *Qualitative research and case study applications in education*. San Francisco, CA: Jossey-Bass.
- Metzger, M.J., & Flanagin, A.J. (Eds.). (2008). *Digital media, youth, and credibility*. Cambridge, MA: MIT Press.
- McCall, L. (2005). The complexity of intersectionality. *Signs* 30 (3), 1771–1800.
- Miller, S. (2013). A research metasynthesis on digital video composing in classrooms: An evidence-based framework toward a pedagogy for embodied learning. *Journal of Literacy Research*, 45(4) 386–430.
- Mills, K. (2010). A review of the “digital Turn” in the New Literacy Studies. *Review of Educational Research*, 80(2), pp. 246-271.
- Mishra, P., & Koehler, M.J. (2006). Technological pedagogical content knowledge: A framework for integrating technology in teacher education. *Teachers College Record*, 108(6), 107-1054.
- Morrell, E., & Rowsell, J. (2019). *Stories from inequality to justice in literacy education: Confronting digital divides*. New York: Routledge. DOI: <https://doi.org/10.4324/9780367031138>
- Mossberger, K., Tolbert, C.J., Stansbury, M. (2003). *Virtual Inequality: Beyond the Digital Divide*. Georgetown University Press.
- Munro, D. (2018). Coding the future: What Canadian youth and their parents think about coding. *Actua*. Doi: https://actua.ca/uploads/Actuas_Coding_the_Future_Survey_Report.pdf

- Nartey, M., & Nuokyaa-Ire Mwinlaaru, I. (2019). Towards a decade of synergizing corpus linguistics and critical discourse analysis: A meta-analysis. *Corpora*, 14, 203-235.
- Nash, J. (2008). Rethinking intersectionality. *Feminist Review*, 89, 1-15.
- New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review*, 66(1), 60–92.
- Noble, U. S., & Tynes, M. B. (2016). *The intersectional internet: Race, sex, class, and culture* (Vol. 105). New York: Peter Lang.
- Nowak, Peter. (2015). Bridging Toronto’s real digital divide. *Toronto Star*. September 28.
<https://www.thestar.com/business/2015/09/28/bridging-torontosreal-digital-divide.html>
- O’Byrne, W.I. (2011). *Facilitating critical evaluation skills through content creation: Empowering adolescents as readers and writers of online information*. Unpublished doctoral dissertation, University of Connecticut, Storrs.
- Okojie, M.C.P.O., Olinzock, A.A., & Okojie-Boulder, T.C. (2006). The pedagogy of technology integration. *Journal of Technology Studies*, 32(2), 66-71.
- Ono, H., & Zavodny, M. (2007). Digital inequality: A five country comparison using microdata. *Social Science Research*, 36(3), 1135–1155.
- Ontario Ministry of Education. (2006). *The Ontario curriculum grades 1-8: Language* [Program of Studies]. Retrieved from
<http://www.edu.gov.on.ca/eng/curriculum/elementary/language18currb.pdf>
- Oppenheimer, T. (2003). *The flickering mind: The false promise of technology in the classroom and how learning can be saved*. New York: Random House.
- Patton, M. (1990). *Qualitative evaluation and research methods*. Thousand Oaks, CA: Sage.

- Pohlhaus, G. (2012). Relational knowing and epistemic injustice: Toward a theory of willful hermeneutical ignorance. *Hypatia*, 27 (4): 715–735.
- Polly, D., Mims, C., Shephard, C., and Inan, F. (2010). Evidence of impact: Transforming teacher Education with preparing tomorrow's teachers to teach with technology (PT3) grants. *Teaching and Teacher Education*, 26, 863–870.
- Project Tomorrow Speak Up Survey. (June 2013). *From Chalkboard to Tablets: The Emergence of the K-12 Digital Learner*.
- Pugh, V.M.C. (2014). A look inside the current climate of the video game industry. *Gender Considerations and Influence in the Digital Media and Gaming Industry*, 82–91.
<http://doi.org/10.4018/978-1-4666-6142-4.ch004>
- Punch, K. (2009). *Introduction to research methods in education*. London: Sage.
- Razack, S. (1998). *Looking white people in the eye: Gender, race, and culture in courtrooms and classrooms*. Toronto: Univ of Toronto Press.
- Razack, S. (2008). *Casting out: The eviction of Muslims from western law and politics*. Toronto: University of Toronto Press.
- Rice, D., & Alfred, M. (2014). Personal and structural elements of support for African American female engineers. *Journal of STEM Education*, 15(2), 40–49.
- Robinson, L., Cotten, R.S., Ono, H., Quan-Haase, A., Mesch, G., Chen, W., Schulz, J., Hale, M.T., & Stern, J. M., (2015). Digital inequalities and why they matter. *Information, Communication & Society*, 18(5), 569-582, DOI: 10.1080/1369118X.2015.1012532
- Rouet, J.F., Ros, C., Goumi, A., Macedo-Rouet, M., & Dinet, J. (2011). The influence of surface and deep cues on primary and secondary school students' assessment of relevance in

