Towards Surveillance Education: An Investigation Into the Relationship Between Surveillance Capitalism, Education, and Identity

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Submitted in partial fulfillment

of the requirements for the degree of

Master of Education

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Abstract

This thesis is a philosophical investigation that tracks the increasing influence of surveillance capitalism and its relationship to changes in identity, behaviour, and the classroom to create surveillance education. Education is key in the behavioural development of students and a critical social environment in the development of self-identity. Surveillance capitalism's practitioners could author student identity by controlling the feedback about behavioural expression in the classroom and create citizens who accept surveillance as a legitimate part of their participation in society. This places humans in the position of a simple natural resource to be stacked, sorted, and manipulated as Heidegger suggested. This thesis begins with an examination of Shoshana Zuboff's book *The Age of Surveillance Capitalism* and traces the interconnected nature of these concepts. Zuboff's arguments are refocused towards identity. An examination of how education is changing and aiding in the adoption of surveillance methods is then undertaken. This leads to the conclusion that humans are now a natural resource and that education plays role in this outcome. Possible solutions to change the course are suggested. Future areas of research are also proposed that will continue to shed light on the emergence and effects of surveillance education.

Acknowledgements

I would like to express my gratitude to my thesis supervisor Dr. Trevor Norris who encouraged me to pursue this goal, and who provided the guidance and help maintaining the focus necessary to see this through to completion. I would also like to thank Dr. Rahul Kumar and Dr. Doug Karrow, my supervisory team, for providing guidance, insight, and the necessary questions that challenged and improved the development of this work. And I would also like to thank Dr. David Waddington who acted as the external examiner for taking the time to help make this happen.

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Prologue

Learning about new technologies has become a normal part of the job over the 18 years I have been a college computer programming professor. My interests, though, have always been more focused on theory rather than application. When I began studying artificial intelligence, machine learning, and big data, I was curious about not only how the technologies worked but also how they were applied in practice and the theory of their application. During my studies, I came across the term *surveillance capitalism*, which brought all the loose ends together. As a branch of information capitalism, surveillance capitalism collects behavioural data (both digital and real world) and uses it to make predictions about how people will act. These predictions are then sold to marketing and advertising companies to better improve behavioural control over purchasing choices (Zuboff, 2018).

In this thesis, I identify and have researched the relationship between five topics of overlapping concern: technology, surveillance capitalism, education, behaviour, and identity. These topics were initially, at least in part, identified from Shoshana Zuboff's (2018) *The Age of Surveillance Capitalism*. Zuboff's writings inevitably led to expanded readings on these topics as they drew interest and concern in their overlapping, influential nature. From the expanded readings, I was struck by two questions: What is the relationship between neoliberalism, consumerism, technology, surveillance capitalism, and education? How could behavioural control sought by surveillance capitalism affect the development of student identity? In investigating these questions, I noticed a trend in which introducing technology into the classroom has paralleled the goals of surveillance capitalism (behavioural control, change, or manipulation) and is creating learning

environments that remove the right of the student to interpret meaning from experience, an essential exercise in the creation of identity.

My investigation initially focused on Zuboff's (2018) *The Age of Surveillance Capitalism*, which provides an historical perspective and is presented from the viewpoint of an economist and educator. This makes the book an excellent framework for the discussion because it sets a time frame and broadly tackles issues around the relationships between the five topics. From Zuboff's discussion, I identified three concepts to expand upon in relation to education: surveillance capitalism's relationship to other key topics (capitalism, technology, behaviour, education, and identity); behavioural control; and the "right to the future tense"—Zuboff's term for the expression of free will in determining our personal future state. In the examination of these concepts to follow, I focus on their intertwined nature while suggesting an alternate threat (the loss of self-identity) that arises from the connections.

Expanding on Zuboff's work requires the adoption of theories and concepts supported by research conducted by other researchers. Though this discussion is not supported by original empirical research, it does propose an original application and interpretation of existing theory which itself is based on existing research. Had I chosen a more conventional research method for this thesis, I would have collected and analyzed data through an established methodology. In an irony of sorts, methods of data collection play a significant role in the coming discussion, but I have chosen to forgo data collection. By doing so I will be relying on others to have completed the data collection, verified the data, and provided theories based on that data.

This type of inquiry is described as a philosophical inquiry, which is neither qualitative nor quantitative in nature and does not involve the collection or analysis of data (Golding, 2013). Because of the lack of data collection and analysis, a philosophical inquiry might be considered simply opinion and not research (Golding, 2013). Yet, philosophical intentions or beliefs play a role in all areas of research that collect and analyze data. Scientific research (e.g., in biology, chemistry, etc.) wrestles with the concept of philosophical bias, which requires a philosophical approach to understand the reasons for it and how such bias impacts the research and its interpretation (Andersen et al., 2019).

As a student of the research process in the sphere of education, I have been taught to examine my philosophical biases during the research design stage. An understanding of the philosophical underpinnings of a topic of research and the biases that impact and result from them can lead to greater understanding of the impact of those results. This is not a new process; for example, Foucault is known for his philosophical research of which educational research can now make use (Golding, 2013). I in no way imply that my research will have the impact of Foucault's, but I undertake this thesis in a similar effort to investigate the underlying relationship between existing theories to perhaps provide insight that may help future research (Golding, 2013).

