

Educational Technology, E-Learning, and the Classroom Experience

Beau Daniels, B.A., B.Ed.

Department of Graduate and Undergraduate

Studies in Education

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Faculty of Education, Brock University

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Abstract

Many school districts have encouraged movement from traditional classrooms and teaching strategies to strategies that employ the Internet and educational technology (Ed Tech). The transition to Internet-based Ed Tech has many benefits, such as reduced costs for institutions and greater convenience for students and instructors alike. However, this convenience comes at great expense as Ed Tech is often implemented with little thought to students' education. This study adopted a philosophical inquiry approach to address concerns related to the implementation of the Internet-based Ed Tech in teaching. It begins by critiquing Ontario's public policy around the procurement of Ed Tech and the use of e-learning strategies with some reference to other educational jurisdictions. It then discusses privacy issues and risks surrounding the use of Internet-related technologies in education, as well as changes in the relationship between students and teachers as education moves from the traditional classroom to the e-learning environment. Finally, the study critiques theories of education that support e-learning and shows that their implementation limits the transformative nature of education as defined by Gert Biesta.

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CHAPTER ONE: INTRODUCTION

I come to this topic as an e-learning teacher who has led and continues to lead professional development in the area of educational technology (hereafter, Ed Tech), defined here as “the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources” (Januszewski & Molenda, 2007, p. 1). Technology, particularly the Internet, is an area in which I have long had an interest, and this interest is something that I brought to my professional career. However, in recent years, I have begun to question many of the assumptions surrounding the application of the Internet, and specifically e-learning, as the most direct application of Internet-based Ed Tech to education. Indeed, throughout my professional career, I have noticed that there is an assumption that the application of technology in the classroom results in greater engagement of students, more learning, and better teaching, whereas actual practice has shown me that this is not always the case.

Methodology: Philosophical Inquiry

In this thesis, I use a philosophical inquiry approach to show that the increased use of Internet-based Ed Tech has the potential to do more harm than good. I have chosen this approach because, in the words of Biesta and Stengel (2016), “a philosophical standpoint challenges, qualifies, deepens, and even transforms our understanding of a phenomenon” (p. 7). As mentioned, the phenomenon in this case is the rapid adoption and incorporation of Internet-based Ed Tech into schools in Ontario. The philosophical inquiry method allows for a deeper analysis of the documents and the general assumptions surrounding the use of the Internet in schools.

Moreover, the American Educational Research Association (AERA, 2009) states that:

the central purpose of humanities-oriented research has been the exploration and understanding of human existence... [and] undertakes investigations into the relationships among reason and emotion, the ethical life, the good life, the just society, the characteristics of the good citizen, and concepts of self, knowledge and its grounds. (p. 482)

Throughout the thesis, I explore the relationship between the phenomenon of increased Internet-based Ed Tech, the assumptions of a society infused with technology, and the purposes of education. Essentially, the thesis explores whether Ed Tech, and particularly the Internet, make education better and why education policy-makers embrace this technology so readily.

The AERA (2009) also states that humanities-oriented research in education uses “interpretive methods, broadly construed, which investigate the history, meanings, beliefs, values and discourses that human beings employ” (p. 482). Floden and Buchmann (1989) suggest two methods of such philosophical inquiry in education; the first method addresses normative questions, both “specific questions about right and wrong” and general questions about “aims” (p. 2) in a system, while the second method “critically examines the assumptions and logic of some aspect of ... thought and practice... considering the justification and logic of claims” (p. 3).

This thesis uses the two methods described by Floden and Buchmann (1989) to examine flaws in the political policies that bring Internet-based Ed Tech to the forefront, review the potential risks of training our students to live their lives online, analyze the

limits of the technological interface in e-learning and illustrate that the Internet-based Ed Tech revolution supports an approach to learning which limits teachers' ability to act as professionals, and students' ability to experience the transformative nature of education.

Indeed, as professionals in the field of education begin to incorporate new technologies, I argue that the purposes of education become those of learning how to participate in and improve on different technological processes. The idea of teaching students and helping them transform through the educational process becomes secondary.

Overview of Study

As a father of three young boys I've become increasingly wary of training our young people to live their lives online through the Internet-based Ed Tech. I believe that there are risks to which we are needlessly exposing our students in a rush to ensure they are prepared for the technological world of the future. These risks are explored in my second chapter in large part by applying the theories of Ursula Franklin in an examination of public policy, and then showing that Internet technology, despite all of its promises of freedom and democratization, is itself a technology that controls citizens and violates their rights to privacy.

In the third chapter, I continue the critique of the Internet and its use in society and in the classroom as a control-related technology. I will demonstrate some of the privacy concerns around Internet use and will use examples from different news media and legal cases to explore the potential abuse of both passive and active information collected by Internet websites, and Internet Service Providers (ISP) by governments, corporations, companies, the media, and other entities. I will show that more exploration of the risks of the use of Internet-based Ed Tech programs should take place before

educational jurisdictions, such as provinces and school boards, encourage the use of these programs in both real and virtual classrooms.

As a teacher, despite the skills that I developed and the support I received from my school board as an e-learning teacher, the problems became more evident and disruptive in the relationship and rapport that I developed with my students in the e-learning environment. In their article “Qualitative Insights from a Canadian Multi-Institutional Research Study: In Search of Meaningful E-learning,” Carter et al. (2014) identify four themes that need to be addressed to make e-learning “effective and meaningful” (p. 10). These include human connection, IT support, effective learning management system (LMS) design, and institutional infrastructure. The latter three themes—IT support, design, and infrastructure—can be improved through a technological process. However, the first theme, developing human connection, is much more complicated, and yet as Carter et al. suggest, a “framework that honours human connection is, according to study participants, at the heart of a meaningful e-learning community. Through this connection, the student experiences the safety and support he or she needs for learning” (p. 11).

Much of the conceptual literature and philosophical research on the topic argues that the human relationships developed in e-learning are much less fulfilling in achieving the purposes of education than the relationships that developed in the traditional classroom in a secondary school. Teachers often feel they are not a real person to their students, and it was difficult for me to picture my students as anything more than a culmination of the assignments and occasional emails. As a teacher, I should be seen as a

person who can guide and foster transformative change in students through the education process.

In my fourth chapter, I explore the reasons behind this difference. Both the traditional classroom and the e-learning class have the same goals, but they feel very different in terms of human connection. The technological interface used in an e-learning classroom has an impact on a teacher's ability to make connections and create rapport with students. In this chapter I use the theories of Martin Heidegger and some of his commentators to examine the e-learning interface and show how the connections that it creates is inferior to interaction in a traditional classroom.

In my fifth chapter, I discuss how e-learning and the use of technology limits the transformative nature of education. The teacher is marginalized in many current theories of teaching, and e-learning exacerbates this fact. In my analysis, I refer primarily to the theories of education philosopher Gert Biesta to explore the teacher's role as a professional and the impact of behaviourist theories of education, constructivism, and connectivism.

The study's final chapter presents concluding remarks that emphasize the main arguments of the essay, discusses the limitations of the study, and provides suggestions for further study.

CHAPTER TWO: THE TECHNOLOGICAL CONTEXT

Internet-based Ed Tech is but one aspect of the Internet revolution of the last 25-30 years that is manifested in education and schools. I want to spend some time in this chapter looking at the larger historical, political, and economic landscape in which technology is utilized by schools in Ontario and other jurisdictions by analyzing the technological revolution of the Internet and the World Wide Web. I engage in a philosophical inquiry into the logic and assumptions of the adoption of Internet-based Ed Tech, showing how the impetus behind the government funding necessary for the implementation of Ed Tech strategies comes from the creation of the “credible-threat” of fear of missing out and a fear of the future. In dealing with the threat of the future, decisions are made that have more to do with making education “future-proof” than with improving the actual education of students.

Biesta and Stengel (2016) define the purpose of education of students as multidimensional; education contributes to the “qualification of students, in the double sense of providing [students] with qualification—such as diplomas or degrees—and of qualifying them to do something” (p. 31). It also functions as a process of socialization where it initiates “newcomers—the term is from philosopher Hannah Arendt—into existing cultures and traditions” (p. 32). Finally, it contributes to the “subjectification [of students]—that is, becoming a subject of one’s own actions rather than an object of the actions and intentions of others” (Biesta & Stengel, 2016, p. 32). With (and because of) these three purposes, the teacher becomes the “agent of education” and education becomes a “practice constituted by its purposes” (Biesta & Stengel, 2016, p. 32). However, with the rapid adoption of educational technology with its purposes tied to

making education “future-proof” and educational district concerns about ‘missing out,’ students can find themselves tied to technological processes that are not directly concerned with the educational purposes that Biesta and Stengel outline. Indeed, in some ways capitalizing on the fears of educational districts, companies like Google, whose education apps are used by “more than half of [American] primary- and secondary-school students—more than 30 million children” (Singer, 2017, para. 6), treat classrooms like laboratories for product testing. In fact, “[Google] is a very private company very creatively using public resources—in this instance, teachers’ time and expertise—to build new markets [students]” (Singer, 2017, para. 109). As Norris (2011) states, the “school is a key site where the consumer is produced in contemporary society, an institution that can either promote a society based on consumerism or resistance to it” (Chapter 2, para. 2). In the situation described above, students not only become consumers, but also a key part of creating what is to be consumed, that is, technology and technological processes controlled by private corporations, such as Google. In many ways, students find themselves using technology in school to improve technological processes and to assure the integration into society of these processes, leaving the actual purposes of education as a secondary concern.

To develop my argument in the rest of this chapter, I will begin by establishing a context by analyzing the needs of 21st century learners as they are presented in different policy documents. According to Christou (2016), 21st century learning is the “moniker” given to “the most present incarnation” of the “progressivist educational tide” where “we must prepare our youth for the world of the future by engaging them with the technologies available to us in the present” (p. 61). These technologies are tied to the

revolution of the Internet. In this chapter, I analyze the spending practices of different jurisdictions around Ed Tech procurement to show how jurisdictions are trying to meet these needs. I will then use Ursula Franklin's theories of technology to show that the spending on technology and the pressure on teachers to incorporate it in classrooms is the result of the creation of the 'fear of missing out' and a 'fear of the future.' In the last section of this chapter, I will analyze these fears as an impetus to use technology as it exists in North American education. I will show that the trend towards increased Internet-based Ed Tech in classrooms is not the result of trying to better the education of students, but rather the result of bigger societal processes that have more to do with the fear of missing out on technology and innovation than with teaching or learning.

21st Century Learners

The Internet technological revolution of the last few decades has moved from hobby, to the private sector, to entrenchment in the public sector. Now, much of the lives of people around the world, especially in Western democracies, takes place online. Moreover, the United Nations (UN) has recognized that uninterrupted access to the Internet is key in protecting human rights all over the world. In July 2016, the UN Human Rights Council adopted a resolution titled *The Promotion, Protection and Enjoyment of Human Rights on the Internet*, which, among other things, stresses "the importance of applying a human rights-based approach when providing and expanding access to the Internet and for the Internet to be open, accessible and nurtured by multi-stakeholder participation" (2016, p. 3). Canada faces unique challenges in reaching this goal. Indeed, because of the realities of Canadian geography, rural and remote families and individuals do not have the same access as their urban counterparts. A report from the CBC suggests

that only 85% of people living in rural areas have access to high-speed Internet: “There are six million Canadians living in rural areas, which means nearly one million people don't have broadband access” (Saltzman, 2016, The Many Missing Out section, para. 1). However, more recently, the Canadian Radio-television and Telecommunications Commission (CRTC) released *Telecom Regulatory Policy CRTC 2016-496* in December 2016, which lays the groundwork for partnerships between the government and corporations to provide universal service to Canadians with the goal that: “Canadians, in urban areas as well as in rural and remote areas, have access to voice services and broadband Internet access services, on both fixed and mobile wireless networks” (para. 7). Thus, it is only a matter of time before all Canadians have access to broadband Internet.

With these conditions in place, it seems like a natural progression that schools and education would move to the online environment, and that governments, school boards, and schools would see training students in these new technologies as important for their future success. Indeed, even the UN Human Rights Council (2016) calls upon all states to “promote digital literacy and to facilitate access to information on the internet” (p. 3).

The phrase “21st Century Learners” has become common in professional development for teachers. The fact that students are referred to “learners” and not “students” is telling and reflects a growing movement toward a constructivist learning paradigm in education. I will discuss this movement and its application to Internet-based Ed Tech in some detail in Chapter 5. Nevertheless, students, especially those born in the 21st century, have grown up in a world where the Internet has always existed and where the Web is omnipresent. Many agencies believe that these students require a skill set that

is beyond what is traditionally taught in school. Indeed, this discussion began even before the dawn of the new millennium. For example, Uchida (1996) released a report for the American Association of School Administrators titled *Preparing Students for the 21st Century* that sought the “expertise and opinions of more than 50 leaders in education, business, and government” to create discussion which was meant “to rev up the engines of education” (p. 7) for the coming future. The report included suggestions for building skills in problem-solving, self-discipline, computers, job success, adaptability and flexibility, interpreting and applying data, as well as the incorporation of marketplace technologies (Uchida, 1996, p. iii). More recently, in Canada, we have organizations such as Canadians for 21st Century Learning and Innovation (C21 Canada), a not-for-profit organization that seeks “to witness an accelerated pace of 21st century competencies, instructional practices, and digital resources and services being integrated into Canada’s learning systems” (C21 Canada, 2017, para. 1).

School systems have thus sought to explore the new skill sets and competencies needed to meet the needs of students for the future. Indeed, Ontario, no different than other jurisdictions, has consulted experts and research. To this effect, the Ontario Ministry of Education’s (OME, 2016) *21st Century Competencies: Foundation Document for Discussion* summarized “key findings from in-depth literature reviews on 21st century competencies completed by the [Ontario] Ministry of Education in 2014” (p. 5). In the document, the OME identified four desirable competencies for students in the Ontario education system including critical thinking, communication, collaboration, and creativity and innovation (2016, p. 12). The listed skills are no surprise given that, as Christou (2016) states, 21st century learning is the newest iteration of progressive

education reform. However, what is new are the reasons for the shift in focus. The OME (2016) document states that the education system needs to keep up with what is happening in the world, indicating that if “education systems [are to] keep pace with changing times” they need to address the following:

- changes in the work force from an industrial model of production to a rapidly transforming, technology-driven, and interconnected globalized knowledge economy. Such an economy requires competencies suited to dynamic and unpredictable models of economic and social development;
- emerging evidence on how to optimize learning, including the use of technological innovations to deepen and transform learning;
- changing expectations on the part of learners, who are demanding an education system that is more connected and relevant to their everyday lives. (p. 6)

In all three of these goals, technology is present or implied, and, in spirit, technological changes having to do with the application of the Internet are the source of the need for the correction in policy direction. In other words, the source of the challenge, which is the rapid adoption of Internet technology in the economy and society, is also the solution to the problem—more adoption of technology in society and a focus on technology in education.

Looking more specifically at the citation above from the OME’s (2016) *21st Century Competencies* document and the specific use of the word “technology,” the changes in the world are “technology-driven” (bullet one) and teachers need to teach the students using “technological innovations” (bullet two). Bullet three demands an education model that is “more connected and relevant,” which implies moving toward technological innovation and web application. (The last bullet also implies a market-

driven approach to education.) Thus, it is the technological world and the Internet revolution of the last 25-30 years that is driving the need for educational change. The education system needs to evolve to take into account the new realities that largely are part of the result of the technological revolution of the Internet. From the foci of the *21st Century Competencies* document, technology is, for the most part, not something that acts as a tool to promote the purposes of education (qualification, socialization and subjectification (Biesta & Stengel, 2016)), but, in many ways, has become the ends of the educational endeavor from a policy point of view.