- Web menus. *Learning and Instruction*, 21(2), 205–219.
- doi:10.1016/j.learninstruc.2010.02.007
- Rowse, J., Morrell, E., & Alvermann, D. (2017). Confronting the digital divide: Debunking brave new world discourses. *The Reading Teacher*, 71(2), 157–165.
- Rowse, J., & Burke, A. (2009). Reading by design: Two case studies of digital reading practices. *Journal of Adolescent & Adult Literacy*, 53(2), 106–118.
- <http://doi.org/10.1598/JA>
- Saavedra, C., & Nymark, E. (2008). Borderland-mestizaje feminism: The new tribalism. In Denzin, N., Lincoln, Y., & Tuhiwai Smith, L. (Eds.). *Handbook of Critical and Indigenous Methodologies* (255–270). Thousand Oaks, CA: Sage.
- Sanford, K. (2005). Gendered literacy experiences: The effects of expectation and opportunity for boys' and girls' learning. *Journal of Adolescent & Adult Literacy*, 49(4), 302–315.
- <http://doi.org/10.1598/JAAL.49.4.4>
- Scheerder, A., van Deursen, A., & van Dijk, J. (2017). Determinants of internet skills, uses and outcomes: A systematic review of the second and third level digital divide. *Telematics and Informatics*. Elsevier Ltd.
- Sciadas, G. (2002). *The digital divide in Canada*. Science, Innovation and Electronic Division. Statistics Canada Government of Ontario. DOI:
- <http://publications.gc.ca/Collection/Statcan/56F0009X/56F0009XIE2002001.pdf>
- Scott, K., Sheridan, K., & Clark, K. (2015). Culturally responsive computing: A theory revisited. *Learning, Media and Technology*, 40(4), 412–436.
- Selwyn, N., 2004. Reconsidering political and popular understandings of the digital divide. *New Media & Society*, 6(3), 341–362.

- Sheetz, M. (2019, May 15). *Elon Musk says SpaceX Starlink internet satellites are key to funding his Mars vision*. Retrieved from <https://www.cnn.com/2019/05/15/musk-on-starlink-internet-satellites-spacex-has-sufficient-capital.html>
- Singh, A. A. (2013). Transgender youth of color and resilience: Negotiating oppression and finding support. *Sex Roles*, 68 (11–12), 690–702.
- Smith, A. (2010). Queer theory and native studies: The heteronormativity of settler colonialism. *GLQ: A Journal of Lesbian and Gay Studies*, 16 (1–2): 41–68.
- Smith, T. (2018, September 27). *Digital equity: It's more than just student access*. Retrieved from <https://www.techlearning.com/tl-advisor-blog/digital-equity-its-more-than-just-student-access>
- Spivak, G. (2002). Pax electronica: Against crisis-driven global telecommunication. In G. Lovink (Ed.), *Uncanny networks: Dialogues with the virtual intelligentsia*, 74–81. Cambridge, MA: MIT Press
- Stake, R. (2006). *Multiple case study analysis*. New York, NY: The Guilford Press.
- Steeves, B. (2014a). Young Canadians in a Wired World, Phase III: Encountering racist and sexist content online. *MediaSmarts*, Ottawa.
- Steeves, B. (2014b). Young Canadians in a wired world, phase III: Life online. *MediaSmarts*, Ottawa.
- Stevens, L.P., & Bean, T. W. (2007). *Critical literacy: Context, research and practice in the K-12 classroom*. Thousand Oaks: SAGE.
- Street, B.V. (1995). *Social literacies: Critical approaches to literacy in development, ethnography and education*. London: Longman.

- Stollery, B. (2018, May 2). *Canada's digital divide: Preserving Indigenous communities means bringing them online*. Retrieved from <https://www.thestar.com/opinion/contributors/2018/05/02/canadas-digital-divide-preserving-indigenous-communities-means-bringing-them-online.html>
- Street, B. (1994). *Literacy in theory and practice*. New York, NY: Cambridge University Press.
- Stern, M., Adams, A., & Elsasser, S. (2009). Digital inequality and place: The effects of technological diffusion on internet proficiency and usage across rural, suburban, and urban counties. *Sociological Inquiry*, 79, 391–417.
- Stiegler, B. (2012). Die Aufklärung in the Age of philosophical engineering. *Digital Enlightenment Yearbook 2013*, p. 29-30.
- Sullivan, A., Johnson, B., Owens, L., & Conway, R. (2014). Punish them or engage them? Teachers' views of unproductive student behaviours in the classroom. *AJTE Australian Journal of Teacher Education*.
- Sundar, S.S. (2008). The MAIN model: A heuristic approach to understanding technology effects on credibility. In M.J. Metzger & A.J. Flanagin (Eds.), *Digital media, youth, and credibility* (pp. 73–100). Cambridge, MA: MIT Press.
- Taboada, A., & Guthrie, J. (2006). Contributions of student questioning and prior knowledge to construction of knowledge from reading information text. *Journal of Literacy Research*, 38(1), 1–35. doi:10.1207/s15548430jlr3801_1
- Talib, S. (2018). Social media pedagogy: Applying an interdisciplinary approach to teach multimodal critical digital literacy. *E-learning and Digital Media*, 15(2), 55-66.
- van Deursen, A., & van Dijk, J. (2010). Internet skills and the digital divide. *New Media & Society*, 13(6), 893–911. doi:10.1177/1461444810386774