I have two reasons for my adoption of a philosophical inquiry. First, there are several theories that converge in this discussion from various schools of thought (economics, philosophy, education, technology, etc.). Such a collection of varied theories allows for large variability in the combinations and outcomes of any investigation. Before a more focused research project can be undertaken, it is important that the intersection of

these theories be understood and that a single variation of the confluence of these theories be noted and documented to support future empirical research. Doing so will allow the future empirical research to be more effective, focused, and valid.

A second reason for a philosophical inquiry is the emerging nature of the topic. With new research and data emerging so rapidly in the fields of technology and education, and in relation to their interaction, a philosophical inquiry provides the benefit of placing that research in context for a better understanding of how the discoveries may apply and support or disprove existing theory. Taking a moment to "catch one's breath" can prove informative and refocus the path of research to achieve better results and map out new areas of research within the discipline.

There are pitfalls to undertaking a philosophical inquiry. As mentioned earlier, the discussion could evolve into the appearance of merely unsupported opinion. There is also the chance of too great a reliance on an individual document as the source for a particular idea or concept. Also, there might be questions of validity or weakness surrounding the theory used in support of an idea or concept. In all three cases, the strength of this work will rely on the strength of the underlying theories used. Since the goal in this thesis is to build on previous works while looking towards future areas of research, existing empirical research (qualitative and quantitative) will support the bridging of these theories and newer areas of research. To ensure that chosen supporting research is valid and reliable, published peer-reviewed research will be given priority. In cases where theories under consideration must be supported by non-peer reviewed materials (such as concerns surrounding newer technology and its direct application to education), I will use multiple articles and identify the stage at which that research currently exists.

I also have endeavoured to provide contradictory evidence. In my discussion of Zuboff's work, for instance, I have provided three examples of contradictory opinion to the scope, effects, and focus of her work. By providing the alternate viewpoints and discussing their impact on the original theory, I hope to provide the reader with a broader lens from which to consider the conclusions that I draw. Where applicable, I also attempt to refute or support these alternate viewpoints in relation to my application of the theory to this thesis to provide context. My goal in doing so is to provide validity to my argument through documented acknowledgement and consideration of alternate theories and weaknesses in those I choose to include.

With such broad concepts under consideration, I have had to make certain decisions to focus the conversation. In some instances, I removed limitations that might be expected for a more specific discussion to provide a broader viewpoint and wider application. For example, I have chosen not to focus on a given level of education (K–12, college, or university). Education in a broader sense is considered "for life" using multiple means of inquiry such as formal, informal, and non-formal methods. At the same time, the behavioural data collection and control of surveillance capitalism, which will be discussed at length, progress from before birth (DNA collection programs such as Ancestry.ca) to after death (QR codes on tombstones to allow others to relive memories (Antalya News, 2021). Thus, focusing on one level of education or one use of surveillance capitalism would be a restriction that limits the development of the theory. By lifting such restrictions, this theory will provide a more robust starting point for future research.

On the other hand, I also have had to make decisions regarding restrictions on which topics to include to keep the conversation focused. There are many areas of consideration such as government policy, individual experiences, and school experiences that will necessarily receive limited attention. I acknowledge that there are many factors and areas of research outside (and within) these concepts that could be discussed and would have valid reason for consideration. These concepts must be suspended from this work for reasons of complexity that may detract from the central argument. Therefore, the core topics to be explored will centre on the generalized relationships between behaviour, surveillance capitalism, technology, education, and identity theory.

Education specifically will be a major focus in the coming pages. Education has many diverse fields that can be and are being influenced by the topics chosen for discussion. One key area is that of education research. I will argue that education research has been unduly influenced by the combination of these factors. Yet, education research itself comprises many different topics of focus. Unfortunately, the detrimental effects that are to be discussed do not make a distinction between the type of research being done. So, in the coming pages I will speak of educational research in the most general terms because the effects of this discussion are widespread and spare no topic from influence.

In Chapter 1, I will introduce a conceptual framework that encompasses several terms, concepts, and relationships relevant to the upcoming discussion. Some may question this decision versus using the more exhaustive literature review, so clarification would be useful before proceeding and provide insight into the reasoning for this choice.

In some cases, the terms “conceptual framework” and “literature review” have been used interchangeably (Rocco & Plakhotnik, 2009) but the goals of each differ quite

significantly. The goal of a conceptual framework is to present a "set of theoretical concepts and empirical findings, [that represent] a model of the phenomena [being] stud[ied] that informs and supports the research, rather than a review of a body of literature" (Maxwell, 2006, p. 30). On the other hand, the goal of a literature review is "to understand what has been done before, the strengths and weaknesses of existing studies, and what they might mean" (Boote & Beile, 2005, p. 3). Though the two have similarities in function such as providing a foundation for the work and providing a reference point for interpretation of the study (Rocco & Plakhotnik, 2009), the choice for using the conceptual framework over the literature review in this case is one of scope.

The forthcoming discussion spans several disciplines including but not limited to technology, education, economics, and psychology. Certain topics within these disciplines, such as self-identity or neoliberalism, have a rich and diverse literature. A literature review of self-identity alone would be a significant undertaking. A full literature review's requirement into all areas to be considered would be impossible in a timely, effective, and meaningful manner. Therefore, necessary areas of focus were chosen from each discipline for their direct relationship to the topic to narrow the discussion. In doing so, questions may arise around areas that remain unmentioned or briefly described; this will be inevitable. I recognize the limiting factor of such an approach to a full understanding of all the relevant topics used as support for my argument, but the scope of considerations is too broad for a full and meaningful literature review and would hamper the focused discussion that I intend to embark upon.