Different educational jurisdictions are battling to keep up with these innovations in society and the economy that result from technology. The example above is from Ontario; however, the United States is no different. The *Every Student Succeeds Act (ESSA)* was signed on December 10, 2015, and title four of this document, called “21st Century Schools,” strives to “improve students’ academic achievement by increasing the capacity of States, local educational agencies, schools, and local communities to... improve the use of technology in order to improve the academic achievement and digital literacy of all students” (Title IV Subpart 1 Section 4101). This part of the act gives local jurisdictions more access to funding to support technology, and more freedom to institute innovative practices, involving technology. In effect, just like Ontario, the United States has greatly increased the amount of funding specifically to educational technology whether or not technology is the best means to achieve the multidimensional purposes of education. Instead, there is an unproven assumption that more technology will improve the education of students.

With this impetus, the question only remains what to buy to allay ‘fears of missing out’ and a ‘fear of the future.’ In the next section, I will analyze the difficulties that different jurisdictions face in Ed Tech procurement, and through further discourse analysis of policy documents that the underlying goal of this procurement is to increase the amount of technology used, without due consideration given to how the technology improves the education of students.

Procuring Internet-Based Ed Tech to Support 21st Century Learners

When considering the costs of creating technological infrastructure and fighting the constant threat of device obsolescence—planned and otherwise—governments need to invest significant amounts of money over an indefinite period of time to meet the needs, as they’ve been described in policy documents, of 21st century learners. Indeed, educational leaders are feeling pressure to spend public money to keep up with the perceived needs of these students and the ongoing obsolescence of the industry.

Unfortunately, for education leaders, the difficulty lies in making decisions about what they should buy to support students in meeting their educational needs in the 21st century. Morrison, Ross, Corcoran, and Reid (2014) analyzed Ed Tech spending—from the allotment of funding to the acquisition of selected products—in the United States. In the study, Morrison et al. interviewed and surveyed educational leaders from 54 districts in 31 states. As part of their conclusions, they note that there are several difficulties in deciding which type of Ed Tech products to purchase, including:

1. lack of available, credible evidence on product effectiveness
2. uncertainty about the criteria on which to evaluate products (Student achievement gains? Usability? Professional development support?)

3. the capacity of districts to conduct their own evaluations (i.e., pilots can be time-consuming and costly). (2014, p. 56)

In many ways, educational districts are buying these tech products blindly, or basing their decisions on pragmatic concerns such as availability and convenience. As a result, decisions about which type of technology to use and which products to purchase are being made without the purposes of the education of students in mind. Moreover, as Morrison et al. show, evidence about what Ed Tech products would benefit students is hard to come by. Indeed, not only is there no evidence about what to buy, there is no real understanding of what criteria should be used to evaluate products. All that is really understood is the assumption that students need technology to be integrated into their education if they are to be successful.

A similar situation to what Morrison et al. (2014) found in the United States is present in Ontario. Ribeiro (2016) interviewed 10 senior leaders for different Ontario school boards, including chief information officers and superintendents, “to reveal the most important factors driving technology acquisition, governance procedures, and assessment measures utilized by school districts in their implementation of educational technology” (p. 1). Ribeiro noted that “an emphasis and focus on technology’s *impact on instruction and student learning* during acquisition is strikingly limited in the data collected from senior leaders”; instead, the main foci were “cost-related factors” and “product specifications” (p. 24). Thus, the different jurisdictions base their funding decisions on the pragmatic concerns in the process of procuring the technology, as opposed to basing the decisions on the utility of what is procured.

Because there is such a push to move forward with technology without proof of the benefits to the students, some districts, such as Ontario, may be moving too fast with procurement and implementation. For example, the Ontario Education Quality and Accountability Office (EQAO) attempted to administer the Ontario Secondary School Literacy Test (OSSLT) for the first time online on October 20, 2016 to 140,000 Ontario students. The EQAO's (2015) reasons for moving the test from a pen and paper assessment to an online version was explained on its website: "EQAO's shift to online assessments mirrors classroom trends that see a greater emphasis on the use of digital technology. Students also tend to engage more effectively with online assessments, as opposed to those that are paper-based" (Section 8, para. 1). The first reason that the EQAO gives for moving the test online has to do with mirroring what is happening in classrooms and the general movement to education through Ed Tech and has nothing to do with improving student education or instruction. The second reason is a vaguely worded and unsupported statement that students *tend* to engage more with online assessments, with no evidence to support this statement.

Regardless of the reasons for moving the assessment online, the October 20, 2016 test was cancelled a few hours into the testing due to a cyber-attack. After some investigation, it was found that the attack was the result of a Distributed Denial of Service (DDoS) attack, which is an overloading of the testing system and, though no student information was compromised, thousands of students and teachers, as well as hundreds of secondary schools, were severely inconvenienced (EQAO, 2016a).

As a result of the attack, the EQAO has decided to use a paper version of the test in 2017, and has decided to "pause" the movement to online tests until the organization

has “completed a successful large-scale online trial,” initiated “additional system security measures,” and gotten more feedback from the education community (EQAO, 2016b, paras. 2-4). Although the victim of an unfortunate cyber-attack, it is evident that the EQAO moved forward with the testing without being prepared. From the EQAO’s reasons for pausing the test, it can be discerned that it was not ready to move the test online. The system and software were not ready. Moreover, the EQAO had not gathered enough feedback from the education community to ensure that the online version of the test would be an improvement over the pen and paper version. In the meantime, the organization inconvenienced thousands of people by not being ready and not being sure of the Ed Tech used in the testing. This example highlights not only the difficulty in choosing education technology, but also the drive for educational districts to move to online formats and to use Ed Tech regardless of the risks to students’ education. If an organization like the EQAO, with ample funding and resources, has difficulty in selecting Ed Tech, smaller districts must have even more difficulty.

In November 2016, in order to assist with decision-making around Ed Tech spending in Ontario, the OME created a program called Advancing Education. This program is a “partnership between the government and the Ontario Centres of Excellence (OCE), [that] matches cutting-edge, Ontario-made technologies with elementary and high schools... to meet the unique needs of their students and classrooms” (Ontario Ministry of Government and Consumer Services, 2016, para. 2). The program seeks to connect “Ontario’s public education system through partnerships between schools and companies” (Ontario Centres of Excellence, 2017, Program Overview section, para. 2). In these partnerships, participants will seek to create:

- *Future-Proof Learning* [by] seeking demonstration of innovative technologies that engage all students in the development of global competencies, including:
- STEAM (science, technology, engineering, arts and math) and ICE (innovation, creativity, and entrepreneurship)
- Critical Thinking and Problem Solving
- Collaboration and Communication
- Self-Direction and Well-Being. (Ontario Centres of Excellence, 2017, Program Overview section, para. 4)

Effectively, the Advancing Education program addresses some of the concerns discussed by Morrison et al. (2014) in the article cited above. The government has created a system to give districts “the capacity to conduct their own investigations” and, by attaching the global competencies that are discussed in the OME’s (2016) *21st Century Competencies* document, has created some “criteria on which to evaluate products” (p. 56). What is interesting to note is that except for the “T” in STEAM, educational technology does not seem to be intrinsically necessary to any of these global competencies. The competencies could be fostered in Ontario schools through less expensive means. Moreover, in the program, the OME leaves it to the participants to create links between the Ed Tech used and the “impact on instruction and student learning” in the hope that these new learnings can be shared provincially and beyond.

Questions should be asked about these policies. Indeed, if credible connections between the use of specific Ed Tech products and improvements in education are not clear, why, then, would educational jurisdictions want to invest in these products before they know if they work, or even what issues such technology addresses? Furthermore,

why would governments, as is the case in Ontario with the Advancing Education program, develop and fund programs that seek to find a link between the use of cutting edge technology and student improvement based on established criteria, creating a kind of state-funded product testing forum? Is it the result of the belief that the fostering of global competencies can only be made “future-proof” with the incorporation of technology, and, by extension, does this make the future the enemy in education—something that needs a lot of money thrown at it, whether it works or not?

Ed Tech and the Real World of Technology: Fear of Missing Out

In order to answer these questions and to examine the notion of government expenditure on technology, I will refer to the ideas of Ursula Franklin (1990) in her Massey Lecture, *The Real World of Technology*, in which she discusses nuclear arms from the perspective of the end of the Cold War.

The Cold War, besides being a time of global tension, was also incredibly expensive. Robert Higgs (1994) estimates that “during the period 1948-1989 [U.S.] military purchases culminated to more than \$7 trillion (1982 dollars), averaging about \$168 billion annually, or 7.5% of GNP” (p. 308). In her lecture, Franklin notes that once a country begins down the road of spending money on an arms race there needs to be a long-term investment with the use of a lot of public money. In order to “keep the public funds flowing, justifications are needed. And this *generates the need for a credible long-term enemy*” (Franklin, 1990, p. 74).

In the case of Franklin, who was speaking in 1989 at the end of the Cold War, she was referring to the arms race between the North Atlantic Treaty Organization (NATO) and the countries of the Warsaw Pact, specifically, the Soviet Union. Much spending on

the development of nuclear weapons and defensive systems happened during the Cold War and the spending and justification of money spent on arms development was the result of the countries of NATO, specifically, the United States, having the “credible long-term enemy” of the U.S.S.R. and the forces of socialism (Franklin, 1990).

Compared to the Cold War, the stakes seem much lower in the battle for educational districts to stay on the forefront of innovation. However, the technological infrastructure needed to promote the new innovative practices used in an educational setting is also very expensive, and jurisdictions need to establish a “credible long-term enemy” in order to justify spending the limited budgets of public education on this infrastructure. As in Franklin’s lecture, where the countries of the Warsaw Pact were the foes of NATO during the Cold War, the enemy, in education, is the fear of falling behind other jurisdictions and of not preparing students for change in our technologically-enhanced world.

In a discussion document, the OME (2016) states:

The goal of these changes [in curriculum, policy and budgetary practices] is to prepare students to solve messy, complex problems—including problems we don’t yet know about—associated with living in a competitive, globally connected, and technologically intensive world. (p. 3)

The credible enemy needed for the investment in technology is the modern existential crisis of fear of missing out, that is, the fear that children in Ontario will somehow be left behind economically if we don’t train them for the “technologically intensive world.” In effect, teaching must be made “future-proof.” Thus, the crisis is one of preparing students for the new economies that will be tied to the world of technology. Moreover, in the

phrase, “including problems we don’t yet know about,” there is much implied. First, through the use of the pronoun “we,” there is an implication that the people of Ontario are working together to prepare students for problems that “we” do not understand. “We” are together in our lack of knowledge, but “we” must still ensure that students are ready. Moreover, since “we” are trying to arm our students against problems that “we don’t yet know about,” any criticism of policies associated with preparing 21st century learners for the future can be dismissed as a lack of understanding of the issues, but since “we” don’t know what the problems in the technological world will be, there is really nothing to debate, and so the justification for the new strategies in education becomes an *argumentum ad ignorantium*.

For an argument consisting in large part of an informal fallacy, governments seem very willing to spend. As stated, the infrastructure needed for implementing technology in schools is extremely expensive and computer hardware and software constantly needs to be upgraded and maintained. This is no one-time investment, and other expenses must be set aside or seen as less of a priority. Students need a device if they are to access the technology their jurisdictions see as so needed for their future. School boards struggle to find funding for these devices, and governments, in turn, make very public announcements about increases in funding for technology. Liz Sandals, the Minister of Education for Ontario in 2014, for example, was widely featured promising \$150 million to be spent on iPads in schools (Rieti, 2014). Parents are even involved in generating the necessary budget for technology with school councils fundraising for the cause. Indeed, a report from People for Education (2015), an independent charitable organization that

researches Ontario schools, shows that 94% of fundraising in Ontario elementary schools goes towards technology (p. 13).

Overall, a “credible long-term enemy” has been established—the fear of missing out on competing in a technologically enhanced future—and governments, school boards, schools, and parents are invested in ensuring that Ontario students have the best possible advantages, are well-trained in the competencies needed for the technological world, and that they have access to those very expensive tools.

Examining the Threat

There are two main *petitionis principii* (circular arguments) in the argument that schools are the place to train young people to live in the technological world of the future, and that, if education systems do not, students will be left out. The first is the assumption that it is a school’s main purpose to prepare students for their economic future in the world of technology, and the second is the assumption that these technologies will keep moving forward and evolve to the betterment of humanity. I will now discuss the latter argument—that technology will continue to move forward in a way that is beneficial.

The OME’s (2016) discussion document, *21st Century Competencies*, cited above, states that the problems our students will face will be ones that “we don’t yet know about”; we do know that the students of today will live in a “competitive, globally connected, and technologically intensive world” (p. 3). In the OME’s statements is the implication that things will keep getting faster, with more connections and more technology, that the interconnectedness brought about by the Internet and the Web will only increase and become more important in ways that people born in the 20th century

can't even imagine, and that the goals of the people of the future (i.e., 21st century learners) will be defined by technology and those goals, that we can't understand, have no meaning or existence until the technology has been created. In effect, technology creates the problem that only it can solve. Technology is then in control, and something that was ostensibly created to make the lives of humans easier and our relationship with the natural world more efficient, drives our future. It has control. By reinforcing technology in classrooms, educational districts reinforce and promulgate this control.

My assertion is that this control is not always positive and there are many dangers involved in requiring students to be educated through the medium of technology. To explore these dangers, I will look at the nature of the development of the Internet as a control-related technology, referring again to the theories of Ursula Franklin. In chapter 3, I will look at some of the political, legal, and social ramifications of using the Internet, and how these concerns could impact class use and the lives of students.

The Nature of Technology

If it is assumed that the initial goal of any technology is to solve a problem to make different human practices easier, then the technological perspective, if taken by itself, is one that always sees the world as imperfect, which is a limiting perspective. It is a perspective with a focus on improving different processes without real thought about the ends. In fact, the goal or ultimate aim of technological thinking seems to be a “pathological pursuit of means” (Lewin, 2010, p. 355), wherein there is no end with the exception of efficiency. With no end goal or point, people and their interactions are but a series of problems that can be solved through the further application of new technologies. When educational jurisdictions embrace the idea that education must always be

responsive to the needs of new technologies, education is doomed to be in a position of reacting to problems “that we don’t know about yet,” instead of assisting in the development of students in classrooms, and the goals of education become tied to the idea of improving processes (like making Google Classroom more effective) instead of more enlightened goals and moral and ethical concerns tied to the purposes of education.

Since educational jurisdictions find themselves primarily dedicated to the business of preparing students to participate in technological processes tied to the Internet revolution, it is important to explore how the Internet and associated software and hardware technologies developed as a means that trumps the need for an end. As a means to do things and to participate in processes, the revolution of the Internet has resulted in technology infiltrating the lives of people in ever more diverse ways. From social media to online banking, people in Ontario and beyond are immersed in and in many ways controlled by technology.

Ursula Franklin differentiates between two different ways in which new technologies address the problems of humanity. She lists work-related technologies which “make the actual practice easier” and control-related technologies which “try to increase control over the operation” (Franklin, 1990, pp. 9-10). The World Wide Web is an excellent example of a technology that moved from work-related technology to control-related technology. Something that began as an effort in efficiency by a software engineer in the late 1980s and early 1990s has become not only a venue for citizens to access services but also a venue for observation and control by governments and corporations. Moreover, since many people access the Internet through a corporate ISP, corporations have, in many cases, become an intermediary between citizens and

government services. In the following section, I will show how the Internet has transformed from a work-related tool to an instrument of control and a portal through which people live their lives.

The Internet and the Web Revolution

By 1991, people outside of the European Organization for Nuclear Research (CERN) became able to use the World Wide Web, and its use spread rapidly throughout the world. This new system used the Internet, the global computer network that had begun its development decades before and which was already in place. The system was created in 1990 by Tim Berners-Lee, a CERN software engineer, with his creation of Hypertext Markup Language (HTML), Hypertext Transfer Protocol (HTTP), Uniform Resource Identifier or Locator (URL), the WorldWideWeb.app, and the creation of the first Web server (World Wide Web Foundation, 2017).

Berners-Lee and his collaborators made the decision in 1993 that the underlying code of the World Wide Web would be “available on a royalty-fee basis, forever.” In retrospect, Berners-Lee has commented that “had the technology been proprietary, and in my total control, it would probably not have taken off. You can’t propose that something be a universal space and at the same time keep control of it” (World Wide Web Foundation, 2017, para 11).