- Van Deursen, A., Van Dijk, J. (2011). Internet skills and the digital divide. *New Media Society*, 13 (6), 893–911
- Van Deursen, A.J., Helsper, E.J., Eynon, R. (2016). Development and validation of the Internet Skills Scale (ISS). *Information, Communication & Society*, 19 (6), 804–823
- Van Deursen, A.J.A.M., Van Dijk, J.A.G.M. (2010). Measuring internet skills. *International Journal of Human-Computer Interaction*, 26 (10), 891–916.
- Van Dijk, J.A. (2005). *The Deepening Divide: Inequality in the Information Society*. Sage Publications, (1st Edition).
- Vasquez, M, V., & Felderman, C. (2013). *Technology and critical literacy in early childhood*. Routledge: New York.
- Wachter-Boettcher, S. (2017). *Technically Wrong: Sexist Apps, Biased Algorithms, and Other Threats of Toxic Tech*. London: Norton & Company.
- Walker, A. (1983). *In search of our mothers' gardens: Womanist prose*. New York: Harcourt Brace Jovanovich.
- Walsh, M. (2010). Multimodal literacy: What does it mean for classroom practice? *The Australian Journal of Language and Literacy*, 33(3), 211–239.
- Walsh M., & Durant, C. (2013). Multiliteracies: A Slow Movement in literacy minor. In C Kosnik, J. Rowsell, P. Williamson, R. Simon, & C. Beck. (Eds.), *Literacy teacher educators: Preparing student teachers for a changing world* (pp. 175-187). Rotterdam: Sense Publishers.
- Wargo, J. M. (2015). "Every selfie tells a story ...": LGBTQ youth lifestreams and new media narratives as connective identity texts. *New Media & Society*, 1461444815612447–. <http://doi.org/10.1177/1461444815612447>

- Wasserman, I., & Richmond-Abbott, M. (2005). Gender and the Internet: Causes of variation in access, level, and scope of use. *Social Science Quarterly*, 86(1), 252–270.
- Watt, D. (2016). Muslim female students assert their identities in-between family, schooling, and the mass media. *Journal of Family Diversity in Education*, 1(1).
- Watt, D. (2017). *New Literacies and global education: Video production in teacher education as a critical digital literacy practice*. Paper presented at the World Education Research Association Annual Meeting. The Education University of Hong Kong, Hong Kong
- Watt, D. (2019 in press). Video production in elementary teacher education as a critical digital literacy practice. *Media and Communication*, 7(2), (x-x).
- Watulak, L. S. (2016). Reflection in action: Using inquiry groups to explore critical digital literacy with pre-service teachers. *Educational Action Research*, 24(4), 503-518.
- Wei, K.K., Teo, H.H., Chan, H.C., Tan, B.C., 2011. Conceptualizing and testing a social cognitive model of the digital divide. *Information Systems Research*, 22 (1), 170–187.
- Wellman, B., Quan-Haase, A., Witte, J., & Hampton, K. (2001). Does the internet increase, decrease, or supplement social capital? Social networks, participation, and community commitment. *American Behavioral Scientist*, 45(3), 436–455.
doi:10.1177/00027640121957286
- Williams, T. (2009). Intersectionality analysis in the sentencing of Aboriginal women in Canada. In Krishnadas, J., Cooper, D., Grabham, E., & Herman, D. (Eds.) *Intersectionality and Beyond: Law, Power and the Politics of Location*, (Eds.) (79–104). Abingdon, UK: Routledge Cavendish.
- Williamson, P. (2013). Engaging literacy practices through inquiry and enactment in teacher education. In C. Kosnik, J. Rowsell, P. Williamson, R. Simon, C. Beck (Eds.), *Literacy*

- teacher educators: Preparing student teachers for a changing world* (pp. 135–148). Rotterdam, The Netherlands: Sense Publishers.
- Willis, P. (2003). Foot soldiers of modernity: The dialectics of cultural consumption and the 21st-century school. *Harvard Educational Review*, 73(3), 390–415.
- Witte, J., & Mannon, S. (2010). *The Internet and social inequalities*. New York, NY: Routledge.
- Wodak, R., & Meyer, M. (2009). *Methods for critical analysis*. Introducing Qualitative Methods Series.
- Wohlwend, K. E. (2009). Damsels in discourse: Girls consuming and producing identity texts through Disney Princess play. *Research Reading Quarterly*, 44(1), 57–83.
- Wyatt-Smith, C., & Elkins, J. (2008). *Multimodal reading and comprehension in online environments*. In J. Coiro, M. Knobel, C. Lankshear, & D.J. Leu (Eds.), *Handbook of research on new literacies* (pp. 899–942). Mahwah, NJ: Erlbaum.
- Yuval-Davis, N. (2006). Intersectionality and feminist politics. *European Journal of Women's Studies* 13 (3), 193–209.
- Zack, N. (2005). *Inclusive feminism: A third wave theory of women's commonality*. Lanham, MD: Rowman & Littlefield Publishers, Inc.
- Zawilinski, L. (2011). *An exploration of a collaborative blogging approach to literacy and learning: A mixed method study*. Unpublished doctoral dissertation, University of Connecticut, Storrs.
- Zickuhr, K., & Smith, A. (2012). *Digital differences*. Washington, DC: Pew Internet & American Life Project. Retrieved from http://pewinternet.org/~media/Files/Reports/2012/PIP_Digital_differences_041312.pdf