I will end Chapter 1 by reviewing Shoshanna Zuboff's (2018) relevant, lengthy, and influential work that combines the other relevant topics of the conceptual framework

into a whole and defines one pillar of the following discussion: surveillance capitalism. Zuboff also ties surveillance capitalism to education, creating a base from which my work will proceed.

After narrowing the discussion with the conceptual framework, in Chapter 2 I will introduce a new collection of philosophical theories (identity, social cognitive theory, considered will) that are not discussed at length in Zuboff's work, but are necessary for an understanding of a different interpretation of Zuboff's argument's premise. I will re-examine Zuboff's right to the future tense and break with Zuboff by proposing an alternate combination of theories that better fit the conceptual framework from Chapter 1 yet still reach a similar conclusion. Within Zuboff's work, I identify a weakness or limitation in her underlying argument about contracts and free will that led me to wonder if free will is the human quality under threat. I will propose, instead, that self-identity is in fact under threat and that free will is severely hampered.

In Chapter 3, I will expand on a portion of the conceptual framework (technological agency) and introduce another set of philosophical arguments including Aristotle's four factors of causation and Heidegger's thoughts on technology to create a parallel argument to Chapter 2 that defines a result of the threat to self-identity. I will argue that if current trends continue, students will lose control over their respective identities' development and the nature of their *being* in the process. I will argue that control of behaviour, a central argument in Zuboff's book, leads not to control of free will but rather to control of the meaning taken from social interactions. These meanings define who we are and define our self-identity. Self-identity is critical to social development as it defines our expressed behaviours and interpretation of the social world

around us. Control methods that manage to *author us* (as Zuboff terms it), such as the introduction and acceptance of digital agents into our social networks, need to be discussed and exposed to help all members of the education discipline make more informed choices.

Finally, in Chapter 4 I will reconcile the philosophies of the preceding chapters and in Chapter 5 I conclude with a summary, offer some suggestions, and describe areas of future research that may help in determining a course forward.

And we begin with a simple online shopping experience.

CHAPTER ONE: CONCEPTUAL FRAMEWORK

I was looking through Amazon's warehouse deals and came across an arcade joystick designed for use with a home console (PlayStation 4, I think). As an avid gamer and game collector, I had always liked the larger, arcade-style controllers compared to the smaller handheld ones common to most home consoles. This one was particularly interesting because it was styled for a specific game. I gave it the once over, zoomed in on the images to get a better look, glanced at the price, and then quickly moved on. The thing about arcade joysticks is they tend to be quite pricey especially when etched with game graphics.

The sticker shock eased a little as I moved on to MSN. The page had just about finished loading in my browser and a single box, approximately in the middle of the page, caught my eye as the final parts of the page filled in. My system security often makes pages load a bit slower and this box drew my attention because it was suspiciously empty except for the words *Amazon advertisement* or some such text. When it filled in, there it was: the arcade joystick I had been looking at moments before. I had heard the stories, but this was the first time I had paid attention long enough to see a previous search used to tempt me to buy something.

This invitation to temptation was made possible by a series of technologies. At the core of these technologies is the use of a small text file called a "cookie." Cookies are stored on the user's computer, not the servers that provide the content. The file's data can be modified as the user progresses through their daily activities by revisiting the site that created the cookie. As the user moves throughout the web, they encounter small sets of code (sometimes called plugins) that are placed on other websites by the creators of the

original cookie that look for and read these cookies. When I visited Amazon's website, the site's code created one of these small files and included enough information in the file so that the Amazon advertising plugin on the MSN site was able to retrieve the image of the joystick and provide a direct link back to the original page. At every step data was being collected about the process and my choices. The goal was the creation of a dossier of sorts about the interactions. Starting out anonymously, Amazon would recognize the Internet Protocol (IP) address at both times, allowing them to create a profile of these online actions. That profile would include data about when the interaction started (the creation date of the cookie), where and when their plugin found and accessed the cookie, what image to serve to the plugin for display, and much more. To link the anonymous dossier to me directly, they could link it back to my Amazon account using my IP address because of previous logins.

I introduce this tale as a starting point for a discussion of a series of topics including (but not limited) to neoliberalism, consumerism, technology, and capitalism. This conceptual framework will provide a definition and overview of each, a look at how they are related to each other, and how each currently manifests in the field of education. Consideration of these topics is crucial in gaining perspective on how they influenced and contributed to the rise of *surveillance capitalism*, which plays a significant role in the remaining portions of this work. The final part of this chapter will subject surveillance capitalism to the same steps of definition, overview, relationship to the other topics, and educational impact. The remaining chapters will expand on core pillars of surveillance capitalism (one of those being data capture) to argue for a more considered approach in the implementation of surveillance capitalist methods and theories within education.

Neoliberalism

Neoliberalism is defined as the "extension of competitive markets into all areas of life, including the economy, politics, and society" (Springer et al., 2016, p. 2). That extension gives it influence in areas such as power, governance, and policy (Means & Slater, 2019). Under that influence, "the state itself must construct and construe itself in market terms, as well as develop policies and promulgate a political culture that figures citizens exhaustively as rational economic actors in every sphere of life" (Brown, 2006, p. 694). Brown (2006) states that the qualifier *rational* is an expectation that citizens (the economic actors) are created as entrepreneurs and consumers who have the capacity for "self-care." Regardless of monetary situation or position in the neoliberal state, citizens are measured by their ability to meet their own needs and ambitions (Brown, 2006).