The World Wide Web was envisioned to be a *work-related technology*; that is, a technology that made a human practice easier. Initially, it was meant to assist researchers in sharing files. Tim Berners-Lee wrote this explanation for his founding of the World Wide Web in a website devoted to answering questions for children:

Well, I found it frustrating that in those days, there was different information on different computers, but you had to log on to different computers to get at it. Also, sometimes you had to learn a different program on each computer. So finding out how things worked was really difficult. Often it was just easier to go and ask people when they were having coffee. (Berners-Lee, n.d., What Made You Think of the WWW? section, para. 1)

The Web was meant to be a program to help researchers more efficiently share information across distance, computers, and platforms—a work-related technology to allow people to co-ordinate and co-operate. As we know, the World Wide Web exploded, with many people profiting on what was supposed to be a free-network for the exchange of ideas. Think of Mark Zuckerberg (the creator of Facebook), Jeff Bezos (the founder of Amazon), or Larry Page and Sergey Brin (the founders of Google) as some of the people who have profited from Berner-Lee’s work.

Ursula Franklin (1990) identifies “three ages of response” to technology (p. 119). The first age is an age of youthful exuberance where “technologies achieve broadly based entry into the public mind and public imagination” (p.94). This could be seen in the early adoption of the Internet. The World Wide Web Foundation, which was founded by Tim Berners-Lee in 2009, notes that the announcement in 1993 that the World Wide Web would be royalty free “sparked a global wave of creativity, collaboration and innovation never seen before” (World Wide Web Foundation, 2017, para. 12).

The next phase in Franklin’s (1990) paradigm represents the “growth and standardization of the technology. From here on the involvement of people, where workers or users, is drastically reduced” (p. 94). This standardization and formalization

can be seen in the 2003 World Wide Web Consortium (W3C) Patent Policy. This policy, established by W3C members, provides:

W3C with a stable, practical patent policy, a clear licensing framework, consistent disclosure obligations, and a reasonable dispute resolution process. This policy will help W3C concentrate on the business of producing the best possible technical standards for the Web. (W3C, 2003, para. 3)

The participants in the patent making process included the following organizations:

AOL Time Warner; Apple; AT&T; Avaya; Daisy Consortium; Hewlett-Packard Company; IBM; ILOG.; Intel; Lexmark; Microsoft Corporation; MITRE; Motorola; Nokia; Nortel Networks; The Open Group; Oracle Corporation; Reuters, Ltd.; Sun Microsystems; Xerox Corporation; as well as invited experts from the Free Software Foundation, Software in the Public Interest, and the Open Source Initiative. (W3C, 2003, para. 5)

The group listed above represents many important corporations in the world of 2003, and the patent policy, instituted by the W3C, represented a huge compromise between open source communities that still embraced the original view of the Web as free and the software providers and corporations who stood “to gain significant revenues from royalty-bearing patent claims” (Santariga, 2003, p. 16). Creating this agreement was contentious and “W3C's new policy [in 2003], [was] built on a specific royalty-free basis but still include[d] provisions for exception cases, represent[ed] a compromise” (Santariga, 2003, p. 16). As a result, no one won, but certainly Franklin’s stage where standardization and less consultation with everyday people and more with large interests and co-operations had begun.

Franklin's (1990) last stage is enslavement to the technology where the users of the technology and their lives matter less than the continuation of the technology itself. This is the stage that we exist in now with the World Wide Web. Think of the educational jurisdictions mentioned above that are forced to predict how they can use technology to address the problems that will be created by the same technology. It seems an endless loop that will continue until a new technology or concern replaces what is here now.

Conclusion

The above analysis suggests that Ontario and other educational jurisdictions are enslaved by a fear of missing out, a dependency on new technologies and a lack of faith in the future of humanity unless students are taught how to live life in a technologically driven world. The purposes of education—qualification, socialization, and subjectification (Biesta & Stengel, 2016)—are pushed aside, and the more transformative parts of education, what Gert Biesta (2012) calls the process of “truth-giving” (p. 449), is secondary to the learning of processes that are seen to be necessary for the future. Moreover, teachers, as professionals trained in assisting students develop and learn, are forced to use technology as their pedagogical tool. Ursula Franklin (1990) calls this phenomenon the “technological imperative” (p. 73), where the knowledgeable and powerful “provide the newest, most surprising, most novel applications of their expertise, regardless of whether or not these applications address real problems” (pp. 73-74). In many cases, the problems that are addressed by these new technologies are the problems that the technologies have created themselves, such as the obsolescence of equipment or improving ways to interact through the technological medium. By focusing on teaching technological processes to students and by using technology as an intermediary between a

teacher and a student, we reinforce this loop and may sacrifice opportunities to pursue the purposes of education.

In chapter 3, I will continue to look at the world of the Internet as a control-related technology and demonstrate some of the risks that students face through the continued use of Internet-based Ed Tech.

CHAPTER THREE: THE INTERNET, PRIVACY, AND CONTROL

The goal of this chapter is to analyze the Internet as a control-related technology by examining how people in western democracies use the Web and the consequences of this use. Floden and Buchmann (1989) suggest that “philosophical inquiry often works by recognizing the similarities between problems or ideas and exploring how previous understandings might shed light on a current question or situation” (pp. 3-4) and also underscore the importance of the analysis of the “real world—of practices, institutions, policies, and proposals as well as their probable or observed consequences” (p. 3) in philosophical inquiry. To this effect, in this chapter, I will refer to specific incidents related to Internet privacy to assess issues of privacy between individuals and governments, businesses, groups, and corporations resulting from Internet use. From the examination of these incidents, I will show how Internet use inevitably results in the violation of privacy rights in citizens, and is, what Ursula Franklin would refer to as, a control-related technology. Moreover, I will suggest that it is problematic to require students to use Internet-based formats and forums for education, and that these privacy issues have the potential to impact students and their futures.

Control and Privacy

The World Wide Web and the rest of the Internet have become what Ursula Franklin (1990) refers to as a “control-related” technology. Through digital records that are kept on servers and through the long memory of references on websites that never disappear, the Internet has become a place where people are constantly observed. In many respects, observation and control are the same in this situation. In *Discipline and Punish*, Michel Foucault (1977) describes Jeremy Bentham’s panopticon as a prison

where there are no walls, but where inmates are constantly observed or think they are being observed. This threat of observation results in control, and, in that control, lies power. In much the same way, the activity of people on the Internet has the potential to be observed. Indeed, a survey commissioned by the Office of the Privacy Commissioner of Canada (2016) states that “most Canadians who use the Internet are concerned about how their online personal information could be used by organizations” (Section 3, para. 3). Some of the examples that will be discussed in this chapter will demonstrate that observations are logged digitally and can be used as evidence to punish people based on government laws or popular opinion and reputation or even to deny people health care coverage. Sometimes actions long in the past are brought to bear as if they were part of the present. This data doesn’t have a temporal existence like we do, nor does it need to be slowly excavated layer by layer as in an archaeological dig. Instead, the data exists independent of time and the only barriers to revelation are limits on access to some information and the ability to search effectively. These barriers, however, as demonstrated by websites like Wiki-leaks, are hardly infallible.

Indeed, despite Tim Berners-Lee’s best intentions and continued activism, the idea that the Internet is not a place for free and private expression is not new or novel. Feigenbaum and Ford (2015) state that “in today’s ‘Big Data’ Internet, users often need to assume, by default, that their every statement or action online is monitored and tracked” but also note that:

anonymity actually plays many well-accepted roles in established democratic societies. For example, paying cash, voting, opinion polling, browsing printed material in a book store or library, and displaying creativity and low-risk

experimentalism in forums (such as Slashdot and 4chan) are everyday examples of anonymous activity. (p. 58)

As Feigenbaum and Ford suggest, all of these activities are important in a democratic society because they allow us to be true to ourselves. We can play with our thoughts and ideas, expressing them in the way we feel is important in the moment without the risk of judgment from others. Moreover, the unobserved and in the moment nature of these anonymous activities allow us to experiment with ourselves and who we are without the risk of being profiled, or for our choices to be used against us. In a world where we are always observed like on the Internet, we become not individuals but the sum of our choices that are seen.

By extension, in causing students to learn and interact through technology and the Internet, we force our students to have their learning journey documented without any real informed consent. Student responses and assignments are stored by corporate entities that have won contracts from governments to store their learning. A document by the United States' National School Boards Association (NSBA, 2014) posits:

Once school district information is transferred or stored in the Cloud, as opposed to on an on-site server, it is housed on a system operated by others, usually on shared servers. This means that the school district does not have physical control over the data, even if the contract states that the district retains "control." (p. 3)

Thus, Learning Management Systems (LMS), like Desire2Learn, and cloud-based storage sites like Google Drive all have information about individual students that was collected in the pursuit of state sponsored education, and, in jurisdictions such as Ontario, this education is mandatory until students are 18 years old.

As stated in chapter 2 of this thesis, the Ontario government's *21st Century Competencies* document insists that Ed Tech should be infused in education in order to address the problems of the future that we "don't yet know about." In fact, the storage of user data through Internet-based education technology and the lack of informed consent could also lead to many problems that we don't yet know about. Indeed, privacy legislation and examination of the Internet as a control-related technology have not kept pace with the education's technological imperative; that is, if a process or a teaching can possibly be done with technology, then it should be. This is a problematic situation.

Brian Beamish, Ontario's Information and Privacy Commissioner, speaking about educational Internet privacy in a December 21, 2016 interview with the *Toronto Star*, said there

is a definite growth in online educational tools that are available to teachers and schools. Many of them are very valuable in terms of teaching, communications with kids and parents, assessment and evaluation—but like anything that's online, there are always associated risks that need to be addressed. (Rushowy, 2016, para. 2)

Beamish raises concern that the "information [collected through Ed Tech sites and programs] is being used for purposes that go beyond the educational purposes, and that it's going on to other markets" (Rushowy, 2016, para. 8). Beamish indicates that he believes that the Ontario Privacy laws are adequate to protect students, but that there is concern when "teachers may take it upon themselves to use a tool or have kids sign up for tools without thinking what those risks are" (Rushowy, 2016, para. 4). To this end, the Ontario Privacy Commission is working with the Ontario Association of School Business Officials to create information material for boards and teachers to ensure that, in using

the Internet in classrooms, professionals think twice before oversharing student information and using “photo-sharing sites or platforms to post homework or quizzes” (Rushowy, 2016, para. 5).

Some jurisdictions like California have gone further in trying to protect students with legislation like the *Student Online Personal Information Protection Act (SOPIPA)*. This piece of legislation, which became law on January 1, 2016, prohibits operators of Internet websites, online services, online applications, or mobile applications used primarily for K-12 school purposes to engage in targeted advertising aimed at students, to use information from the site to create a profile for a K-12 student or to sell students’ information to another entity. This statute is still very new and it is unknown if it will adequately address the needs of student privacy.

Thus, governments and legislators recognize the inherent dangers of having students participate in online learning. However, the laws protecting students are still in their infancy and governments are trying to ensure that they are current in their protections of our youth. Regardless, there are still many problems that exist as education moves online.

Indeed, it is not difficult to imagine what some of these problems might be. In the next section of this chapter, in response to the Ontario government’s concern regarding the problems of the future that “we don’t yet know about,” I will discuss the *problems that we do know about* in the way that citizens interact with the Internet in general. Firstly, I want to discuss the tendency for governments to ignore the right to privacy when it is inconvenient, and, secondly, I want to discuss the collection of information and user data by non-governmental players, such as companies, corporations, groups, and individuals.

Problem That We Know About #1: Privacy Versus Public Safety

In this section, I will examine the data that is collected through Internet processes, and show how, in Canada, though the government is responsible for protecting the privacy of citizens, having information about citizens' actions collected so constantly on the Internet can create a conflict in the government's role, often resulting in the release of private information. Surveillance is ubiquitous in the age of the Internet, as it has become a control-related technology.

As stated previously, even outside of the educational context, people are increasingly living their lives in an online environment. In its 2015 Factbook, the Canadian Internet Registry Authority (CIRA, n.d.) reported that 87% of households are connected to the Internet with the percentage rising each year. In fact, many, if not most, Canadians are living at least part of their lives with or on the Internet and these people expect a measure of privacy and anonymity as they go about their online lives. One of the most problematic issues that we know about is the government's role in protecting the privacy of citizens and measuring that right to privacy against the need to protect society en masse. While this is not a new issue, with the advent of Internet technologies, the fact that so many people are doing so much of their day-to-day living online, including students and their education, has resulted in much more private information being available than ever before—all of it stored on various servers around the world and all of it available to government officials with the right paperwork, signed by the right official.

The dichotomy between protecting privacy and protecting safety can be seen in the Canadian government's interactions with Facebook. In 2010, Canada's federal Office of the Privacy Commissioner (OPC) investigated Facebook in response to "concerns over

what social media sites do with personal information” (Davies, 2010, p. 1), resulting in some changes to Facebook privacy settings and choices—an attempt to protect the privacy of Canadians.

That being said, between July 2015 and January 2016, according to Facebook, the Canadian government made 427 requests for private information from 555 accounts (Government Requests Report, 2017). The Canadian government, which is bound to protect its citizens, is conflicted about this information posted online. Privacy should be protected, but, in essence, the Internet and Web represent a control-related technology and some of the information that is posted and stored can be used to serve what is seen by a society to be the greater good.

The biggest question would seem to be: Who decides what information is protected private information and what information is appropriate to be disclosed to government or other agencies? In the case of Facebook (2017), its *Data Policy* is as follows:

We may access, preserve and share your information in response to a legal request (like a search warrant, court order or subpoena) if we have a good faith belief that the law requires us to do so. This may include responding to legal requests from jurisdictions outside of the United States where we have a good faith belief that the response is required by law in that jurisdiction, affects users in that jurisdiction, and is consistent with internationally recognized standards. In essence, it is the legal team at Facebook that decides what information can be disclosed. (How Do We Respond to Legal Requests or Prevent Harm? section, para. 1)

So then, legitimate legal systems from different countries can request this information through formal legal channels. Thus, our privacy is safe provided we aren't doing anything wrong, or that our online actions can't be seen as wrong. If we are, then the Internet serves as an area where citizens can be monitored and controlled.

In the case of Canada, the Supreme Court has weighed in on the idea of Internet privacy. In *R. v. Spencer* (2014), the appellant, David Matthew Spencer, was convicted of possession of child pornography. The police did not initially identify Spencer as the criminal, but instead identified his Internet Protocol (IP) address. The police requested the name and address of the user of the IP address from Shaw Cable under the Personal Information Protection and Electronic Documents Act (PIPEDA). Shaw Cable complied and a warrant was issued for a search of Spencer's residence and computer.

Spencer appealed the conviction on the grounds that the request from police to Shaw Cable constituted a search and, therefore, a warrant was needed from a judge for the police to obtain Spencer's name and address. If Shaw Cable had not complied with the request from the police for the address, the police could not have identified the material on Spencer's computer that led to his conviction. (*R. v. Spencer*, 2014, paras. 2-4).

In the appeal, the Supreme Court of Canada had to decide whether the police request to Shaw Cable for the information regarding the IP address was authorized by law. The Supreme Court found that the search was not lawful and that Spencer or any other Internet user has a

reasonable expectation of privacy [from the ISP] in the subscriber information.

The disclosure of this information will often amount to the identification of a user

with intimate or sensitive activities online, usually on the understanding that these activities would be anonymous. (R v .Spencer, 2014, para. 66)

Thus, the request by the police and the compliance of Shaw Cable constituted a violation of section 8 of the Canadian Charter of Rights and Freedoms, which states that “everyone has the right to be secure against unreasonable search or seizure” (Government of Canada, 1982, s. 8).