Appendix A

Thematic guide for the semi-structured interviews with professors

Approximate time: 1.5 to 2 hours maximum semi-structured interview

The following themes and discussion questions will be used as a guide for the recorded discussion. Before the interview begins, I will introduce the research study, describe what the participants should expect in the discussion, and address any additional questions or concerns they may have.

Themes:

- Personal demographics, occupational status, and social location (teaching experience, educational background, current research endeavors, teaching and/or research ambitions/goals, how they name their social location in the context of teaching)
- Technology as a tool in the classroom
- Pedagogical approaches/teaching philosophies, resources, tools, syllabi, and lesson plan ideas
- Curriculum effectiveness

First interview questions

1. Tell me a bit about yourself and how you identify your own social location as an educator?
2. How would you describe/define your pedagogical approach to integrating technology in the classroom? What are your goals, objectives, and motivations bringing these approaches into your classroom?
3. How has your own experience integrating critical digital literacies into your syllabus and teaching practice affected your instruction? Please provide examples from lesson plan ideas, course readings, and syllabi.
4. Have you utilized an intersectional approach in your teaching? Why or why not? If so, can you provide some examples from your syllabus?
5. How have curriculum documents prepared or hindered your ability to teach critical digital literacies? How would you define the effectiveness of curriculum documents in preparing your syllabus?
6. What additional curriculum resources might you need to feel more confident and prepared to integrate critical digital literacies into your teaching practice?
7. Is there anything else you would like to add?

Second Interview questions

1. As an ELA teacher using critical digital literacies in the classroom, what are some of the challenges/obstacles you have experienced?
2. In your experience, what are some of the benefits afforded by integrating critical digital literacies in your classroom?
3. After reviewing the anonymous transcripts from the teacher candidate's reflective videos, which instructional practices will you take forward in your future syllabi and teaching practice and why? Which instructional practices will you abandon, if any? Which instructional practices might you add?
4. Is the current curriculum sufficient to equip you for future instructional goals and/or to support your critical pedagogical aims? If not, what else might you need?
5. Is there anything else you would like to add?

Appendix B

Thematic guide for teacher candidate reflective videos

I will place no restrictions on the length or format of teacher candidates' videos and will reiterate that the prompts are merely reference points to encourage each teacher candidate to thoughtful reflection

1. What pedagogical tools or ideas did you develop to integrate new literacies in your practicum classroom? Please provide examples.
2. Are elements of intersectionality such as identity, community, criticality, and social issues (etc.) being integrated into your teaching practices and/or assignments? If yes, please provide examples. If not, please explain why.
3. Based on your practicum experience what do you think are some of the challenges of integrating intersectionality and/or critical digital literacies pedagogies?
4. Based on your practicum experience what do you think are some of the opportunities and affordances of integrating intersectionality and/or critical digital literacies pedagogies?
5. How, if at all, have your perception, competence, and/or confidence integrating new literacies pedagogies changed during/throughout your practicum? Please explain.
6. What supports and resources are most useful in the design and implementation of new literacies pedagogies?
7. What additional supports and resources do you need to feel confident and competent to teach intersectionality/critical digital literacies?
8. How would you describe your overall experience integrating intersectionality/ critical digital literacies pedagogies in your practicum class?
9. What is your vision for critical digital literacies in the K-12 classroom?
10. Is there anything else you would like to add?

Appendix C

Information letter for teacher candidates

Title of the Study: Exploring the Intersections of Equity and Technology in Teacher Education Instruction, Curriculum and Pedagogies

Invitation to Participate: You are invited to participate as a co-researcher in the above mentioned research conducted by Jamilee Baroud in the context of a PhD thesis, under the supervision of Lorna McLean.

Purpose of the Study: The purpose of this research is to trace teacher education candidates' pre and post practicum perceptions and experiences integrating critical digital literacies pedagogies in the elementary classroom. Data from this study will be used in the completion of my doctoral thesis and may contribute to articles, books, conferences, and/or presentations for teachers, teacher educators, and curricular specialists.