Brown's (2006) use of the qualifier *rational* I feel is valid but misses a key point that will resurface later in this thesis. I will tread lightly here to avoid getting ahead of myself but will expand on this point later in this thesis. Suffice it to say at this point that rational entities are inherently predictable. In Brown's description, entrepreneurs and consumers are *produced* so their actions, being based on learned behaviours, are or can be expected. If you can expect someone to respond in a given way, you can plan for that reaction or even change the conditions that produce that reaction or change the reaction altogether, hence the need for neoliberals to interfere in the system to ensure citizens are created, produced, and construed as rational economic actors.

Assumption of rationality provides a measure of stability to the system from which predictions can be made about how citizens will react. As a *rational economic actor*, I can be expected to make decisions based on economic concerns related to self-

care. In refusing to purchase the joystick, as a rational economic actor I demonstrated an understanding that the money I would have spent on the joystick had other, more important uses, and so I chose to not make the purchase. On the other hand, whether you call it irrationality, chaos, accident, or randomness, the polar opposite situation confuses the neoliberal system that so highly values order and predictability. Shoshana Zuboff (2018) writes that this randomness is a friction that interferes with predictions.

Therefore, I will use Brown's (2006) qualifying term *rational* for economic actors for three reasons. First, as she suggests, neoliberalists consider those in the system to act rationally. Neoliberalists can consider them rational because the system they developed trains those involved to be rational or at the very least believe they are. Therefore, since neoliberalism forms the basis for the description of the system in which this research takes place, it makes logical sense to continue to use the term at least for this thesis. Secondly, accuracy of predictions and predictability form the reasoning for the creation, development, and implementation of the new order of neoliberal endeavours: surveillance capitalism. I will discuss surveillance capitalism later in this chapter. Rationality improves the accuracy of those predictions. Irrationality on the other hand plays havoc with the predictions. Thirdly, as discussed in the Prologue, certain topics will need to be restricted to keep the discussion focused and irrationality, for the time being, will be considered one of these restricted topics. Its effects on the system will be suggested as a future area of research.

Another area of concern that Brown's (2006) definition does not cover are include individuals within neoliberal society who cannot meet the levels described in her definition. Children are one example. Children hold a special case in this discussion as

they are participants within an institution (education) that is influenced by neoliberal concepts, so the direct effect on them is considerable and will be a central focus of this thesis. But there are others who do not possess the ability for self-care whether through lack of funds or for other reasons (mental health for example). In certain cases, states attempt to help these marginalized groups whether through welfare systems or other programs to participate and reach a certain level of capacity for self-care, but there are still those who cannot meet this basic requirement for participation in the neoliberal system. For the coming discussion, the effects of the envisioned system on marginalized groups, much like irrationality, will have to be deferred to future research to keep the coming discussion focused, and I feel its inclusion here will not do the topic of marginalization the justice it deserves.

So, in summary, neoliberalism is a system in which competitive markets are considered and extended into all areas of life. Its success is partially based on the predictability of rational economic actors who act as entrepreneurs and consumers who are expected to respond to and in competition act rationally to ensure their position within the system. This defines neoliberalism as it is currently understood, but there is more to consider.

Some argue that neoliberalism has been exhausted or is nearing exhaustion as a category of analysis and that we are entering a post-neoliberal era partially because of digital technologies and changes in political economy (Means & Slater, 2019). Others suggest that a focus on neoliberalism is missing greater evils at the core of society such as racial capitalism (LeVine, 2020). Others suggest that neoliberalism is facing change under pressure from weaknesses shown during the COVID-19 pandemic (Lent, 2020). I believe that we have not yet entered the post-neoliberal era and that neoliberalism in the so-called

classical definition presented earlier is still the dominant force in the economic understanding related to this discussion. Perhaps the aforementioned changes are coming but pre-post-neoliberal definitions such as I presented in the previous paragraph still hold sway.

During this discussion, I will consider neoliberalism a catalyst. Much like a chemical catalyst, neoliberalism influences the other topics presented here yet remains untouched and unchanged in the end (though that resistance may be weakening as suggested earlier). Neoliberalism's influences such as competition and seeing all members of society as rational economic actors are the drivers of change yet the basic concepts remain unchanged even when exposed to other beliefs and the results of its own application. Even when neoliberal influences have faced criticism of failing to live up to their promises (such as in education), the core beliefs of competition and rational economic action remain unchanged.

As part of a neoliberal state, education has come to see parents and students as rational economic actors and so implements market-based policies of competition around educational decisions. As an example, Jessica Shiller (2011), in a critical review of the introduction of small high schools into the city of New York, demonstrates some of the effects of neoliberalism in education. The introduction of small high schools was proposed to remove the large high schools and improve graduation rates in underserved communities by improving among other things teacher-to-student ratios. The venture was funded by those corporations and political elites able to provide the money to make the venture possible. "Under this theory, competition ultimately would improve the quality of schooling" (Shiller, 2011, p. 161) as parents would be able to choose the best performing schools for their children to attend by reviewing metrics about the various schools in the area.

The publishing of achievement data (metrics) to show the parents the schools' capabilities allowed for the "claim that the choice parents would have with the new schools would allow all parents, rich or poor, to choose schools for their children, ensuring equality" (Shiller, 2011, p. 161). This process created a situation in which teachers were focused on getting students to graduation and teaching to the test rather than improving learning and retention of necessary skills. Students who did not meet minimum requirements are counseled out of the schools to keep the numbers up. Even with large funding streams and market-based concepts such as competition driving education, it created a series of problems and did not actually improve student education.