Despite the search being deemed a violation of the Canadian Charter of Rights and Freedoms, the evidence gleaned as a result was still declared admissible by the Supreme Court and Spencer’s conviction was not overturned. The Supreme Court concluded that:

The offences here are serious and carry minimum prison sentences. Society has both a strong interest in the adjudication of the case and also in ensuring that the justice system remains above reproach in its treatment of those charged with these serious offences. If the evidence is excluded, the Crown will effectively have no case. The impugned evidence (the electronic files containing child pornography) is reliable and was admitted by the defence at trial to constitute child pornography. Society undoubtedly has an interest in seeing a full and fair trial based on reliable evidence, and all the more so for a crime which implicates the safety of children. (R v. Spencer, 2014, para. 80)

In effect, because of the nature of Spencer’s crimes, the evidence that was obtained unlawfully was still included in his trial in order to ensure that the justice system remains above reproach, especially in dealing with these contentious crimes. The results of this ruling are both heartening and disheartening at the same time.

Of course, few would disagree that Spencer should be convicted of his crimes; however, in reading the Supreme Court ruling, there is some tension between different forces. On the one hand, there is the need to protect the privacy of individuals and their Charter rights, and, on the other hand, there is the desire to use the information that is stored on servers to monitor and correct the behaviour of citizens—to use it to control behaviours. Sometimes this monitoring serves society in the conviction of criminals accused of dangerous and immoral behaviours, which is a positive result. However, much information about users of the Internet is stored, even of those engaged in less horrific acts. The good and the bad can be used to control and manipulate behaviour.

When considering the use of Internet technology in the educational context, there are ethical issues around requiring students to represent their learning and their education through the medium of technology. Gert Biesta (2005) describes learning as a “reaction to a disturbance, as an attempt to reorganise or reintegrate as a result of disintegration. We can look at learning as responding to what is other or different, to what challenges, irritates and disturbs us” (p. 62). Learning can also inspire wonder, awe, and mystery that is both fascinating and provides reverence to us. To require students to document their changes in thought in online discussion groups, their changes in motivation through recording of test scores, their changes in viewpoint in questions to their teachers as they puzzle through ideas in discussion groups, their changes in well-being as they respond to online surveys about mental health and wellness, we take the reorganization and reintegration of new knowledge and of understanding out of context and save it for posterity in digital form.

Whether this data is deleted or preserved is out of the hands of the student, who

was never given a real choice of whether the information would be collected in the first place. From a privacy standpoint, the ethical decision would be to suggest to students that as they pursue the purposes of education—qualification, socialization and subjectification (Biesta & Stengel, 2016)—their responses reflect societal norms, so that their nascent opinions and feelings are not used against them in the future. As a result, requiring students to document their growing and changing beliefs without informed consent as they navigate adolescence is unethical. Indeed, from an educational point of view, the worst case scenario is that students alter their responses when using Internet-based Ed Tech to fit the societal norms and expectations, limiting their ability to personally engage and be transformed through their education. However, as stated there is also danger if students are taught that it is normal and, in fact, encouraged to share their personal thoughts and beliefs through a medium that has the potential to control them in the future, without thought or understanding of the consequences.

In the end, information and data on the Internet, even information guarded by privacy laws as seen in *R. v. Spencer*, can be used against citizens by governments and other institutions; therefore, it is not inconceivable that educational products could be used against our students.

Problem We Know About #2: The Right to Be Forgotten

Internet searches and other activity regarding the interests, hopes, and fears of citizens are stored, and sometimes tracked. This information, as seen in the *Spencer* case, can be accessible by governments in cases involving public safety, but is also collected by companies and individuals for marketing purposes. In an article examining the merits of the new Australian privacy principles, Selvadurai (2013) notes that:

As technologies supporting more intrusive online practices such as data mining, data matching, phishing and spyware evolve and become more sophisticated, it is becoming increasingly difficult for policy makers to ensure that online information privacy laws remain relevant and effective. (p. 299)

Some use of information that is collected is passive; indeed, Internet ad companies profile us and produce pop ups that might be of interest. Certainly, in my recent search for a new mini-van, I was inundated with pops ups from different car companies long after my search was over, all of these trying to control and guide my decision-making process. In many ways, the right to privacy has been sacrificed to the technology-driven society as has the right to move on from the past. In Internet data, there is no real past as the record of what has happened exists at the same time. As Lepore (2015) points out in her article “The Cobweb,” “The Web dwells in a never-ending present” (para. 6), the privacy rules of different jurisdictions have not kept pace with this and other concerns.

As an antidote to this reality, there have been some superficial efforts by governmental institutions to increase the individual’s right to control what is found about him or her through Internet searches using such sites as Google or Yahoo. In 2010, a Spanish man whose house was repossessed a number of years earlier filed a complaint against a Spanish newspaper, Google Spain, and Google Inc. asking that the reference to the repossession be removed from search results as the matter had been resolved and was, therefore irrelevant. The case moved beyond the Spanish court and, in May 2014, the European Union (EU) Court ruled that:

individuals have the right—under certain conditions—to ask search engines to remove links with personal information about them. This applies where the

information is inaccurate, inadequate, irrelevant or excessive for the purposes of data processing. (European Commission, n.d., para. 3)

The ruling also stated that this right is “not absolute but will always be balanced against other fundamental rights, such as freedom of expression or freedom of the media” (European Commission, n.d., para. 3).

A May 2016 article in *The Globe and Mail* reported that “since the right to be forgotten was enshrined in law in 2014 [in the EU], Google has received 431,000 requests to remove 1.5 million links from its search results” (Bradshaw, 2016, para. 8).

The seeming popularity of the Law in the EU might come from the human need to shape how others see us. *The Globe and Mail* article speculates that the requests come from “individuals, public figures and companies concerned about potentially embarrassing online footprints” (Bradshaw, 2016, para. 8), just like the Spanish man who filed the original court case that led to the “right to be forgotten” ruling.

Unfortunately for its advocates, seeing the “right to be forgotten” law through is a complicated matter because no government has a right to enforce a law beyond its borders. So, while a company might request that Google remove a reference to searches originating in the European Union, Google does not have to remove the same reference in a search that takes place in Canada. Not only that, in a world of readily available and often free resources such as Virtual Private Networks (VPN), even an average computer user can make it appear to Google or any other site that they are somewhere they are not.

To battle these realities, in July 2015, France’s data protection authority, Commission Nationale de l’Informatique et des Libertés (CNIL), ruled that Google needs to apply the right to be forgotten to all searches on all Google domains across the world, thus making Google apply a French ruling worldwide. In a May 2016 appeal to the

Conseil d'État, France's Supreme Court, Google's general counsel, Kent Walker, responded, stating:

As a matter of both law and principle, we disagree with this demand. We comply with the laws of the countries in which we operate. But if French law applies globally, how long will it be until other countries—perhaps less open and democratic—start demanding that their laws regulating information likewise have global reach? (Hern, 2016, para. 6)

Walker's statement is salient in that it makes the availability of information a moral imperative. Implied in Walker's statement is that the availability of information protects the world from anti-democratic forces. If France's citizens have Google delete reference to an embarrassing event, such as a drunken incident in a park, what is to stop a despotic regime from erasing reference to all kinds of atrocities?

In the end, whether Google removes references to events or people from searches does not change the facts that the references will still exist on the original sites. The "right to be forgotten" ruling does not actually give anyone the "right to be forgotten." It just makes searchers of information have to look harder when searching from some countries. As stated, the references do not disappear on the original sites, and it is impossible to control what is copied and redistributed.

In fact, users of the Internet have little ability to control their online persona. Something said in just many years ago online can come back and affect real-world existences. For example, during the 2015 Canadian federal election, an Internet site called the *True North Times* searched prominent candidates and produced a series of articles entitled, "Nine Candidate Scandals in Nine Days: A TNT Exclusive" (2015). The

authors of the site searched candidates' postings on social media and other references made to them online from the past. For example, the NDP candidate in the riding Hamilton West-Ancaster-Dundas, Alex Johnstone, made an unthinkable and inappropriate comment on Facebook in 2008 regarding some pictures of Auschwitz, the Nazi concentration camp. On seeing a picture of one of the barbed wire fence posts, she commented, "Ahhh, the infamous Polish [sic], phallic hydro posts... of course you took pictures of this! It expresses how the curve is normal, natural, and healthy right!" ("NDP Candidate," 2015, para. 1). This quotation is, of course, inappropriate and makes light of an event that has significance across the world. On the other hand, the comment is taken out of context. Was she flirting inappropriately with the person who posted the picture? Was it part of her persona before she entered public life to be factitious and sometimes a little shocking?

When confronted with the posting by local newspaper *The Hamilton Spectator*, Ms. Johnstone claimed that she had not heard of Auschwitz before, saying, "Well, I didn't know what Auschwitz was, or I didn't up until today" (as cited in Dreschel, 2015, para. 2). Confronted by her former self, Johnstone panicked, receiving much online criticism from individuals and the media, and, as a result, lost her potential seat in the Federal election and resigned her position as the Vice-Chair of the Hamilton Wentworth District School Board. Almost a year later, in a May 2016 editorial for CBC News, Ms. Johnstone indicated that she has dyslexia and, in seeing the picture of the fencepost and reading the post in 2008, did not realize that the picture was of Auschwitz, the concentration camp. She wrote: "I was and am well aware of the atrocities committed at

Auschwitz and other concentration camps throughout the Holocaust. What I did not recognize was the word Auschwitz” (Johnstone, 2016, para. 7).

Johnstone therefore changed her story from not having heard about the camp, to not being able to decode properly the Facebook posting due to her dyslexia. She has spun the story so that she becomes a victim herself, and a person who has had to overcome adversity (she also mentions having failed Grade 1 in the article because of her dyslexia). Johnstone (2016) also worries about other young Canadians potentially running for office, and who have “their entire histories documented online”; she wrote that “since the election, many women and youth have told me that they no longer believe that they can run for office. They are not sure if a controversial post about them existed on the Internet” (para. 13). Her advice to the next generation is “take responsibility, make corrections and to seize the opportunity to grow into a better version of you” (Johnstone, 2016, para. 15).

Johnstone’s life has changed a great deal since the revelation of a Facebook comment that was posted in her early 20s. An off-handed remark came to define her online and her public life. However, as Johnstone states, the next generation is one that will have most of their lives documented by the Internet in one form or another. From online postings and references, to search histories, to usage records—it is all there to be found and to be used to control people.

The examples listed above, including the trial of David Spencer, the attempts of governments in Europe asserting the right to be forgotten, and the unfortunate Facebook post of Alex Johnstone all show the Internet to be part of a control-related technology,

where people are constantly monitored in their online lives and where that information is stored to be used to control the behavior of others.

When educational jurisdictions force the use of Internet and online tools in the classroom because of the “fear of missing out” discussed earlier in chapter 2, students are taught from an early age to learn and live through the Internet and are, in many ways, socialized through the use of these tools. They are taught to participate in these control-related technological forums and sites where they learn the habits and ways of living that support a technologically intensive society. They learn to give up their freedom to control their privacy and their freedom to engage in the private, social and civic processes in a way that is true to themselves. As Alex Johnstone learned, the Internet has a way of refusing to forget youthful indiscretions. In many ways, in the world of increased Internet-based Ed Tech, socialization, one of the purposes of education as identified by Biesta and Stengel (2016), becomes tied to enslavement to technology and control by governments and corporations.

Why Privacy Is Important in Education

In “Giving Teaching Back to Education”, Biesta (2012) describes the process of education as a transformation of the individual, where:

education is not a process of development of what is already “inside” nor a process of adaptation to what comes from the “outside”; but is an ongoing dialogue between “self” and “other” (in the widest sense of the word “other”) in which both are formed and transformed—a process through which we come “into the world” and the world comes into us. (p. 43)

In Biesta's description, an educative process is one where people engage with new information, knowledge and insight (the other) in an almost dialectical process to create new understandings. This transformation can be fraught with frustration where:

we need to work "through" that what resists us (rather than destroy it or destroy ourselves), we need to come to terms with it, rather than being allowed an easy way out (the way of destruction or the way of withdrawal). (Biesta, 2012, p. 43)

This is both a personal experience for the individual student, but it is also a dialogue with the teacher. More than anything, this is a private experience for the student and very individual process that is different for each person.

Technology that is work-related and can assist in education is of use, but control related-technology, like much of what is experienced through the Internet and the World Wide Web, must be used sparingly and with some forethought as to the impact on the student. Too often the questions that are asked about the use of technology in classrooms are based on efficiency (as has been discussed). More questions need to be asked about the impact of control-related technologies on the educational process as described by Biesta.

"Fear of missing out" and worry about the "problems we don't yet know about" are not ample justifications to expose students to various Internet technologies without more thought to their privacy and without more thought to the kind of citizens we want, as opposed to the kind of employees that employers of the future will want.

In my next chapter, I will move to a specific discussion of Ed Tech as it is used in e-learning in Ontario. I will analyze the interactions between teacher and student and show the limitations to using Ed Tech as a medium for education.

CHAPTER FOUR: THE E-LEARNING ENVIRONMENT

In chapters 2 and 3, I examined the development of the Internet as a force in society and probed the ethics of implementing educational technology (Ed Tech) strategies in schools. I challenged the notion of embracing technology because of the fear of our students missing out and making students ready for “problems we don’t yet know about—associated with living in a competitive, globally connected, and technologically intensive world” (OME, 2016, p. 3). Moreover, I proposed discussion of some of the problems that we *do* know about relating to the use of technology in society and how these problems relate to students and their learning.

In this chapter, I will analyze e-learning as a subsection and, perhaps the ultimate expression, of Ed Tech. E-learning classes can be defined as those with little or no face to face (F2F) interaction between students and the teacher, meaning that there is always a technological intermediary (OME, 2017). These environments can be contrasted with traditional classrooms which are defined as those with limited technological intermediary, and blended classrooms that take place in a traditional classroom, but use technological interfaces intermittently (OME, 2017). To complete my analysis, in this chapter of my philosophical inquiry I will use the theories of Martin Heidegger, some of his commentators, and classical philosophers to challenge many of the assumptions behind the adoption of e-learning.

While the issues of privacy, profiling, ethics and politics that I discussed in chapters 2 and 3 are relevant to a discussion of e-learning, in this chapter I will focus on the limitations of the e-learning interface as a method of teaching and will ultimately demonstrate that technology more than the teacher or students has the power in an e-learning environment.

The Promises of E-Learning

In many ways, e-learning has been promoted as the learning medium of the future and a necessary experience for secondary school students to be prepared for the 21st century (OME 2012). In fact, the Michigan Department of Education has “taken the unprecedented step of mandating an e-learning requirement for all high school students as a way of preparing their students for the growing demand for online instruction in higher education and business” (Journell, 2010, p. 71). This reinforces the idea in chapter 2 that technological strategies such as e-learning are promoted for their potential future utility, as much as for their perceived benefit.

That being said, e-learning is seen not only as a tool to prepare students for the future but as a way to offer more access to students and to remove barriers. The OME (2012) has touted e-learning as a tool that will allow educators “to better engage and support students’ learning” and to give “learners the flexibility they need to succeed” (p. 2). Both of these claims have the potential to be true, as there are many engaging tools online to make curriculum come alive for students; moreover, in taking an online course, students don’t need to be shackled by the limits of school timelines and schedules. Students can learn on their schedules.

FitzPatrick (2012) states that the “beauty of e-learning is that it can be done anytime and anywhere. It is affordable, and it saves time and produces measurable results” (p. 790). Moreover, the prevalence of “e-learning in higher education [College and University] has allowed researchers to make great strides in understanding the complexities of electronic communication, online communities, and computer-mediated content delivery” and it seems clear that “secondary education [is] primed to be the center of the next explosion of e-learning” (Journell, 2010, p. 70).

Based on the evidence mentioned above, e-learning does seem to offer more opportunities to students in terms of future-readiness (see chapter 2), accessibility, convenience, and cost-effectiveness than a traditional classroom. However, sacrifices are made to achieve these benefits, and, in many ways, the classroom that is constructed in the online environment is not an effective replica of a traditional classroom setting. In this chapter, I will argue that despite its benefits, the e-learning class is a lesser version of the traditional classroom and that much is sacrificed when e-learning is embraced.