Participation: Your participation in this study will consist of responding to a minimum of two video response prompts throughout your practicum, though I will encourage you to submit as many responses as you need to accurately reflect on the process of your experiences. You will be able to see each other's videos on the Flipgrid application and respond to each other's videos if you so choose. There are no restrictions on the format of your videos. The length of video responses permitted by Flipgrid is between 30 seconds and 3 minutes. You may use any browser, iPad, iPhone, or Android device. The video response prompts are merely reference points to encourage you to thoughtful reflection, contributing videos on your thought process integrating new literacies pedagogies in your practicum classroom. You will be asked to withdraw from using names or identifying factors in your videos.

Risks: Participant confidentiality will be protected partially as pseudonyms will be used in reference to information collected during the reflective videos. Pseudonyms for you as, the teacher candidates, your professors, and for your University will be used in all written reports. There is no perceived physical or psychological risk and no harm is anticipated with your participation in this research study.

Benefits: Your participation in this study will allow the researcher to gain a better understanding of some of the pedagogies and methods being used to teach critical digital literacy in teacher education. Further, your participation will allow you to compose and reflect your thoughts through a medium (technology) that compliments the new literacies approaches you are learning about; to open up new angles of understanding and perception of new literacies; and the opportunity to practice using the Flipgrid application to increase confidence and competence integrating such tools in your prospective classrooms.

Confidentiality: The information you share during this project will remain partially confidential; that means that only the people in your class who are participating in this project will know who you are, no one else will be able to identify you later by what you share. I will ask that the other co-researchers in this study keep what you say confidential, but I cannot guarantee that they will do so. After the semester is complete and after grades have been submitted, anonymous transcripts of the video responses will be available for professors to read for the purpose of an

interview. Further, in publications related to the research, your confidentiality will be protected using pseudonyms.

Conservation of data: The reflective videos will be transcribed as well. An electronic copy of the transcribed data will be kept in a password-protected file on the researcher's computer. Additionally, any paper copies of the data will be securely stored in a locked office at the University of Ottawa. All data will be securely destroyed five years after the completion of this research project.

Compensation: There is no compensation for participating in this project.

Voluntary Participation: You are under no obligation to participate in this research. If you choose to participate, you may withdraw from the study at any time. If you decide not to participate in this study that decision will not affect your grades in any way. You may request to have your reflective video data withdrawn after it has been submitted. You may refuse to answer any questions, without suffering any negative consequences.

Along with this letter you will find a consent form. If you are willing to be involved please read, complete, and sign the consent form and bring it with you to class before date. By signing the consent form, you allow me to write and talk about what you say in your reflective videos.

If you have any questions or concerns about this research, please feel free to contact me by email at or by phone. If you have any concerns about your treatment or rights as a research participant, please contact Dr. Lorna McLean, the research supervisor and Professor of Education at the University of Ottawa, by email. If you have any ethical concerns regarding your participation in this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa.

Sincerely,

Jamilee Baroud

You may keep this copy of the information letter.

Appendix D

Consent form for teacher candidates

Title of the Study: Exploring the Intersections of Equity and Technology in Teacher Education Instruction, Curriculum and Pedagogies

Invitation to Participate: You are invited to participate as a co-researcher in the above mentioned research conducted by Jamilee Baroud in the context of a PhD thesis, under the supervision of Lorna McLean.

Purpose of the Study: The purpose of this research is to trace teacher education candidates' pre and post practicum perceptions and experiences integrating critical digital literacies pedagogies in the elementary classroom. Data from this study will be used in the completion of my doctoral thesis and may contribute to articles, books, conferences, and/or presentations for teachers, teacher educators, and curricular specialists.

Participation: Your participation in this study will consist of responding to a minimum of two video response prompts throughout your practicum, though I will encourage you to submit as many responses as you need to accurately reflect on the process of your experiences. You will be able to see each other's videos on the Flipgrid application and respond to each other's videos if you so choose. There are no restrictions on the format of your videos. The length of video responses permitted by Flipgrid is between 30 seconds and 3 minutes. You may use any browser, iPad, iPhone, or Android device. The video response prompts are merely reference points to encourage you to thoughtful reflection, contributing videos on your thought process integrating new literacies pedagogies in your practicum classroom. You will be asked to withdraw from using names or identifying factors in your videos.

Risks: Participant confidentiality will be protected partially as pseudonyms will be used in reference to information collected during the reflective videos. Pseudonyms will be used in all written reports. There is no perceived physical or psychological risk and no harm is anticipated with your participation in this research study.

Benefits: Your participation in this study will allow the researcher to gain a better understanding of some of the pedagogies and methods being used to teach critical digital literacy in teacher education. Further, your participation will allow you to compose and reflect your thoughts through a medium (technology) that compliments the new literacies approaches you are learning about; to open up new angles of understanding and perception of new literacies; and the opportunity to practice using the Flipgrid application to increase confidence and competence integrating such tools in your prospective classrooms.

Confidentiality: The information you share during this project will remain partially confidential; that means that only the people in your class who are participating in this project will know who you are, no one else will be able to identify you later by what you share. I will ask that the other co-researchers in this study keep what you say confidential, but I cannot guarantee that they will do so. After the semester is complete and after grades have been submitted, anonymous transcripts of the video responses will be available for professors to read for the purpose of an

interview. Further, in publications related to the research, your confidentiality will be protected using pseudonyms.