By portraying people as rational economic actors, neoliberalism frames education and the actions and goals of those involved as a competitive act. Schools must compete for students and funding based on the capitalist concept that competition ensures improvement (Shiller, 2011). The rational economic actor, the individual in the system, can be manipulated or trained to act in a way desired by neoliberal influence because neoliberalism holds sway in areas of power, governance, and policy. Government and its institutions such as education spout neoliberal concepts of competition often using language, such as Schiller (2011) suggests, of access, outcomes, and equity while also telling us that changes to our status and situation are only possible if we become rational economic actors and approach problems from that perspective.

Consumerism

Economic actors, whether rational or not, must make and spend money to keep the neoliberal system running, equating them with the term *consumers*. My little tale of the joystick is an example of consumerism. If consumerism is defined as the

preoccupation with the acquisition of consumer goods, I admit that I am a consumer. I am hooked on purchasing more and more game-related things to add to my collection (perhaps there is something else going on here, but we will chalk it up to consumerism for now). Neoliberalism's push to identify all people in society as economic actors or consumers is influencing me to identify as a consumer.

When I decide to shop on Amazon, I am a consumer. Sometimes I have money to spend and therefore I make a purchase. But, even if I do not have the funds, I still like building up a wish list of items to eventually purchase. And Amazon makes this extremely easy by providing a system to allow me to remind myself (and them) that eventually I want these things. Once I have made my decision to buy—once I move from the abstract concept of "I want" to the concrete concept of "I will"—Amazon makes the process as seamless as possible to ensure that it can be completed before I can think about what I am doing and stop myself. I can save my card number and anything else that is necessary to complete the sale so that in only a few clicks I can buy before I think. I can make a purchase so quickly that I make multiple purchases before I realize I have overspent and am now in debt and making interest payments to allow other companies to make even more money off my purchase.

As a consumer I have choice by which I can refuse to purchase something if I deem it not to be in the realm of self-care. And that choice complicates attempts to make a sale. A consumer needs to purchase and that is what makes them a consumer. The point of advertising and marketing is to change how and when I purchase by trying to influence my choice. The wish list provides me with a reminder because having to search for it again might be more difficult the second time around, but it also gives Amazon data that

allows them to nudge, push, or ask me to make a purchase at a time when they feel I would be influenced to make the purchase. We see the influence in presenting the joystick back to me even though I left it “sitting on the shelf” back on the Amazon page. The integration and reach to try to make me a consumer go well beyond the Amazon page and extends to even competitors’ websites such as MSN. And the integration is growing through third-party cookie technologies.

In educational institutions it is becoming harder to avoid consumerism. Not only do teachers wear advertising, students bring it with them, and administrators force it upon classrooms, but corporations are gaining even greater influence in the classrooms beyond advertising. Google Classroom is making incredible inroads into education because it is free, and educators are not questioning the collection of student data which is expressly done to determine the behaviour of students to eventually sell them products through other means. Other technology companies do the same, and there is an entire industry built up around consumer-based education. These companies provide the classrooms with a range of products from paper to software (e.g., games, learning management systems). The presence of their logos and features within the classroom have a direct influence on the students, perhaps just as strong as the digital tools that we allow the students to access. There are many sources of consumerism and advertising in the classroom whether overt or covert. Students are inundated with marketing at nearly every turn.

In contrast, the goals of education have not always been (so) consumer focused. There have traditionally been three aims or goals in education: preparation for a role in society; an introduction to the realities or truth of the world in which that society exists; and as a guide or facilitator helping children develop a sense of self and individuality

(Matthews, 1998). As this discussion continues, I will necessarily focus on a limited range of educational goals and aims. In particular, I will discuss one variation or interpretation of the three traditional aims and interpret a goal of education to be the behavioural adjustment of students. In preparing students for productive action in society and helping them develop the sense of self to do so, education must show them how to behave, instill the understanding of why it is acceptable, and reinforce those behaviours. This behavioural modification is necessary to achieve the goals (whatever collection is used) of education. Behavioural modification is also a central point for the remainder of this work overall, so when I mention education's goals in the upcoming sections, I will be referring to behavioural modification specifically among others.

This concept of behavioural control has many effects within education, especially considering education never occurs in a vacuum; outside pressures influence education's aim of using behavioural control to create social beings. Rousseau (1763/1979) suggested that educational pursuits are not immune from the society in which they are undertaken. In this case, because of neoliberalism and other outside influences, the current aims of education have been tainted to express a decidedly consumerist point of view because ideas such as neoliberalism have taken root in society in general. There are many other influences. This is only a select few chosen specifically for this discussion, and there is another influence on education that is germane to this discussion, which is *information technology*.

Information Technology

Another influence on society, and therefore, education, is technology. The word *technology* alone could be interpreted to apply to all human inventions, including the

physical manifestations most would initially perceive as tools (hammers, computers, etc.) to the more imaginative concepts such as the corporation, society, and religion (Harari, 2014). As you noticed in my tale at the start of the chapter, I used the word *technology* as a blanket term for the inventions that have been designed and applied to make it easier to find the items or ideas to consume, made it easier to trigger messages about being a consumer, and made it easier to act as a consumer. As I am focusing on a particular branch or type of technology, I should refine the term and provide some clarification about the choice I made.

In trying to refine the terminology, I came across two possibilities. Based on the tale of the arcade joystick, I knew I would be dealing with computers and the related connective devices. Based on previous experience, I found I could choose from two descriptors: *digital* or *information*. Using *digital* produces a definition focused on the devices or an application of knowledge developed from the scientific or engineering knowledge dealing with the creation and use of computerized devices, methods, or systems (Dictionary.com, 2021). Using *information* refines technology to involve "the development, maintenance, and use of computer systems, software, and networks for the processing and distribution of data" (Merriam-Webster, n.d.-f).