Across Canada, e-learning has become “an important means of enhancing access to education. This is an especially important development in rural and remote communities where schools are often challenged to offer a full range of course options” (Kirby, Sharpe, Bourgeois, & Greene, 2010, p. 161). E-learning has grown rapidly, with Kirby and Sharpe (2010) noting that “8 of the 10 Canadian provinces have developed some form of province-wide online DEL (Distance e-learning) program for students in the Kindergarten to Grade 12 education system” (p. 83). This increase, as stated, is in large part meant to satisfy student need for specific courses. E-learning provides an economical solution to this problem. As long as students have a computer or tablet and an Internet connection, they can take the courses that they need.

Nearness and the Internet

While students seemingly have access to courses from anywhere in the world, it is important to examine the quality of the experience being offered to them. In this section, I will begin my analysis by establishing the lack of “nearness” in technological interactions. As stated, I will rely on the theories of Martin Heidegger, some of Heidegger’s commentators, especially David Lewin, and Plato to make this argument.

Through e-learning, education becomes within reach of every student, provided that they have access to the Internet. The Internet has the power to reduce distances between individuals and between individuals and important institutions. An article about e-learning in *Professionally Speaking*, the magazine of the Ontario College of Teachers, states that “for some boards, e-learning offers opportunities that would not otherwise be available due to the fact that schools, staff and students are so spread out” (Foxman, 2011, Participation on the Rise section, para. 6). For example, schools in Ontario’s north often have a difficult time scheduling students into F2F classrooms for courses that are necessary for university acceptance, but are not offered in local schools because of low enrollment. The article in *Professionally Speaking* mentions the example of a student in Algoma DSB who needed a physics course which was only offered once in one semester at a distant school. According to Fernando Semendo, the Algoma e-learning contact quoted in the article, “sometimes... e-learning is the only feasible solution” (as cited in Foxman, 2011, Participation on the Rise section, para. 6). E-learning, in this example, allows the teachers and students to overcome distance, space, and time and to interact through the e-learning format. This interaction takes place within a technological medium, and the taking of the course allows the student to meet the requirements of a university application. In effect, the student can get the qualification he needs in terms of credit for the course, but can he get the qualification in terms of the learning? Moreover, can the student meet the other purposes of education, including socialization and subjectification, through the e-learning medium? As will be shown, in taking the course online, there are some sacrifices made to the educational experience.

The philosopher Martin Heidegger (1971) said, “the frantic abolition of all distances [through technology] brings with it no nearness; for nearness does not consist in shortness of distance” (p. 163). Heidegger, according to David Lewin (2010) in “‘They Know Not What They Do’: The Spiritual Meaning of Technological Progress,” recognized the changes in communication technology, even in Heidegger’s time, create a “uniform distancelessness” between people and things. Lewin (2010) further states that the “Internet does not simply bring everything close to us, but rather provides a distinctly circumscribed representation of things that can only be rendered in a specific format” (p. 350). The “specific format” in which something is rendered is limited due to the technological interface.

Lewin (2010) compares an online visit to the National Gallery of Art in Washington, DC to an actual visit to the museum. No one, argues Lewin, would disagree that the visit to the actual museum is a superior experience; however, we are “hard-pressed... to articulate the nature of the difference” (pp. 350-351). He theorizes, however, the problem lies in the ideas of availability and proximity. Indeed, the difficulty, according to Lewin, is that: “the profound availability (albeit a representational availability) of the Internet is in danger of rendering us incapable of genuine proximity—either a genuine closeness to or distance from things. We are de-distanced, de-situated, uprooted” (p. 351). Thus, with experiences on the Internet, there is a seeming removal of distances and a proximity to things, events or people, but this is not actual nearness; instead, it is a “representational availability” of what is being viewed or interacted with. Intuitively, we know that this is a lesser experience than being near to the person or thing.

I would like to extend Lewin's argument about the trip to the art gallery using an example from Plato's Book X of the *Republic*.¹ In this book, Socrates discusses three types of beds: the idea or essence of the bed, the bed created by the craftsman and the visual artist's painting of the bed. According to Socrates, the ideal form of the bed is the most true because it contains the essential ideas of what makes a bed be a bed. The craftsman's bed is second to the truth because the result of the craftsman's production must function as a bed and meet the criteria of the ideal and, finally, the visual artist's bed is a creative representation, wherein the artist must create the illusion of depth and the illusion of functionality. In the *Republic*, Socrates feels that this last type of bed is undesirable and there is no place for artists (painters, poets, tragedians) in his ideal Republic. One of Socrates' main arguments for the exclusion of artists is that the arts can have a corrupting impact on people through their contrived representations of what is real.

Lewin's example of an actual trip to Washington's National Gallery of Art being superior to an online virtual visit suggests a fourth type of bed, which would be the technological replication of the artist's rendering. This "tech bed" seems a long way from Socrates' ideal. It is only representational of the artist's rendering and is limited in its replication because of the technological intermediary. Many technological considerations go into creating a visual representation, including the number of pixels, the resolution, the image size, et cetera. Even attempts at allowing people to look at a virtual painting from different angles fails to give a true feeling of being there with the painting. In effect, the tech painting is a long way from the truth and maybe this distance from the truth accounts

¹ Available at <http://classics.mit.edu/Plato/republic.11.x.html>

for Lewin's description of our reluctance to truly embrace technological replication: It is so far from real.

Nearness and E-Learning

In this section, I will relate the ideas of "nearness" discussed above to the e-learning environment and will show how the lack of "nearness" in e-learning can result in a less desirable experience for teachers and students.

There has been some research on the efficacy of virtual dissections in science classes. Virtual dissections are completed with the aid of software that virtually replicates the anatomy of the animal being dissected. Results have indicated that virtual dissections do "not lead to increased knowledge acquisition compared with the other treatments and typically resulted in the lowest scores. ... Virtual dissections were also unpopular among students" (Lombardi, Hicks, Thompson, & Marbach-Ad, 2014, p. 85). The findings from the study demonstrate that students preferred the tactile experience of either using plastic models or of dissecting an actual animal. It may be that they need the "nearness" that Heidegger described and the personal connection that can only be made by working on real, physical materials. Indeed, Lombardi et al.'s study also noted that the virtual dissection often led to misunderstandings about anatomy. To reframe the findings using Heidegger verbiage, the virtual task is too far from the truth of the undertaking. The students are not "near" to the task. Moreover, in teaching with virtual tools, the teachers either have no control over content delivery or must interact through or with reference to the technology. Their connection to the student and their ability to teach in the moment is thus limited. In many ways, the teacher becomes only a facilitator of an online task. Since the task is defined through the technology, the teacher becomes in some ways part of the

technological process, as opposed to an agent of education, working to bring about transformation in the student to achieve the purposes of education.

Kouppanou (2014) notes that:

Nearness is thus, not essentially a spatial term, but indeed one intrinsically connected to interpretation and the possibility for things to be perceived as certain things and not neutral data in time and space. In fact, this very process forms time and space, while the possibility of distancelessness hints to the impossibility of interpretation, difference and meaning. (p. 235).

Kouppanou suggests that through the distancelessness of the Internet there is no nearness. The things that are replicated through the Internet and through technological means are neutral in terms of time and space and this results in our difficulty in interpretation, difference and meaning. When a student is performing a virtual dissection, he or she is not aware of the animal as a physical thing with a physical existence; instead, it is neutral without being. This fact forces some ethical questions. Is the lesson of a dissection purely about anatomy, or is there a deeper lesson about understanding and respecting life, a lesson lost in the virtual translation with the absence and neutrality of the subject?

Likewise, in an e-learning environment, the students and the teacher become neutral entities to each other, instead of real people fulfilling their roles. There can be attempts to interact with each other as if they are physically close, but they are not “near” each other.

This lack of nearness can be seen especially in the personal and professional relationships between teachers and students. The technology becomes an intermediary,

blocking what Biesta (2012) says is an important role of the teacher; he argues that the teacher:

plays a crucial role because at the end of the day judgments about what is educationally desirable can only be made in response to the concrete and always unique situations that emerge from the encounter between teachers and their students. (p. 40)

In this quotation, Biesta recognizes that interactions in traditional classrooms are varied and come in the moment. In achieving the purposes of education, the teacher as a professional must recognize the needs of students and classes and teach accordingly. Tweaks in approach, delivery, and content can be made in the moment. The e-learning teacher, on the other hand, does not have the benefit of being able to act as a professional in this capacity. The teacher is not “near” the student as the student is learning. They are separated through the distancelessness described by Kouppanou (2014) above. The student is a neutral entity. While there are opportunities in an e-learning environment to arrange F2F contact through Web conferencing and other tools, these must be pre-planned and the ability to interact as a class is limited.

Creating a sense of nearness in the e-learning environment is a difficult task, with much of the difficulty coming from building an effective teacher-student rapport through the technology. Rapport can be defined as the “positive relationship between instructor and student [and can] include interactions characterized by friendliness and caring” (Wilson, Wilson, & Legg, 2012, p. 23). In the rapport defined above, there is no neutrality of feeling between teacher and student. There is a sense of friendliness and caring—a sense of “nearness.”

Lammers and Gillaspay (2013) acknowledge the prime importance of rapport in the student/teacher relationship and acknowledge the difficulty in building rapport in an online class. They suggest several strategies for encouraging online student/teacher rapport:

- Shortly before the course begins, send a personal welcoming email to each student in which you briefly introduce yourself, the course, and ask if they have any questions.
- Always communicate with individual students by using their names.
- Provide multiple means by which students can contact you.
- Make your availability to your students clear and more than reasonable.
- Provide some reasonable options in the course requirements and allow students to help shape those requirements.
- Make the course requirements reasonable and achievable for online students.
- Describe for students your rationale for each course requirement and how each is tied to a learning objective.
- Regularly communicate to your students that you care about them.
- Regularly communicate to your students that their learning is your top objective.
- Always treat students with respect and expect the same from them.
- Avoid negative comments. Consider ways to provide constructive criticism that emphasizes the positive potential.
- Treat all students equally and fairly. Don't play favorites. (pp. 9-10)

While many of the actions described by Lammers and Gillaspay might come as a matter of course in a traditional classroom, the list, presented as it is, seems contrived

when trying to build a real relationship with a real person. Rather than responding “to the concrete and always unique situations that emerge from the encounter between teachers and their students” that Biesta (2012) was writing about, this list attempts to anticipate problems and solve them by creating a false sense of friendliness and caring. In effect, they are suggesting attempting a replicated “nearness.” Like the individuals viewing the painting online from the National Gallery of Art (Lewin, 2010), students experience a representational availability, creating a situation where it is difficult to achieve socialization or subjectification of the student—both important purposes of education.

Indeed, the list of suggestions seems like something to be programmed rather than being responsive to a person. In fact, some of the bullets listed above can be programmed quite easily so that the teacher does not have to individualize at all and can demonstrate a false sense of friendliness and caring. For example, the second bullet in the list above reads: “Always communicate with individual students by using their names.” In the Desire2Learn (D2L) Learning Management System (LMS) used for e-learning classes by many jurisdictions including Ontario, many tools, such as the news and content features, can be programmed to insert students’ first names using the replacement string {firstname} (D2L Corporation, 2017). As an example, if the teacher were to write the following message in the news feature: *{firstname}, I hope you’re having a great day! Here is your next assignment*, a student named John Smith would see the post as *John, I hope you’re having a great day! Here is your next assignment*, and other students named John would see their own first names. The program draws the first name of each student from the enrollment data for the course and inserts it in the place of {firstname}. The teacher does not even need to know the names of the students—the program creates the

personalized contact. While this interaction might create a false sense of rapport with students (who may or may not want to see their own name), it does nothing to create actual “nearness.” In some ways, the use of the replace string seems fraudulent, faking a personal connection and an extra effort to connect with an individual student, and creates a sense of friendliness and caring where there is not necessarily any.

In addition, Lammers and Gillaspys (2013) list asks teachers “to communicate” their feelings to students, instead of suggesting ways to develop real rapport. The list suggests that teachers “regularly communicate to students that you care about them” and “regularly communicate to students that their learning is your top objective,” suggesting that these messages are not readily apparent in the e-learning medium, and that they need to be overtly communicated. There is an apparent lack of nearness and rapport in the e-learning environment.

The Costs of Convenience in E-Learning

While a traditional classroom might seem superior in many ways in terms of its ability to create “nearness” and personal connection, the e-learning classroom is superior to the traditional classroom in terms of its availability. As stated, as long as an Internet connection is available in addition to appropriate hardware, it is possible for a student to join a class anywhere in the world. E-learning is also superior in that it allows students “flexibility, [and the opportunity for] autonomous learning” (Vilkonis & Barabanova, 2010, p. 122). With e-learning, there is also the benefit that the classroom can be provided with very little outlay of resources. It is a technological rendering of a physical place and experience. Socrates might say there is some distance from the true or ideal form of the classroom, but, it is in many ways much more convenient. In this section, I

will explore the creation and nature of the e-learning environment, looking at the costs of the convenience.

Much of the convenience of e-learning comes from its availability, which David Lewin (2010) defines in terms of “increased efficiency, productivity or utility” (p. 353). Lewin also notes that “increasing availability is always and only in terms of the range of circumscribed attributes that can be determined” (p. 354). Thus, as a technological rendering of something real, an e-learning environment can only be created by determining the defined attributes of the classroom.

In creating the LMS software, the programmers must decide what the important elements of a classroom are and attempt to both improve and replicate these elements. In the program used by Ontario publicly funded schools, D2L, there is a news area for the teacher to address the class; a calendar that indicates due dates; a discussion forum for students to interact; a technological dropbox for students to submit assignments; and a content area for course curriculum.

Each of the items listed attempts to replicate the functionality of some aspect of the classroom experience, and yet there is something missing in each. The news tool might serve the same function as a teacher addressing his or her students at the beginning of the class, but it is not the same. Lewin (2010) states that “the truth and presence of any item may be more elusive than the sum of its determined attributes” (p. 354). Lewin (2010) quotes Albert Borgmann in his use of the example of Cool Whip to explain the concept of availability. Cool Whip tries to improve on many of the attributes of real cream and is more available because of its “price, ease of production, shelf-life, calorific value” (Lewin, 2010, p. 353) and yet, most people would agree that it doesn’t taste as

good as the real thing. Cream, itself, cannot be solely defined by attributes that can be replicated. Therefore, if Cool Whip can't be better than real cream, it must improve on cream in terms of the definable characteristics such as price and shelf-life.

In the example of the news item mentioned above, a posting on an e-learning site for the Ontario Secondary School Grade 10 course Canadian History might be as follows:

Yesterday, we read an article about the soldiers' experience of trench warfare in the First World War. Today, you will take some specific examples from the article and, pretending to be one of the soldiers, write a letter home from the front. The specific expectations and marking rubric for the assignment can be found in the content. The assignment should be submitted to the Letter from the Front Dropbox. See the Calendar for due dates. Please email me if you have any questions.

The posting serves the same function as a teacher explaining the assignment at the beginning of class and it does improve on the classroom version in terms of availability. Indeed, the posting is more efficient because the teacher can post the assignment at the beginning of the day and students can view the assignment when it is convenient. The posting is more productive in that students can email questions as they have them, and the posting demonstrates aspects of increased utility as all expectations and resources are clearly accessible. However, there is no opportunity for the students to engage the teacher as a class. The teacher has no way of knowing if the students read the posting unless they email a question or deposit their assignment into the dropbox. The attribute that cannot be replicated in the e-learning example is the personal connections, that can help in the socialization and subjectification of students, that come from actual nearness.