Conservation of data: The reflective videos will be transcribed as well. An electronic copy of the transcribed data will be kept in a password-protected file on the researchers computer. Additionally, any paper copies of the data will be securely stored in a locked office at the University of Ottawa. All data will be securely destroyed five years after the completion of this research project.

Compensation: There is no compensation for participating in this project.

Voluntary Participation: You are under no obligation to participate in this research. If you choose to participate, you may withdraw from the study at any time. If you decide not to participate in this study that decision will not affect your grades in any way. You may request to have your reflective video data withdrawn after it has been submitted. You may refuse to answer any questions, without suffering any negative consequences.

Having been asked to participate in the research study named above, I certify that I have read the procedures describing the research study. I understand the procedures to be pursued in this research study and the personal risks to me in participating as described above.

I _____, agree to participate in a research study about new literacies and teacher education. Please check the appropriate boxes that apply to the type of consent you wish to grant.

- ☐ I agree to participate in the reflective video component of this study
- ☐ I have received a copy of the information letter and consent form for my own records.
- ☐ I am willing to have my words reproduced in Jamilee's PhD dissertation and any other papers she writes based on the findings of this interview.

If you decide to participate, please inform me of any food allergies or sensitivities in the space provided below.

Food allergies: _____

If you have any ethical concerns regarding your participation in this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa.

Sincerely,
Jamilee

Appendix E

Information letter for teachers

Title of the Study: Exploring the Intersections of Equity and Technology in Teacher Education Instruction, Curriculum and Pedagogies

Dear (teacher's name):

I invite you to participate in a research project, which will run between the months of _____ and _____. The purpose of this research is: (1) to determine how two provincial curricula goals and objectives manifest inside two English Language Arts (ELA) teacher education courses, and inform the design and implementation of the syllabi, pedagogies, methods, and interventions of professors who are laboring to bring *critical* approaches to technology; (2) to determine to what extent, if at all, these *critical* pedagogies methods and interventions support teacher candidates' reflections on the link between technology and intersectional identities; and, (3) to expand the research that traces teacher candidates' pre and post practicum reflections on the pedagogical approaches they use to integrate intersectionality and critical digital literacies in the classroom.

Data from this study will be used in the completion of my doctoral thesis and may contribute to articles, books, conferences, and/or presentations for teachers, teacher educators, and curricular specialists.

The component of my research that I am inviting you to participate in involves: (a) participating in one pre and one post semester interview; and (b) permitting me to enter your classroom to collect reflective videos from teacher candidates throughout their practicum using the application Flipgrid.

Your agreement to participate in this study would involve the following:

Open-ended interviews with professors: The purpose of the interviews is to explore how two English Language Arts curricula inform the design and planning of the syllabi, pedagogies, methods, and interventions of professors who are laboring to bring critical digital literacies and intersectionality into their classroom. Each University professor will participate in two face-to-face open-ended semi-structured interviews at a location and time that is most convenient for professors and run for one and a half to two hours. The first interview will occur at the beginning of the research project before the ELA class is underway to determine current perceptions of digital literacy, criticality, methods, and pedagogy; to discuss classroom tools and resources such as syllabi and lesson plan ideas; and to collect contextual and demographic information. The second interview will occur after the semester is complete, and after teacher candidates' grades have been submitted. Professors will be asked to read teacher candidates' anonymous reflective videos. Interviews will be organized around the professor's perceptions on changing definitions of literacy in the

ulum, the influence that technology has had in their classrooms, the pedagogical and methodological approaches taken inside their classrooms, the planning and design of syllabi, and lessons learned with regard to navigating curriculum, and future implementation.

Teacher candidate reflective videos: Teacher candidate reflective videos throughout their practicum will be used to document their self-reflection, understanding, and action regarding the processes of their emerging pedagogical stances and conceptions of digital literacy. Throughout the span of the practicum I will submit various video response prompts for each of the teacher candidates to respond to. Teacher candidates will be asked to respond to a minimum of two video response prompts, though I will encourage them to submit as many responses as they need to accurately reflect on the process of their experiences. Teacher candidates will be able to see each other's videos on the Flipgrid application and respond to each other's videos if they so choose. There are no restrictions on the format of the videos. The length of video responses permitted by Flipgrid is between 30 seconds and 3 minutes. Entries may be numerous and involve deep reflective detail and description, or they may be few and involve reflections of poignant teaching moments. In this way, teacher candidates will be engaging in this project as co-researchers, contributing videos on their thought process during a formative time of learning as educators in the practicum classroom. Creating a list of prompts for teacher candidates' to respond to in video is intended to provide an opportunity for them to compose and reflect their thoughts through a medium (technology) that compliments the new literacies approaches they are learning about; to open up new angles of understanding and perception; and to introduce and provide an opportunity for practice using the Flipgrid application to increase confidence and competence integrating such tools in their prospective classrooms.