For the remainder of this discussion, I have chosen the term *information technology* (IT). As will be seen in coming sections, the inclusion of the statement "for the processing and distribution of data" will be critical abilities of the group of technologies discussed. It is in this processing of data that key abilities and decisions about application, use, and focus of IT will be made.

There is one other point to consider about IT and technology in general, and that is: What is IT? A tool or an agent? This question is important for the discussion as it

suggests a level of interaction with the device and the effects such interactions have on our daily lives and our personal development. If it is simply a tool, it is benign until the user places it in a position to solve a situation and then its focus is for that moment (Blacker, 1994). If it is an agent, then it holds some level of "rationality" or "influence" that allows it to make decisions and affect the user (Blacker, 1994).

Blacker (1994) writes "we experience tools as things that we *use*; we regard them as morally neutral in the sense that they seem to await a human purpose to animate them with moral life" (para. 2). In this understanding, the technology (computers, routers, software) that facilitates my search, review, and potential purchase of the joystick is not the problem. The problem is the application; the reasoning, knowledge, and application of how the tools are used that causes the problems; the human(s) that set up the system is (are) the problem. Shoshana Zuboff (2018), whom I will discuss shortly, interprets technology in this manner as well. On the other hand, some see technology as being more than a tool; that technology has a certain "agency" that we must contend with. Blacker (1994) concludes that

> whether we fear and loath [technology], look toward it for liberation, or merely "go along" with it and allow it to shape our lives, there is an important sense in which we endow it with a certain agency and act as if it does things in the world, things that we must react to in various ways. Technologies are thus often regarded as the bearers of intentions. (para. 3)

Under such conditions, Pinar (2013) suggests that our culture is changing and as that new *technoculture* changes, we lose our ability and capacity to understand technology. The result of that loss of understanding, as Lewin (2010) suggests, is that we are "caught in a determined mode of seeing—seeing things only in terms of their utility—which precludes

a genuine engagement with things as they truly are" (p. 359). If we are not engaging with technology (going beyond mere use to achieve an understanding of the *technoculture* that is developing), then this limits our understanding of the tool we seek to implement and gives the tool agency to act on our behalf, act on behalf of someone else, or even act on behalf of itself.

If the understanding about the tool is limited, then this may limit our application of those same tools and any theory derived from their use. For example, education has considered students *digital natives* since Marc Prensky coined the term in 2001. Based on the students' apparent abilities to adapt to and willingness to accept new technologies, it is assumed that they understand how technology works much better than those who are considered *digital immigrants* (those who had to adopt technology later in life). Yet, as Lewin and others suggest, the appearance of students to better adapt to new technologies is simply the user-interface interactions becoming much better at anticipating and hiding the complexity that the application requires to perform its intended function (Lewin, 2010; Kirschner & De Bruyckere, 2017). Hiding the application's complexity removes our need to understand what it does and how it works as long as it does what we think it is supposed to do. That lack of understanding, as Blacker (1994) suggests, means that students "merely 'go along' with it and allow it to shape [their] lives" (para. 3). Understanding of the tool reaches only superficial depths. Theories built from these superficial understandings are open to question. Understanding the tools more completely can furnish a more in-depth understanding of the resultant theories.

This is not to say that Prensky's (2001) observation about students' easier acceptance and use of technology was wholly inaccurate, because he was right: "*our*

students have changed radically. Today's students are no longer the people our educational system was designed to teach" (p. 1; emphasis in original) and information technology (IT) is the defining factor of that difference. I merely suggest that without the deeper understanding of the tools and the intentions imbued into those tools by their designers and users, all related theory (educational, societal, etc.) needs to be adjusted to account for technological agency. B. F. Skinner (1953), whom I discuss later, writes that "confusion in theory means confusion in practice" (p. 9). Without clearly defining the agency of the technology, theories based on that technology whether in the realm of education or elsewhere are suspect and open to scrutiny. Those understandings and theories have wider application within the classroom and in other parts of our lives.

IT use is increasing in the classroom for various reasons and causing issues in the process. In a review of the 50-year history of the journal *Theory Into Practice*, Arthur Graesser (2013) tracks IT's introduction and use in education from the early 1980s to the 2000s. From the review, he identified three takeaways: (a) IT has progressed into and has been accepted at all levels, (b) education stakeholders are having a difficult time keeping up, and (c) students will be part of the evolution as they bring their technological learnings from outside into the classroom. As Graesser's takeaways have transformed education, IT has been identified as providing value to the education system through benefits such as personalized learning (Boninger et al., 2019), allowing access to many different forms of information from videos to text (Łaszczyk, 2015), and leveling the playing field between education districts (Łaszczyk, 2015). The process may not have been perfect, but value is being seen in the integration of IT.

Most of the value from the integration of IT comes from the ability of technology to collect data. I would like to pause a moment and discuss what is meant by the term

data since it is such an important lynch pin in the discussion as everyone wants it, everyone is using it, and everyone talks about it, yet how many really know what *it* is. The term *data* means unrefined facts; the raw statistics and measurements that can be collected about something under study (Merriam-Webster, n.d.-c). The key is the unrefined nature. For example, if I were watching my gas mileage, I might collect distance, litres used, litres added, speed, et cetera. This is not to be confused with the term *information*. Information stems from the processing of the collected data; the knowledge obtained from the investigation (Merriam-Webster, n.d.-e). In other words, taking the unrefined facts and refining them to produce a new construct that can be applied in each situation. If I were watching my mileage, I might notice that as I drove slower, I used less gas which means I might consider driving slower all the time. That interpretation transforms the data into information.