Indeed, all of the tools in an LMS have limitations in terms of their ability to allow students, their colleagues, and the teachers to interact. Each tool has a predetermined purpose and function, and because the e-learning class takes place in the virtual world, those purposes and functions cannot be adapted to meet the needs of the course participants without redesigning the element. For example, a discussion forum might not allow students to delete a post if their opinion changes during the course of a discussion, a quizzing tool might only allow for a set of predetermined answers, the feedback tools might not provide a teacher with an effective means to improve student skill or understanding. Indeed, student and teacher interaction is limited to the constraints of the technology, and users effectively only exist for each other through the use of these tools and only have use for each other within the tools.

Garrison and Rud (2009) in their article “Reverence in Classroom Teaching” talk about the spiritual dimension of teaching. They describe teaching as “the formation of minds, the molding of destinies, the creation of an enduring desire in students not only to know, but also to care for others, appreciate beauty, and much more” (p. 2627). The spiritual aspect of teaching, as described by Garrison and Rud, and the intimate connection between student and teacher during the learning process is something that cannot be determined as an attribute to be replicated.

In addition, the artistry of teaching is hindered by the online environment. Rubin (1983) states that “it is only when a teacher accurately deciphers a student’s mind that the best teaching is possible” (p. 46). Rubin also states that the teacher as artist incorporates: stochastic pedagogy [which] refers to the instructional choices that must be made rapidly, on the basis of a hunch rather than careful deliberation... collateral

teaching [which is] an avaricious need to teach as much as possible... [and] pedagogical intelligence... [the ability to] resist concessions to mediocrity and seek imaginative solutions [to classroom problems]. (pp. 48-49)

In Rubin's estimation, the teacher as artist is dedicated and adaptable, constantly changing and driven by a need to teach their students beyond the curriculum.

The type of teaching discussed in Garrison and Rud's (2009) and Rubin's (1983) work cannot be done online. So, much of this type of learning is contextual and is based on the teacher as a person and practitioner and students with an identity, a background, and a soul. There needs to be a "nearness" and personal connection for this type of learning to happen.

Since there is no F2F interaction between teacher and student, the teacher does not exist to the student unless he or she performs the actions discussed above. Likewise, the student doesn't exist to the teacher, until he or she has a technological response to the teacher or the course content. The student/teacher relationship is only revealed through technological mediation.

Loss of Humanity in E-Learning

In the next section, I will argue that the teacher loses some of his or her humanity in the e-learning environment. In effect, the teacher becomes like any other tool on the LMS to the student. I will use the theories of Martin Heidegger and David Lewin in my analysis.

Far from being an individual, the e-learning instructor becomes what Heidegger would call standing-reserve, waiting to be utilized and called into existence by the student. As shown above, in an e-learning environment the teacher becomes another

resource to be accessed as the student makes his or her way through the predetermined goals set by learning management system. As will be explained below, the teacher is only revealed when he or she is ordered into existence by the student.

Part of the dissatisfaction with the e-learning experience can be related to the fact that the information and lessons in the LMS represent a standing-reserve of knowledge and educational processes instead of the interaction between two humans. Heidegger (2008) uses the phrase standing-reserve in his “The Question Concerning Technology” to describe how, with modern technology, an object is ordered to stand by “to stand there just so that it may be on call for a further ordering” (p. 322). Objects in standing reserve are hidden until “revealed” by man through an “ordering.” This ordering can be considered a challenging-forth of the object and in the challenging-forth the object is revealed. Heidegger uses the example of how an airliner stored on a runway “conceals itself as to what and how it is. Revealed, it stands on the taxi strip only as standing-reserve, inasmuch as it is ordered to insure the possibility of transportation” (p. 322). It is a non-autonomous object “for it has its standing only on the basis of the ordering of the orderable” (p. 323).

In an e-learning course, teachers plan their courses through an LMS and create planned interactions with students. Before a student accesses a course, the teaching of the teacher is stored as a series of codes in digital form somewhere in the cloud of the Internet. As a student is enrolled in a class, the teaching of the teacher becomes a standing-reserve of knowledge and educational process that can be challenged forth by the student when he or she is ready to learn. The teaching is only given existence to the student through this challenging-forth.

In effect, the teaching becomes divorced from the teacher as a human and his or her learning as an educator becomes a commodity that can be called forth by a student or that can be ignored by the student and the knowledge can remain standing-reserve. Choice and action, therefore, are in the hands of the student with the teacher becoming another educational commodity ready to be challenged forth—just another part of the course software.

In Heidegger's (1954/2008) view, "eventually everything man encounters exists insofar as it is his construct" (p. 332). In e-learning, the teacher only exists as he or she is the construct of the student. The teacher has no existence until he or she is called forth. Because the student in e-learning is not encountering another entity but standing-reserve, the student really only interacts with him or herself in the e-learning classroom—a lonely proposition.

Because the student is the one who challenges-forth the standing-reserve of the teacher, there are definite changes to the pedagogical power relationship in the virtual classroom. In her study, Harjunen (2009) analyzes pedagogical authority in "the context of didactic, pedagogical and deontic relations or interactions in the teaching-studying-learning (TSL) process" (p. 111). In establishing sound learning in a classroom, Harjunen (2009) found that:

pedagogical interaction consisting of such characteristics as "trust building," "treating students as human being" and "ethics of care and justice" that describe the ethical basis of the interaction (trust and the treatment of students as human beings)... provides the ground on which pedagogical authority rests, in the sense

of creating the appropriate relation between teacher and students as well as among students, and the right classroom atmosphere. (p. 125)

In an e-learning classroom, where the teacher is represented by standing reserve, there is limited possibilities for teachers to establish pedagogical authority, as the student can choose when to access the standing-reserve of the teacher, with the teacher having no existence until he or she (or really it) is called-forth by the student.

In Harjunen's (2011) "Students' Consent to a Teacher's Pedagogical Authority," she discusses the ability of students to exercise their own power in a classroom and the process by which "legitimation is granted by students to the teacher's authority" (p. 404) which is "necessary for a successful [teaching-studying-learning] TSL process" (p. 418). Harjunen suggests that in analyzing these relationships "the confrontation between the power of the teacher and the power of the students" (2011, p. 404) should be considered. Because the teacher is only standing-reserve in the e-learning relationship, there is limited ability for him or her to exercise that necessary power in the TSL relationship. Instead, the student has control over whether there is any interaction between teacher and student. The teacher can rely on indirect methods to force this interaction, such as calls to parents or to guidance counselors, but, in the end, because of the lack of "nearness" that the technological interface forces, there is an impotence in the teacher's ability to assert authority from all the perspectives that Harjunen (2009, 2011) identifies: pedagogical, didactic, and deontic. While a student can also opt out of these relationships in a traditional classroom, because the teacher has no existence in e-learning, aside from that of standing reserve, this opting out is so much easier.

David Lewin (2013) uses the term "technological hermeneutics," which combines

phenomenological hermeneutics with a technological understanding of being, to describe “a hermeneutic that sees beings only in terms of what shows up for us” (p. 4). As stated above, students and teachers only exist for other users as they are able “to show up” or to use the words of Heidegger, “be called forth” in the different tools of the LMS. Moreover, Lewin (2013) states how totalizing the technological hermeneutic is, “not because technological rationality is so extraordinarily powerful in determining how things show themselves, but rather because it closes off all other possible disclosures, effectively universalizing a particular mediation” (p. 4). In terms of the LMS, all participants are limited in their ability to interact with each other, and only exist as part of that interaction.

For example, if a student submits an essay to a dropbox tool and an LMS has a rubric feedback tool with an area for anecdotal notes, the student only exists to the teacher by virtue of the dropbox submission, just as the teacher only exists to the student through the feedback that is provided by the teacher. The teacher, then, is limited in the type of feedback that can be provided to the students by virtue of the feedback tools’ interface, the rubric, and the anecdotal comments tool. The technology, in this case, limits disclosure to the “controllable, predictable, and user-friendly” and the LMS has concealed “complex (that is, fragile or insecure) interaction and deliberation, [and] the interface denigrates and excludes the depth of things” (Lewin, 2013, p. 4). Only predetermined modes of interaction are possible.

In a traditional classroom, predetermined modes of interaction (classroom discussions, written assignments, etc.) only represent the surface level of communication. Frisby, Berger, Burchett, Herovic, and Strawser (2014) discuss how face support can

improve the class participation of apprehensive students. Face support can be defined as “an overarching identity, or the way one perceives and portrays oneself to others” (Frisby et al., 2014, p. 106). The authors conclude that providing positive face supports have a positive impact on student participation, and that part of the teacher’s role is to provide these supports to students.

Encouraging students who are reluctant to participate through face support represents a paradox in e-learning, as the students only exist to the teacher through participation and interaction. While it is possible to provide some generic face supports, such as communicating that the LMS is a “safe space” and describing the e-learning environment as an accepting place, if a student refuses to participate, it is virtually impossible for the e-learning teacher to determine the individual positive face supports that are necessary to allow the student to engage. Essentially, the student becomes only a name on a register, and the teacher standing reserve waiting to be called forth.

The Goals in a Technological System

In this section, I will argue that the goals of any technological system are at odds with the purposes and goals of education. The limits of technology and e-learning in increasing student understanding and meeting student needs are understandable when the ends or goals of a technological system are examined. Indeed, from the point of view of the technology, the end is completion of the predetermined task. Student understanding that is created from the completion of the task is secondary, almost a by-product of the system.

Lewin (2010) uses the metaphor of the button to “represent the neutral means to an end... the button is the means to some functional end, determined in advance” (p.

347). In this context, the button represents the tools of LMS, the means of the system. The ends, while ostensibly the learning of the curriculum by the student and the meeting of student needs, becomes the use of the tool by the students and teachers. When the teachers and students interact with the LMS interface and the interface responds as it has been programmed, the goals of the technological system have been met. The individuals interacting with the system are secondary; indeed, their only means to existence, as determined by technological hermeneutics, is their input into the system. Moreover, to expect any other goals from the system is unrealistic. Users in any technological system can only interact and perform as they relate to a functional end. Lewin (2010) succinctly sums up the situation in saying: “We are limited to a circumscribed range of functionality, determined in advance by the structure of both the programme design and the metaphors employed. Thus the interface simultaneously facilitates and alienates, disburdens and disengages” (p. 349). Because the full range of exploration of a topic and learning cannot be completed in any way outside of the system, both teacher and student may be left feeling frustrated and unsatisfied with the e-learning experience.

Conclusion: The Neutrality of the Technological Medium

To assume that technology is neutral is a risky supposition. As has been shown, the process of moving teaching content and pedagogical practice online has a limiting impact on both content and the ability of students and teachers to interact with each other and the material, and, in the end, to achieve the purposes of education.

While David Lewin (2013) agrees with the “idea that technological devices are neutral certainly appeals to common sense” (p. 2), he notes that technology and its interfaces cause us to “unthinkingly submit ourselves to patterns of technologically

mediated interaction in a way that appears to undermine human subjectivity and agency” (p. 2). As has been shown throughout this chapter, people are limited in the ways that they can interact in the technological world.

There are great changes that happen to content as it is transformed for delivery in the technological medium. In the reception of information and learning, technology becomes an intermediary between the learner and what is being learned and content becomes a mere representation of what is real. A technological interface is created to allow the learner to access information and this interface controls what information is accessed at what time and how the learner experiences the information. In the end, technology is a limiting factor in how information is received and how communication takes place, often dehumanizing all of the participants. In effect, through e-learning, technology, more than the teacher or the student, has the power in the educational relationship.

CHAPTER FIVE: LIMITING TRANSFORMATION THROUGH E-LEARNING

In this chapter, I will continue my philosophical inquiry by challenging some of the assumptions around e-learning and teaching. I will examine the plight of the teacher in an e-learning environment, showing that he or she is marginalized in e-learning due to the difficulty in developing strong relationships with students, in guiding learning as it happens, and in participating in the transformative nature of education. I will also show that the learning theories that seem to fit with the e-learning interface, including behaviourist theories, constructivism, and connectivism, are inferior to transformative education described by Biesta (2012) that works more effectively to achieve the three purposes of education: qualification, socialization and subjectification (Biesta & Stengel, 2016).

The Role of the Teacher in E-Learning

In chapter 4 of this project, I discussed the difficulties in establishing student–teacher relationships in an e-learning class. In examining the role of the teacher, I referred to Martin Heidegger’s phenomenological hermeneutic of technology, saying that the teacher in an e-learning class is a resource waiting to be called forth by the student when needed, and, from the perspective of the student, has no existence or meaning prior to such calling forth. The teacher is therefore something that the student can use or not use. The teacher is resource potential, as opposed to an active participant in the student’s education.

This view of the teacher in e-learning is supported by several studies. In a quantitative study exploring perceptions of e-learning in secondary education, Journell (2010) found that secondary e-learning students viewed their teachers as unimportant to

their learning, and that students see an e-learning course as more of an individual journey. Part of the reason for the individual nature of the journey is that the teacher is not easily able to differentiate instruction for the needs of the different students. Endler, Rey, and Butzet (2012) note that “most of these instructional programs [e-learning] still employ a ‘one-size-fits-all’ philosophy, where every learner, irrespective of their individual abilities and needs, is presented with the same content in the same way” (p. 1119). This statement is definitely true of e-learning in Ontario secondary schools. Much of the content that is used in e-learning classes in Ontario was created by the OME with writing teams comprised of Ontario classroom teachers and other experts. These resources are housed in the Ontario Educational Resource Bank (OERB). E-learning teachers and those using blended instruction can access these resources that are uniform across the province, with some slight alterations for Catholic schools.

Moreover, due to the nature of the D2L LMS used in Ontario, it is very difficult for teachers to modify content to differentiate instruction for different students. It is possible to add “release conditions” so that only some or one student can see a particular set of instructions, a piece of content, or any other materials generated by the programs; however, this is arduous to manage. Moreover, aside from using achievement data or scores on quizzes, it is difficult to know what type of differentiation needs to happen. The access that a teacher has in a classroom makes it much easier to assess the needs of the student. The interface of the LMS makes any such assessment difficult.

In their study, Endler et al. (2012) sought to create a system to help with differentiating the instruction of e-learning students. They saw motivation as a key component in student success and generated a technological system for quantifying the

motivation of students and then classifying students using specific assessment tools. The data would then be used by e-learning teachers to individualize instruction with a system of motivational adaptation, where teachers could adapt the content on the technological interface to meet the needs of students more effectively.

The idea of quantifying motivation harkens back to my reference to the arguments of David Lewin and Albert Borgmann in chapter 4 regarding the concept of availability and the process of creating a technological process to replace or “improve” something. As previously quoted, Lewin (2010) notes that “the truth and presence of any item may be more elusive than the sum of its determined attributes” (p. 354). In the study by Endler et al. (2012), there is an attempt to determine the attributes of motivation in an e-learning course; they worked to measure “four motivational factors: anxiety, probability of success (success), interest, and challenge” (p. 1130) that affect success in an e-learning course. The study used a technologically based system of tasks and questionnaires to produce a score for each of the students participating in the study in each of the criteria. From an aggregate analysis of the criterion scores, a proposed adaptation was determined with three possibilities: “decrease [difficulty of task] by one (0), no change of difficulty (1), or increase by one” (Endler et al., 2012, p. 1130). Finally, a predictor of learning success was produced with the application of each proposed adaptation.

In looking at the description of the method for determining and then increasing student motivation in Endler et al.’s (2012) study, the application of Lewin and Borgmann’s analysis of technology and availability seems clear. The motivation of students in any class is much more complex than the sum of the four criteria in the study.

These criteria do not get to the sum of the whole student and what goes into making and creating an environment where students can learn be taught, and be motivated.

Moreover, in Endler et al.'s (2012) study, the teacher, as a professional, seems absent in assessing student motivation and in trying to engage the student. To again refer to the verbiage of Heidegger, the student is not expected to reach out or *call forth* the teacher even as a resource to help in motivation. The teacher is secondary to the technology and is less than *standing-reserve* from the perspective of the student. It is the technology that *calls forth* the teacher and reveals to him or her the task at hand of changing the difficulty level of the course through the programmed interface. The system also has the potential to be automated so that neither the teacher nor the student are directly involved with altering the difficulty of the course in order to increase student motivation. With this system, not just content delivery but also the motivation and engagement parts of effective education become automated.