Observation: The purpose of the classroom observation is to explain and/or clarify elements of the research project and to answer any outstanding questions.

If you agree to participate in this study, my commitments to you include the following:

At any time, you or any of your students retain the right to withdraw from this study whether temporarily or permanently. Should you choose to opt out or withdraw at any time I will stop conducting research in your class. Any data collected to that point will be destroyed and will not be used for the purpose of this study. You may also choose to withdraw your consent for the use of any data after its collection. To withdraw, you need only to inform either the researcher or her supervisor, Dr. Lorna McLean, of your intent. Should you wish to withdraw, you must do so prior to the completion of the final document. Once the dissertation has been finalized and granted approval by the University of Ottawa, you can no longer withdraw from the study.

If any of your students choose not to participate in this study, I will not take observational notes regarding any of that student's interactions or comments. Students who agree to participate in this study will also retain the right to opt out of the study at any time before the University of Ottawa has approved the final document. Any data directly relating to that student will be removed from the research database. I will protect the identities and confidentiality of all those involved in this study. Pseudonyms will be used for both individuals and the schools in which they either teach or study. Any identifying information will not be used in this report.

If you have any questions or concerns about this research, please feel free to contact me by email or by phone. If you have any concerns about your treatment or rights as a research participant, please contact Dr. Lorna McLean, the research supervisor and Professor of Education at the

University of Ottawa, by email. If you have any ethical concerns regarding your participation in this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa.

Sincerely,

Jamilee Baroud

You may keep this copy of the information letter.

Appendix F

Consent form for teachers

Title of the Study: Exploring the Intersections of Equity and Technology in Teacher Education Instruction, Curriculum and Pedagogies

Invitation to Participate: You are invited to participate in the above mentioned research conducted by Jamilee Baroud in the context of a PhD thesis, under the supervision of Lorna McLean.

Purpose of the Study: The purpose of this research is look, through an intersectional lens, at the context of teacher education and the digital technology acculturation process as they are differentiated by curricula. Data from this study will be used in the completion of my doctoral thesis and may contribute to articles, books, conferences, and/or presentations for teachers, teacher educators, and curricular specialists.

Participation (professor): Your participation in this study will consist of two open-ended semi-structured interviews that will be audio recorded and last approximately one and a half to two hours at a time and location convenient for you. The first interview will occur at the beginning of the research project before the ELA class is underway to determine current perceptions of digital literacy, criticality, methods, and pedagogy; to discuss classroom tools and resources such as syllabi and lesson plan ideas; and to collect contextual and demographic information. The second interview will occur after the semester is complete, and after teacher candidates' grades have been submitted. You will be asked to read teacher candidates' anonymous reflective videos. Interviews will be organized around the professor's perceptions on changing definitions of literacy in the curriculum, the influence that technology has had in their classrooms, the pedagogical and methodological approaches taken inside their classrooms, the planning and design of syllabi, and lessons learned with regard to navigating curriculum, and future implementation.

Participation (teacher candidates): Your students will participate in reflective videos throughout their practicum, which will be used to document their self-reflection, understanding, and action regarding the processes of their emerging pedagogical stances and conceptions of critical digital literacy; to determine how teacher candidates' classroom and practicum experiences affect their willingness or preparedness to integrate technologies into their teaching practice; and to determine how their conceptions of literacy affect their pedagogy. I will structure proceeding questions around topics introduced in the teacher candidates' reflective Flipgrid videos.

Risks: Participant confidentiality will be protected, as pseudonyms will be used in reference to information collected during the interviews. Pseudonyms for teacher candidates, professors, and the University will be used in all written reports. There is no perceived physical or psychological risk and no harm is anticipated with your participation in this research study.

Benefits: Your participation in this study will allow the researcher to gain a better understanding of some of the pedagogies and methods being used to teach critical digital literacy in teacher education. Further, your participation will provide an opportunity for your students to compose and reflect their thoughts through a medium (technology) that compliments the new literacies

approaches they are learning about in your classroom; to open up new angles of understanding and perception of digital literacy; and the opportunity to practice using the Flipgrid application to increase you and your students' confidence and competence integrating such tools in your/their prospective classrooms.

Confidentiality: The information you and your students share during this project will remain confidential. The contents of the observations, interviews, and reflective videos will be used only for the purposes explained above. Further, in publications related to the research, your confidentiality, the confidentiality of your students, and the confidentiality of the University will be protected using pseudonyms.

Conservation of data: Observation, interviews, and reflective videos will be recorded and transcribed. An electronic copy of the transcribed data will be kept in a password-protected file on the researcher's computer. Additionally, any paper copies of the data will be securely stored in a locked office at the University of Ottawa. All data will be securely destroyed five years after the completion of this research project.

Compensation: There is no compensation for participating in this project.