Beyond that and more relevant to this discussion, data is the plural form of the word *datum*. Datum is a Latin phrase meaning *given* or *admitted* as a basis of reasoning or inference (Merriam-Webster, n.d.-d). The idea that data is given is a question to consider in relation to the use and integration of IT. As will be seen, collection of data through IT has proven to be beneficial to many areas of life, including education. Yet, there is a question as to whether the data is being given or whether it is being stolen (see contract versus uncontract in the coming pages). Even with user consent (and there are ethical questions as to whether that consent is informed consent), data is collected about our online and real-world lives. And the amounts and types of data being collected are increasing and becoming much more refined in what and how it is collected. Application of IT has created this imbalance, and this will be discussed in coming sections more acutely.

The amount of data being collected in the classroom specifically is growing so much that in the last 12 years two new areas of study have grown in educational research: (a) educational data management and (b) learning analytics (Liñán & Pérez, 2015). Both make use of the growing amounts of student data to begin to refine learning theory (turn data into information/theory). For example, in one experiment, student results from an in-class video game about fractions were used to show that learning analytics was useful for refining learning theory (MacLellan et al., 2016). Using a computational model designed to simulate human learning in an interactive learning environment and the data collected from the video game, MacLellan et al. (2016) were able to develop two models and show that indeed learning analytics can aid in theory development. They do note that the architecture used was incomplete and did not account for various portions of the learning model used. To provide the computational model with the necessary skills, models would need to be trained using more data collected from different student experiences (more data needed to be collected to train the model to do whole number multiplication first before fractional multiplication).

With experience teaching computer programming and related topics to adults at the college level, I see technology often introduced into the classroom simply for the sake of "going where the students are," such as joining students in non-college approved chatrooms to conduct classroom work because it is the technology used by the students in their daily lives. I see this approach as a dangerous pedagogical stop-gap maneuver that removes the protections of the educational processes and systems. Such choices by educators place the students at risk through loss of control of their personal data, loss of control over the platform, and perhaps even loss of control over the message. As

mentioned in a previous section, many of the definitions surrounding—and applications of—IT that have taken hold in education are too simplified and, in some cases, miss the mark completely.

In a cyclical process of support, the increase in influence of both neoliberalism and consumerism in the classroom is aided by the spread, acceptance, and adoption of IT and IT is supported by the advertising and marketing ploys of neoliberalism and consumerism promoting the perceived benefits of IT. IT in general has made it easier for companies and schools to collect data and provide more direct advertising and marketing by sharing student data with third parties who use the student data in unknown ways and/or may fail to adequately protect that data (Boninger & Molnar, 2020). IT has also made it easier to influence the aims of education to further turn from the three "classic" aims and drive further acceptance of IT claiming that a lack of knowledge of these technologies will result in failures to integrate into society, understand society, and understand one's self. Hence the prominence of IT's role in the coming discussion.

IT has provided many benefits to education, such as the potential for self-directed learning, among others. However, IT theory beyond pedagogical novelty requires a more considered approach. Our naïve understanding of IT theory does not include an understanding of its rapidly growing capacity for agency. When combined with consumerism and neoliberalism, corporations have capitalized on our naïve understanding or misunderstanding of IT (technology as a tool). In doing so they have created a reliance and acceptance of the tool that changes the relationship and understanding (technology as agency). This new relationship is focused on harnessing humans (students) that use or rely on the tool to consume which, guarantees profits.

Shoshana Zuboff and others have tried to label, describe, and explain this new undercurrent of society. The term they have applied is *surveillance capitalism*. It is the practical application of IT to collect enough data about you in the digital- and real-worlds to change your behaviour to deliver the temptation to buy at the moment you are most vulnerable to ensure you consume and feed the neoliberal system.

Capitalism

Before a direct discussion of surveillance capitalism, a brief explication of capitalism is presented. The theory of capitalism, the driving concept behind neoliberalism and consumerism, has itself been transformed by IT. The "surveillance" in surveillance capitalism is a specific application of IT within capitalism economic theory, so understanding how capitalism has been transformed by IT will be of benefit.

The problem of defining *capitalism* is that there are so many descriptors attached to the core word capitalism, all of which tend to be understood as in operation almost all at once. Words like *market*, *Fordist*, *global*, *conscious*, and even country names are added to define interpretations of capitalism. For the purposes of this paper, I will focus on three qualified versions of capitalism to trace a brief history of the changes that have led to a fourth qualified version in surveillance capitalism.

Generally, capitalism is "an economic system characterized by private or corporate ownership of capital goods, by investments that are determined by private decision, and by prices, production, and the distribution of goods that are determined mainly by [free] competition in a free market" (Merriam-Webster, n.d.-b). The idea of competition that permeates neoliberal ideals and the concept of the freedom consumers have to act within that system arise from the notions contained in the capitalist ideology.

Capitalism's dominant form or understanding was based around the experience of Henry Ford and the Ford Motor Company.

Fordist or Keynesian capitalism was the dominant form from the late 1930s onward and the version most people would be familiar with (Fisher, 2010). This form of capitalism was known for a maximization of profits by increasing volume (mass production), decreasing costs, and spreading demand (Zuboff, 2018). As the key understanding of capitalism, Fordism dominated the capitalist enterprise for decades.