I would argue that with this automation much is lost. For example, results of Decker, Dona, and Christenson's (2007) study indicate "behaviorally at-risk African American students want positive relationships with their teachers" and that "positive relationships may be critical in preventing negative student outcomes, including student disengagement from school" (p. 105). Another study looking at the motivation and performance of prospective secondary school students shows that "supportive teacher-student relationship characterized by affection, re-assurance and intimate disclosure importantly contributes to successful students' adaptation to the new school environment" (Ivančič & Levpuček, 2016, p. 132). From these studies among others, it is clear that there is an emotional aspect to the support given by teachers to students that has

an impact on motivation. An automated system like the one discussed in Elder et al. (2012) cannot provide this kind of support in developing the kind of rapport needed to make many students successful.

Of course, e-learning systems, especially those used in Ontario secondary schools, are not automated in this way. There is a teacher on the other side of the e-learning interface, but, as I have argued, it is difficult to teach and build rapport only through an online format.

The Importance of the Teacher in the Classroom

In this section of the chapter, I will demonstrate some important parts of the classroom experience that cannot be replicated in an e-learning class, using the theories and research of Matthew Crawford and Berit Haug, showing that the presence and support of a teacher cannot be replicated.

In his book *The World Beyond Your Head*, Matthew Crawford (2015) discusses research around distracted driving. He notes that in the research it was found that “while having a cell phone conversation impairs driving ability, having a conversation with someone in the car does not. A person who is present can co-operate by modulating the conversation to meet the demands of the driving situation” (p. 17). Crawford’s discussion of distracted driving can easily be applied to the classroom. Effective teachers need to modulate their teaching to meet the needs of the learners in front of them. No two students learn the same content in exactly the same way. If, in this analogy, the teacher is the passenger in the car giving directions to the student and the student’s driving can be compared to his or her learning, the teacher can modify directions to enhance the student’s ability to get to the appropriate destination. Distractions due to weather, the

mood of the student, or the student's driving ability can be taken into account and the directions can be modified to suit the situation. The teacher giving directions through the technological medium of the cell phone has no access to the context of the driving (learning) situation. All of the same considerations may be said to be true for the learning environment for a student taking an e-learning course. The e-learning teacher cannot modulate his or her teaching to suit the needs of the student because the e-learning teacher has no access to the student's environment and condition, making it extremely difficult to provide the conditions under which the teaching can be received.

Because of these limitations, teachers are less able to capitalize on important aspects of the classroom experience, such as teachable moments. In "Inquiry-Based Science: Turning Teachable Moments Into Learnable Moments," Berit Haug (2014) examines "how an inquiry-based approach to teaching and learning creates teachable moments that can foster conceptual understanding in students, and how teachers capitalize upon these moments" (p. 79). Haug determines that the "scaffolding of student thinking and learning requires that teachers know when the opportunities [teachable moments] are likely to occur, and how to capitalize upon them as they arise" (p. 93). The process of capturing teachable moments in the traditional classroom is a difficult task and requires teachers who have "a considerable amount of content knowledge and pedagogical knowledge" (Haug, 2014, p. 93)—not to mention, imagination, foresight, spontaneity, flexibility, and creativity. Haug also suggests that teacher instruction "should include planning of teachable moments and provide training in strategies for capitalizing on them" (p. 93).

While Haug (2014) discusses how teachers need to anticipate the potential for teachable moments in a traditional classroom setting, the level of planning to capture and capitalize on all student responses to create a teachable moment in an e-learning classroom is unfathomable. In a technological environment, all actions and reactions must be anticipated by the designer of the technology. As cited in chapter 3, David Lewin (2010) uses the idea of a button that can be pressed to complete some function. This function must be predetermined. In an e-learning environment, all of the buttons must be predetermined and predesigned, and there is much difficulty in straying from the design. While moments of student inspiration and new understanding can be anticipated, how those understandings manifest themselves cannot be. The main places for student interaction in the e-learning environment are the discussion board and the online chatrooms; for a teacher to capitalize on teachable moments in an LMS, the teacher would have to anticipate when all of these moments would occur for each student and create an appropriate venue for the expression and discussion of this moment. Students would need both an opportunity to discuss with each other and have the new understanding consolidated by the teacher. Thus, in this example, the technology is not neutral. The technology and the preprogrammed software control the nature of the student experience. It is guided neither by the student or the teacher, but by the preprogrammed technology. The teacher loses his or her ability to truly teach in an e-learning environment.

What It Means to Teach and Be Taught

In this section, I will explore the notion of what it means to teach and be taught by, and will rely primarily on Gert Biesta's theories of education to illustrate how

students are transformed through teaching. In discussing this theory, I will develop the importance of the teacher in teaching the whole student.

In embracing the notion of *teaching*, specifically, Biesta (2012) is careful to note that he is not proposing a return to a more traditional and authoritarian style of education where the teachers have control, and the focus is merely on the transmission of information between the teacher and the student. On the other hand, neither does he embrace some of the learning theories, such as constructivism, that focus on the student as a “learner” and the teacher as a “facilitator.” This differentiation will be discussed later in this chapter.

Instead, Biesta (2012) focuses on teaching and education as something that is able to transform students; he says that teaching “is always an interruption of some kind” that results in a change in the student—a change caused by an “encounter with something that is other and strange” (p. 42). That something is not strange because it is an esoteric piece of knowledge, but rather it is “other” because it comes from outside of the student. The role of the teacher comes in creating opportunities for students to have these encounters with new and different things, and to help guide these interactions. Biesta (2012) says that “teaching is not about the repetition of what is already there but about bringing something new—and perhaps it is important to say: something *radically* new—to the situation” (p. 41). Biesta (2005) further asserts that in these moments of transcendence where the student is confronted with the other and there is transformation, it lies in the “professional judgment and expertise of the teacher to make decisions about what this particular child actually needs” (p. 59). In essence, the teacher is a professional who tries to challenge his or her students and then helps guide the student as he or she is

transformed by the new knowledge. The relationship becomes a dialectical process in which the student is confronted by a new understanding and there is a synthesis between what was known and what is now understood. The teacher guides, supports, and nurtures this cycle.

In order to illustrate the role of the teacher as a professional in the kind of transformative education that Biesta is speaking about, I would like to provide a brief anecdote. My wife, who is also a teacher, was recently telling me about a lesson that she had regarding budgeting in her alternative education class. She was discussing different types of credit cards with her students, including cards that give you reward points. One of the students mentioned that she had an Optimum card from Shoppers Drug Mart and that she loved it because she collects points and is often eligible for free merchandise. My wife asked what the student thought Shoppers Drug Mart got from the arrangement. The students talked about loyalty to the store. My wife introduced the idea that when they use the cards, their purchases are tracked by the store, and that they were trading their privacy about where they shopped and what they bought for points and free things from Shoppers Drug Mart.

The idea of trading her privacy for points was a new idea to the student, and she reacted with some disbelief. My wife then asked if the student had ever noticed that the coupons that she received were reflective of her purchases. The student had. My wife also mentioned to the student a documentary on reward points that she had heard on CBC Radio in which a man had stated that a drugstore had known about his daughter's pregnancy before he did, as the family started receiving coupons for diapers and

merchandise related to pregnancy after his daughter had purchased a pregnancy test and had stopped buying feminine products with the reward card.

The student told my wife that her “mind was blown” and that the trading of points for private information was “creepy.” Many of the students talked about the issue and began researching further. The students were not sure that they were comfortable about the arrangement and wondered if this type of tracking was legal. The discussion continued.

In this example, there was a transformation in the student. Information that was outside of her, the idea of trading her privacy, was brought forth by her teacher. Her teacher then helped guide her new understanding, resulting in more questions about politics, the law, and our society. Thus, besides teaching the curriculum lesson around budgeting and credit card use, the teacher was able to broaden the discussion in a transformative way to address wider concerns about society, resulting in greater subjectification of the student, one of the purposes of education. This type of transformation is limited in an online class, because it is the “in the moment” discussion and revelation that is meaningful. In an online class, in a premeditated fashion, the student and teacher must communicate through the interface of the LMS.

Biesta and Miedema (2002) further discuss how the transformation in this type of education must be:

effected by participation [and that this] participation is seen as a process in which the whole person is involved, not only his or her cognition, but also his or her feelings, beliefs, attitudes, values, emotions, volitions, habits, predispositions, and actions. (p. 180)

In the example provided regarding the lesson on budgeting, the student's increased participation was evoked not by the lesson alone, but by the teacher's ability to use the information in the lesson to bear on the student's feelings about her privacy, her spending habits, and her attitude toward the idea of points. It was an emotional reaction, as much as it was a cognitive response to new knowledge. As Biesta and Miedema (2002) state, the whole person is involved in this transformation and it is the teacher in his or her ability to recognize the potential for transcendence that guides the transformation. The teacher is therefore crucial to this theory of education.

In an e-learning class, the same transformation would have been almost impossible. The teacher could not have gauged the student's interest in the topic as easily or as immediately, and the student would not have been able to have the same sort of epiphany in the moment. Indeed, as discussed earlier, the teachable moment is difficult to construct online. Online, the student could have been provided with the information about credit cards through a reading, an online slide show, or a short video and may have been engaged on a cognitive level, but, without the teacher present, there would not have been the opportunity for the same sort of "participation" in the lesson that engaged the student on a deeper, emotional level. Moreover, the teacher is denied the opportunity to help guide the student and to participate in the transformation of learning. As Kieran Egan (1992) asserts, effective "teachers show a flexibility of mind that enables them to present a subject in a new and engaging way, a way that enables students to understand it better and also to take pleasure from the learning" (p. 1). The teaching that Egan describes comes from an engaged teacher capable of using his or her imagination to work to transform students in the way that Biesta (2012) describes. The technological

intermediary of the Learning Management System prevents these types of connections between teacher and student as was discussed in some detail in chapter 4 of this thesis. Even though online learning promises to close distances between people, in an e-learning class the student and teacher are really too far apart for the student to engage in true “participation” as Biesta describes it, or for the teacher to use her or his imagination in the moment to engage students, as Egan suggests.

Theories of Learning and E-Learning

In this section of the chapter, I will examine different theories of learning and how they apply to e-learning. For each, I will provide a critique showing that the theory in concert with the medium of the LMS is inferior to Biesta’s theory of transformative learning.

The theory that fits most easily with e-learning is the cognitive-behaviourist theory. Behaviourist theories “are generally defined as new behaviours or changes in behaviours that are acquired as the result of an individual’s response to stimuli” (Anderson & Dron, 2011, p. 82).

In most e-learning courses, certainly the ones designed by the OME that are located in the OERB, courses are divided up into units or modules. In each module, there are a series of tasks, each of which are related to the demonstration of curriculum expectations. With each of these tasks, the student follows, to a great degree, Gagne’s (1965) events of instruction (as cited in Anderson & Dron, 2011, p. 82). To demonstrate the application of the events of instruction to e-learning, I will provide an example of the type of action in a LMS that corresponds to each event in the following list:

1. Gain learners’ attention [Provide some kind of a hook, which can be in the form

- of an image, a Ted Talk, an interesting text-based passage]
2. Inform learner of objectives [Provide hyperlinked access to curriculum expectations that correspond the activity]
 3. Stimulate recall of previous information [Provide a diagnostic quiz or a class discussion posting]
 4. Present stimulus material [Provide a reading, a flash video, a TedTalk, a recorded SMART Notebook session]
 5. Provide learner guidance [Provide an opportunity for students to ask questions through email]
 6. Elicit performance [Provide an assessment that will demonstrate knowledge of the new information. This could be a written paper, a recording or some other type of media created response. These assessments would be submitted into a dropbox]
 7. Provide feedback [Provide feedback through the dropbox grading function]
 8. Assess performance [Provide a mark relative to competency in the Grades tool]
 9. Enhance transfer opportunities [Provide the opportunity for students to save their assessment in their E-Portfolio tool for further reflection. Provide the opportunity for students to use the Blog function to reflect on what they have learned].

[Bracketed information is mine]

These events are followed through the course and the tools that are provided in the LMS seem well-suited to teaching and learning in this way. However, the sameness and repetition of the process can be wearing, and since the student is not with a class or a teacher, the learning can seem lonely and unchanging. Moreover, because the design of the system, from the nature of the tools to the presentation of the content, is based on

achieving specific predetermined expectations, it is very difficult to stray from these expectations and goals within the system. There is little or no room for tangents and, in many ways, tangents are crucial to transformative education.

With regard to the teacher, within the process of the behaviourist system, there is opportunity for the teacher to interact with the student; however, because of the nature of the LMS system, it is at a distance. As has been shown, the teacher has a difficult time making connections through the e-learning interface. This, as Journell (2010) mentions, contradicts much educational theory on effective practice, which views the teacher as an important part of student learning.

Constructivist and other such teaching strategies move the responsibility of the learning from the teacher to the student. In effect, “the approach allows learners to form their own representations of knowledge as well as take more responsibility for their own learning” (Keengwe, Onchwari, & Agamba, 2014, p. 893). Learner-centred strategies have also been at the forefront of traditional classroom reform, so the assumption is that to increase engagement in e-learning, it is necessary to adapt effective student-based classroom strategies and theories to the online environment. Moreover, some theorists suggest that the e-learning environment is ideal for student-based learning as “e-learning fosters greater student interaction, collaboration and greater [possibilities for] student/instructor contact” (Keengwe et al., 2014, p. 898). This contact is, of course, in the form of digital interactions through the LMS.

Learner-Centred Strategies

Journell (2010) recommends that the solution to the problem of engaging students in e-learning may be to increase pre-service and in-service education for e-learning

teachers with a focus on constructivist strategies. In this section, I will begin by describing constructivist theory and will show its application to e-learning. I will then show, using the theories of Gert Biesta, that the application of constructivist theory that seems to fit well with the e-learning environment does not lead to the ability of the teacher to be a professional or for the student to experience the transformative nature of education.

Constructivism, as described above, is a theory of education that has gained much prevalence, not only in e-learning classes, but also in traditional and blended classrooms with many schools and jurisdictions seeing its application in classrooms as desirable. For example, in one of its Capacity Building documents, the OME (2013a) states that constructivism is an important characteristic in the mindset of culturally responsive classrooms. The document defines constructivist approaches as those that:

promote inquiry-based learning—they support students asking questions and creating new knowledge based on their natural curiosity about their own experiences. Knowledge building is reciprocal because students play an active role in crafting and developing learning experiences for themselves and their peers. This results in making learning relevant and accessible for all students in the classroom as they are able to see themselves in the curriculum. (p. 5)

In this type of approach, students lead their own learning, and “knowledge... is not seen as a commodity to be transferred from expert to learner” (Scholnik, Kol, & Abarbanel, 2016, p. 12). The teacher then is a facilitator of learning, and the teacher’s role is to promote learning experiences in which students can create and participate in this learning.

Keengwe et al. (2014) suggests that e-learning is well suited to constructivist strategies as it is “primarily designed around the learner, allows for self-paced learning, and provides students with opportunities to speed up or slow down as necessary” (p. 888). Keengwe et al. also mention in their paper that “pedagogy determines what tools instructors will use—technology is just a tool that supports learning” (p. 892). Thus, in these authors’ view, constructivist theory seems perfect for application in the e-learning environment. In many ways, constructivist theory legitimizes e-learning in the face of the many of the criticisms that I have discussed throughout this paper. Indeed, e-learning is learner-based, minimizing the role of the teacher, who is seen as a facilitator, and the system is set so up so that teachers can easily apply constructivist pedagogy in their construction of online activities.

An Argument Against Constructivism

Biesta (2005, 2012, 2013, 2016) discusses the language that has developed around education. He asserts that with the introduction and predominance of learning theories like constructivism, there has been a “rise of the concept of ‘learning’ and a subsequent decline of the concept of ‘education’” (2005, p. 55). Students are described and describe themselves as learners, not students.