Voluntary Participation: At any time, you or any of your students retain the right to withdraw from this study whether temporarily or permanently. Should you choose to opt out or withdraw at any time I will stop conducting research in your class. Any data collected to that point will be destroyed and will not be used for the purpose of this study. You may also choose to withdraw your consent for the use of any data after its collection. To withdraw, you need only to inform either the researcher or her supervisor, Dr. Lorna McLean of your intent. Should you wish to withdraw, you must do so prior to the completion of the PhD thesis. Once the research document has been finalized and granted approval by the University of Ottawa, you can no longer withdraw from the study.

If any of your students choose not to participate in this study, I will not take field notes regarding any of that student's interactions or comments. Students who agree to participate in this study will also retain the right to opt out of the study at any time before the University of Ottawa has approved the final thesis. Any data directly relating to that student will be removed from the research database. I will protect the identities and confidentiality of all those involved in this study. Pseudonyms will be used for both individuals and the schools in which they either teach or study. Any identifying information will not be used in this report.

Having been asked to participate in the research study named above, I certify that I have read the procedures describing the research study. I understand the procedures to be pursued in this research study and the personal risks to me in participating as described above.

I _____, agree to participate in a research study about digital literacy and teacher education.

If you have any ethical concerns regarding your participation in this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa.

Appendix G
Case Study One: Questionnaire

1. How would you describe your current level of critical digital literacies?
2. Please explain your definition of critical digital literacy.
3. Have you had an opportunity to use a critical digital literacy approach in your current classroom or in your practicum experience? If YES, what did the lesson plan look like? Were you able to integrate elements of identity, community, critical literacy, and/or social justice issues into your teaching practice? Please provide examples. If NO, what are the biggest obstacles/challenges that hinder(ed) you from incorporating critical digital literacies inside the classroom?
4. Please list three words that describe your overall experience learning about critical digital literacies in your respective course.
5. Do you use content learned from the course (such as reading, writing, viewing, listening, technology, assignments) in your current classroom or practicum experience? If YES, please provide an example(s). If NO, please explain why you do not use the content you learned.
6. Has the curriculum been a supportive resource for you when you design and implement critical digital literacies in your current classroom or practicum experience? If YES, can you please provide some examples? If NO, what's missing from the curriculum?
7. Please list up to three additional supports and resources that you need to feel confident and competent to teach critical digital literacies?
8. Please list up to three items that you wish you knew about critical digital literacies before you started teaching in your current classroom or in your practicum experience.

Appendix H
Case Study Two: Questionnaire

1. How would you describe your current level of critical digital literacies?
2. What is your definition of critical digital literacy?
3. Have you had the opportunity to use a critical digital literacy approach in your current classroom or in your practicum experience? If YES, what did the lesson plan look like? Were you able to integrate elements of identity, community, critical literacy, and/or social justice issues? If NO, what were the biggest obstacles/challenges that hindered you from incorporating critical digital literacies inside the classroom?
4. Please list up to three skills, tools or pedagogical approaches that you've learned about in your course.
5. Do you plan to use content learned from the course (such as reading, writing, viewing, listening, technology, assignments) in your current or future classroom or practicum? If YES, please provide an example(s). If NO, please explain why.
6. Has the curriculum been a supportive resource for you when you design and implement critical digital literacies lesson plans in your current classroom or practicum experience? If YES, can you please provide some examples? If NO, what's missing from the curriculum?
7. Please list up to three additional supports, skills and/or resources that you need to feel confident and competent to teach critical digital literacies? What do you wish you knew more about?

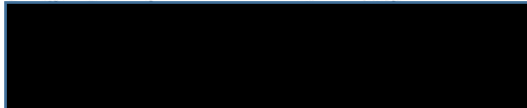
Appendix I
University of Ottawa Ethics Approval



Université d'Ottawa University of Ottawa

Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

Monday, November 20th, 2017



Dear [redacted] and [redacted]

Thank you for submitting an ethics application for your research project entitled: **"Techno-sectionality: A multi-site exploration of new literacies in teacher education"** (Ethics file #S10-17-150).

The University of Ottawa Social Sciences and Humanities Research Ethics Board (REB), which operates in accordance with the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (2nd edition)* and other applicable laws and regulations in Ontario, has examined your application and has granted a conditional approval for the above named research project. Full approval is conditional upon the submission of the permission letters from the participating universities.

Please note:

- i) This letter does not constitute full ethics approval of the project. Full approval can only be granted by the University of Ottawa REB.
- ii) Full ethics approval will be granted by the University of Ottawa REB upon receipt of the permission letters from the participating universities.
- iii) Consequently, participant recruitment and data collection may not begin until the University of Ottawa REB has granted full approval and issued the ethics certificate.

We also take this opportunity to remind you that any change to the protocol and/or other documents must be reviewed by the REB.

If you have any questions, please do not hesitate to contact the Ethics Office at [redacted] by e-mail at: [redacted]

Sincerely,



550, rue Cumberland 550 Cumberland Street
Ottawa (Ontario) K1N 6N5 Canada Ottawa, Ontario K1N 6N5 Canada
613-562-5387 • Téléc./Fax 613-562-5338
<http://www.research.uottawa.ca/ethics/index.html>