In “Giving Teaching Back to Education,” Biesta (2012) discusses some of the specific changes in the language of education as a result of the popularity and implementation of learning theories such as constructivism; there is now a tendency to refer to:

teachers as facilitators of learning, to teaching as the creation of learning opportunities, to schools as learning environments, to students as learners and

adults as adult learners, to the field of adult education as that of lifelong learning, and to the very idea of education as that of “teaching and learning.” (p. 37)

Thus, in constructivism learning is at the forefront and teaching becomes facilitating, resulting in a movement from a teaching paradigm to a learning paradigm.

Advocates of constructivism such as Fosnot and Perry (1996) also suggest that the teacher should be a support to the learner, as opposed to a guide. They state that “teachers need to allow learners to raise their own questions, generate their own hypotheses and models as possibilities, test them out for viability, and defend and discuss them” (p. 34), also noting that in the community of learning all “‘big ideas’ are learner constructed, central organizing principles that can be generalized across experiences” (p. 34). They state that the students’ learning in constructivism comes from the “disequilibrium” of the learning process and the “reflective abstraction” of activities such as journal writing (p. 34). Thus, in many ways the teacher is sidelined.

However, as was shown earlier in this chapter with the discussion of Biesta’s ideas about the transformative nature of education, the teacher should not be seen as “a disposable and dispensable ‘resource’ that students can learn from or not” (Biesta, 2013, p. 449). The teacher is not a resource, but a bringer of something “other” to the student. The student’s interaction with this other and the guiding that is provided by the teacher makes up much of Biesta’s theory of education as something transformative.

If the teacher does not provide “the other” that is outside of the student, and the student is supposed to build meaning and create knowledge, then the knowledge must come from within the student and is brought to the forefront from interaction with the environment. As Biesta notes, this suggests a reference to the learning paradox described

by Plato in the *Meno*. The crux of the paradox is that if you know what you want to learn, you don't need to learn it, but if you don't know what you want to learn, you can't learn it. Therefore, learning is either not necessary or impossible. Socrates' much debated solution to the paradox is that learning is just a process of recollecting what you already know. Biesta (2013) argues that "constructivism sees the process of learning as immanent" (p. 452), meaning that learning for the student in constructivism is only a process of revealing what is already known.

Matthews (2002) discusses this problem as an "evidential dilemma", saying that "for many constructivists, reality collapses into 'my experience of reality'" (p. 127). Effectively, students are limited in their understanding of what is real through the nature of their experience with the world and through what is immanently present in their understanding.

Thus, for many constructivists, the learner already has the knowledge and it just needs to be pulled out through activities based on an inquiry process where the student creates meaning. Thus, the teacher is sidelined in constructivism as resource in the process of the student's revealing of knowledge. Constructivism is then at odds with Biesta's idea that the teacher is the bringer of the "other" or the agent of education. Biesta solves Meno's paradox in his writing by suggesting that it is with the agency of the teacher that the student is exposed to something new, outside of his or her recollection. This something new cannot be learned merely through interaction with the student's environment or through constructivist tasks.

Biesta (2013) suggests through a reference to Kiekgaard that "the teacher not only needs to give the learner the truth but also needs to give the learner 'the condition of

recognizing it as truth' because 'if the learner were himself the condition for understanding the truth he merely needs to recollect" (p. 454). To elaborate on Biesta's discussion (2013) and referring again to Heidegger's work (1954/2008), the teacher's role is not just that of a facilitator, a person trying to help a student remember what he or she already knows. Instead, the teacher has to provide something new to the student (a *revealing* to use the words of Heidegger) and provide the conditions through which the student can absorb and process the new information. It becomes almost a dialectical process where the old understanding is confronted with the new, and out of this collision comes the new transformed understanding. The collision comes as a result of the agency of the teacher.

Constructivism seems attractive as an approach in e-learning because the teacher can be on the sideline. In this situation, the teacher is merely to provide cues through the LMS that the student can recognize in order to build understanding through independent or collaborative inquiry process. Knowledge is delivered and built through articles and other media on content pages, through collaborative chats on the LMS, from postings on a discussion pages, through diagnostic quizzes. Often, a teacher might ask a student to use one of thousands of free educational apps that appear online. For the most part, these activities involve the reorganization and restating of ideas and the process is far from the violent collision of ideas that Biesta describes in transformative education. Indeed, the knowledge and ideas found in a constructivist setting, while they may cause "disequilibrium" within the student, are able to be absorbed by the student and organized into learner-created "big ideas... that can be generalized across experiences" (Fosnot & Perry, 1996, p. 34). Thus, new experiences fit together in an understanding that the

student is trying to create. Even with newer iterations of e-learning the teacher is marginalized. Vaughan (2010), in his research at the University of Calgary, suggests that Web 2.0 technologies have the opportunity to reach the “historical ideal of higher education... to learn in collaborative communities of inquiry,” creating increased availability of peers, and enabling students “to take responsibility for their learning and to validate their understanding through discourse and debate with their peers” (p. 55).

For the students, the process is much like a recollection with puzzle pieces coming together. Even if there is an activity that does challenge the student or students as something that is other or “radically new,” the teacher is not immediately available to assist. In the e-learning environment, it is much more difficult for the teacher to give a student what Kierkegaard described as “the condition of being able to recognize the truth,” essentially to foster the student’s phenomenological encounter in the transformative learning process. The relationship between the teacher and student is at a distance and there is a technological intermediary separating the two. The modes of interaction between the student and teacher are pre-planned and limited by the software in the technological interface in the e-learning environment, so there is less room for epiphany or real guidance in the moment. No room for teachers to become true artists of their craft, as Rubin (1983) would say, and to “master the delicate nuances of their craft more effectively” (p. 44). Our interaction with time as a dimension of reality is fractured in the asynchronous e-learning environment. The teacher is not “near” (see chapter 4) the student in e-learning, and the opportunity for transformation is lost. While constructivism may indeed be a good fit for e-learning, the medium limits the transformative possibilities of education even more than the theory.

Theory for a Digital Age

In the final section of this chapter, I will describe and critique connectivism which is a theory that was born out of the world of the technology of the Internet, instead of being modified and adjusted to fit new technological realities as in behaviourism and constructivism. Connectivism is not currently used in secondary e-learning classes in Ontario; however, it is a theory of learning that may affect e-learning in the future, and, thus, warrants some discussion.

Connectivism in its inception was particularly associated with Massive Open Online Courses (MOOC), and is often referred to as the “theory of learning for the digital age” (Hussain, 2012, p. 11). In it, students seek to: “[connect] specialized information sets, draw information outside of... primary knowledge [and demonstrate the] ability to synthesize and recognize connections” (Hussain, 2012, p. 15).

Siemens (2004), in “Connectivism: A Learning Theory for the Digital Age,” describes the tenets of theory as:

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known
- Nurturing and maintaining connections is needed to facilitate continual learning.
- Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.

- Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision. (Connectivism section, para. 3)

In reviewing these tenets, it is evident that connectivism moves the teacher even further away from the learner. In constructivism, it is understood that the teacher is planning learner-centred activities that will allow the students to build understanding. The teacher becomes more of a curator, helping the student to make more connections through networks and datasets. Teachers “are challenged to provide an appropriate balance between structure and learner autonomy in order to facilitate self-directed, personalised learning” (Drexler, 2010, p. 370). As a result, with the teacher functioning not even as a facilitator, but more of an assistant, the opportunities for the teacher to be involved in any sort of transformative education are minimalized.

Kivunja (2014), also discussing connectivism, states that:

technological proficiency skills, as postulated in the connectivist orientation, empower our graduates to harness and exploit the enormous power of technology in helping them to think critically and to solve real-world problems as productive citizens in the 21st century digital economy. (p. 89)

This theory, then, addresses some of the concerns discussed that many educational jurisdictions have about preparing students for the future in the technological intensive world. As Biesta (2016) points out, “it is remarkable how much of contemporary educational discourse is about survival, for example with regard to the apparent skills, students need to survive in an unknown future” (pp. 387-388).

The theory of connectivism seems to have completely embraced the idea of the future as I described it previously. As Kivunja (2014) points out, in connectivism, “‘know-how’ and ‘know-what’ are being supplemented with ‘know-where’ to find the knowledge that is required to make sense of a given situation” (p. 89). There is complete reliance on the ability to find knowledge digitally and then to make meaning from this knowledge.

The absence of the teacher as a guide or any teaching per se results in difficulty for students. In Clarà and Barberà’s (2013) study, findings revealed that “many learners, especially those who do not have high self-regulation skills, feel lost and without any direction in MOOCs” (p. 131). This has resulted in many MOOCs abandoning connectivism and embracing behaviourist learning strategies (Clarà & Barberà, 2013, p. 129). This return to behaviourist strategies would give the courses more structure as shown earlier in this chapter, but it does not increase the interest, or create a connection with a teacher as a guide. If students are to get the full benefit from any course, they need the transformative influence of a professional teacher.

Conclusion

In this chapter, I have shown that the teacher’s presence is paramount in an effective student–teacher dynamic. The teacher, as a knowledgeable and skilled professional, must be present and in the moment with the student to evoke the conditions for the transformative nature of education. I have also shown that it is extremely difficult for the teacher to act in this capacity as an e-learning teacher.

In the second section of this chapter, I reviewed different theories of learning and showed their attempted application in the e-learning medium. In each case, the absence of

the teacher was shown to have a negative impact on learning. In highly organized behaviourist-based systems, I showed that e-learning over-emphasized the structure to the detriment of individual transformative learning. In learner-centred theories, such as constructivism, the teacher was shown to be a facilitator rather than the guide needed to achieve the purposes of education. In applying constructivism to e-learning, the teacher was seen to be even further removed from the student—less than a facilitator and more like Heidegger's description of standing reserve. Finally, with connectivism, the lack of structure and focus that was supposed to be a strength of the approach was, in practice, seen to be too confusing to students without the guidance of a teacher.

Overall, the teacher is an important part of the education process, but his or her impact is negatively affected when he or she teaches through a technological interface. In order to have a real impact and to transform students and their understanding of the world, teachers need to be physically present, in the moment, helping, guiding, and sharing. In an e-learning environment, the LMS lends itself to theories that are less able to achieve these goals.

CHAPTER SIX: DISCUSSION AND SUGGESTIONS FOR FURTHER STUDY

I wrote this thesis because I felt there was a gap in the literature surrounding the adoption of Internet-based Ed Tech in secondary schools. There is much written about the reasons why Ed Tech should be encouraged, but there is a dearth of literature asking if this adoption is the right thing to do. Does it further the purposes of education? Does it negatively impact the relationship between the teacher and the student? Is it moral and ethical to allow private companies access to our students through Ed Tech? Are we sacrificing our students' privacy for an ill-defined goal of making education future-proof?

Discussion

Throughout this thesis, I used a philosophical inquiry approach in order to challenge the assumptions of the use of Internet-based Ed Tech in classrooms. Using the theories of philosophers such as Ursula Franklin, Gert Biesta, David Lewin, and Martin Heidegger, I analyzed policy documents and discussions of real-world issues and showed that much is lost by embracing the “technological imperative” in education.

Overall, I have tried to present this thesis as a caution against hastily adopting Internet technology, and specifically e-learning, as a strategy in education. I presented two reasons for the spread of this type of technology in the classroom. The first, as argued in chapters 2 and 3, is related to society's fears that if we do not train our students for the coming technological world they will somehow miss out on its opportunities. I demonstrated in these chapters that the reasoning behind these fears was flawed, and also that by exposing students to control-related Internet technology at an early age, society opens them up to disclosing information about themselves and their ideas permanently, which results in their being controlled by different forces throughout their lives.

The second reason Internet technology spreads is that it is easily available, resulting in improved access across distances and to the removal of barriers. In chapter 4, I showed that while the Internet makes connections easier, these connections do not result in actual “nearness.” In fact, because there is a technological intermediary between students and their teacher, they are actually further away in terms of connection. In chapter 4, I looked at attempts to increase student motivation in e-learning, including different technology-based solutions as well as the adoption of different learning theories. Using the theories of Gert Biesta and transformative education, I showed that each of these attempts does not result in a better connection or improved learning. The application of these methods and theories results in the inability of teachers to act as professionals and students to experience the transformative aspects of education, as argued by Biesta (2013).

Suggestions for Further Study

There are several limitations to using philosophical inquiry in addressing these issues. Because my study was not based on empirical data, it will be difficult to use it to convince politicians or individuals in charge of educational districts to make changes in policy. However, as the AERA (2009) states:

woven into humanities-oriented research in education... are various forms of criticisms intended to problematize unrecognized assumptions, implications, and consequences of various kinds of educational practice, policy, and research, as well as to challenge what these approaches take for granted as beyond questioning. (p. 482)

This thesis provides a direct-challenge to those who embrace the assumptions that constitute the technological imperative in education—that if something can be done though Internet-based Ed Tech, it should be. As outlined throughout the thesis, there are several reasons why using a technology interface in education is not the right thing to do, as this usage has the potential to violate the privacy of students and to reduce the ability of teachers to achieve the purposes of education. Policy-makers, teachers, and researchers need to challenge the assumptions of a technologically-infused society and education system, looking beyond the goals of preparing students for the future that we don't understand.

In sum, I critique the naïve and hasty embracing of Internet technology in education. I think educational institutions and jurisdictions need to slow down and study what is being gained and what is lost by adoption of different types of Ed Tech in schools. In effect, jurisdictions need to assess whether the technological changes that they want to make benefit students and education or if they are merely part of the technological imperative driving educational change.

Based on my findings and research, I believe there should be further attempts to study the privacy implications of having students do their schooling online. I also believe that instead of a naïve excitement when a teacher discovers a new app for use in their classroom (whether it be traditional, blended, or e-learning), there should be more critical analysis of the app. What patterns of behaviour is it encouraging? What are the privacy implications? What connections are encouraged and discouraged?

I also believe that there should be more study of the impact of e-learning on the student, their peers and the teacher. I have suggested that there is a dehumanizing effect

on people in both roles. What is the impact of this dehumanization on the educational process?

That said, I think that there should be some study on the possibility of creating a better sense of “nearness” in education through the use of synchronous web-based communication tools. Vaughan (2015) suggests that “many students are now using a combination of applications such as *Skype* and *Google Docs* to collaborate, and co-construct projects and papers in ‘real time’” (p. 44). I also wonder about the possible impact of virtual reality classrooms on the “distancelessness” experienced with the use of technology. It may be that some of the concerns that I have raised can be solved by technology that is more synchronous. On the other hand, as mentioned previously, inviting corporations into classrooms in order to use this technology can be problematic. Gone are the days where a CD, DVD, or floppy disk was used to install a program onto a computer system. Now many of these platforms are in the cloud, allowing for more tracking of student usage and behavior by corporations. In addition, teachers are able to become Google Certified Educators (Google for Education, n.d.) and Microsoft Certified Educators (Microsoft, 2017), presenting an ethical conflict, as the line between teacher and corporate representative is blurred. The ethical questions surrounding the invasion of corporations into classrooms is also worth exploring in future studies.

Perhaps most importantly, I believe that any critique of technological systems should be done from outside of the system with the interests of teaching, teachers, and students in mind, as opposed the needs of an ill-defined future or the needs of technology corporations. Indeed, as was discussed in chapter 2 of this thesis, through the theories of Ursula Franklin (1990), technology has the ability to create problems that only it can

solve, creating a kind of circular dependency. Moreover, as David Lewin (2013) points out in his discussion of Albert Borgmann's work, technology is primarily concerned with solving the problems of availability, that is the "efficiency, productivity and cost-effectiveness of goods and services" (p. 347). As discussed throughout this paper, there is so much more to the teacher–student relationship and the transformative nature of education than can be summed up in those three criteria identified by Lewin and Borgmann.

Because of technology, much in teaching has changed in the past two decades. The rapid adoption of technology is a fact in education, and there are very few researchers and professionals asking questions about the assumptions behind this adoption. These questions need to be asked if educational districts are going to achieve the purposes of education: qualification, socialization and subjectification, and if these jurisdictions are going to create an education system that meets the moral and ethical needs of society.

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