With the advent of IT, the tool drove change in the Fordist version of capitalism and ushered in a post-Ford era of capitalism. Post-Fordism is characterized by the just-in-time delivery of customizable content with decentralized management over global corporations (Fisher, 2010). This transformation is strongly linked to "a transformation in the dominant technology system from mechanical and centralized to informational and networked" (Fisher, 2010, p. 234). The freedom IT provided to capitalists to increase their revenues also provided a new type of capital from which they could increase and derive new profits: data (Zuboff, 2018).

IT has made it possible to collect detailed data about a company. There is value in this data to improve corporate methods and improve efficiency. Data thus became a capital asset, or something internally owned by the company that could be used within businesses (Matthan, 2016). The recognition of data as a capital asset gave rise to the need to collect more and more data. Zuboff (2018) recognizes this type of capitalism (sometimes referred to as *information capitalism*) as being characterized by an exchange between the consumer and the corporation where the data collected with user permission is used to improve the application. In Zuboff's interpretation, the reciprocity of the

exchange characterized this form of capitalism. Yet, there were data that were collected — leftovers captured during the process that would provide even more value to the company from the process.

Zuboff and Surveillance Capitalism

In this section, I strive to detail Zuboff's (2018) work by looking at how Zuboff defines surveillance capitalism, who is considered a surveillance capitalist, and what impact Zuboff suggests surveillance capitalism has already had on society. I will end this section with a look at some of the arguments against Zuboff's conclusions to provide a more rounded discussion and provide a defense of Zuboff's conclusions.

Surveillance Capitalism Defined

Data as a capital asset was the beginning of a realization: that some collected data had been ignored and that this previously ignored data had other properties and uses. At first, collected data was used for the improvement of services (Zuboff, 2018). When companies (Google is credited as the first) began to scrutinize the collected data more closely, they discovered there was data that had not necessarily been processed. Data such as how search queries are phrased, punctuation use, spelling, click patterns, and many others (Zuboff, 2018). This so called "data exhaust" (Zuboff, 2018, p. 68) could tell them much more about their company *and* its customers. It was discovered that "detailed stories about each user—thoughts, feelings, interests—could be constructed from the wake of the unstructured signals that trailed every online action" (Zuboff, 2018, p. 68). And it is here that Zuboff (2018) begins her definition of surveillance capitalism as "a new economic order that claims human experience as free raw material for [the] hidden commercial practices of extraction, prediction, and sales" (The Definition section, para.

X). Through this definition of a new branch of information capitalism, Zuboff provides a reference point for this thesis.

Zuboff (2018) intends her work as a starting point from which she hopes others will explore the world of surveillance capitalism and its impacts. This thesis intends to do just that and look at the impact of surveillance capitalism on education. To do that, it requires a look into Zuboff's description before expanding upon it. What follows is a brief review of surveillance capitalism in relation to technology, consumerism, and neoliberalism. Zuboff discusses the impacts of surveillance capitalism and these impacts will be further explored and expanded upon in coming sections of this thesis. For now, the "new economic order" will be investigated as it defines the issues that Zuboff is warning us arise from the unfettered collection of our data.

Zuboff (2018) acknowledges that corporations that participate in the surveillance capitalist market collect data, and track our activities as we interact with their products and other people online and in the real-world through technologies such as cameras, watches, and phones (hence the "surveillance" adjective). The recognition, interpretation, and application of the data exhaust from those interactions was the beginning of a new capital enterprise: *behavioural futures*. Those detailed stories assembled from the data exhaust gave companies using advanced technologies such as machine learning and artificial intelligence the ability to assemble the "historic" stories of our online experiences. Combine the stories of many people and the machines could identify patterns. Those identified patterns are then used by a range of capitalist actors to act to "intervene in the state of play in order to nudge, coax, tune, and herd behaviour toward profitable outcomes" (Zuboff, 2018, p. 8). In other words, companies could extract

predictive-behavioural data that allows them to intervene in daily routines to change user behaviour and increase sales.

The predictions were not to remain solely an internal device for sales improvement. Companies started trading these behavioural predictions on what Zuboff (2018) calls the *behavioural futures market*. The collected data is traded and sold like any other commodity between corporations. These predictions even had increasing value. The more accurate, the more valuable the predictions—the goal being total certainty from a derived prediction. The only way to increase certainty and raise the value of a prediction is to have more and more relevant data *and* to intervene and ensure the outcome of a prediction ("intervention" occurs in the form of changing human behaviour). To collect more relevant data, greater access is required to the activities of the subject, including access to their real-world. Zuboff's (2018) research shows that this is the current state of affairs: companies have access and the ability to collect data about our digital- and real-world activities so that they can control our behaviour to improve their bottom line and increase revenues for the stakeholders.

Surveillance Capitalist Defined

After defining and describing what surveillance capitalism is in the previous section, a definition for who or what is a surveillance *capitalist* would prove beneficial to the coming discussion. At the opening to her book, in a section called "The Definition," Zuboff (2018) provides eight definitions for the term surveillance capitalism. However, nowhere in the work does Zuboff define who or what should be considered a surveillance capitalist. There is no listing in the book's Index nor is there a specific definition in the body of the work such as the ones listed for surveillance capitalism. There appears to be

an assumption that a surveillance capitalist is simply one who implements the methods described in the previous section (use of IT to gather data to make predictions that are sold to improve shareholder valuation). Yet, Zuboff's choice of examples results in ambiguity in her narrative on several occasions, leaving the reader confused as to whom she considers a surveillance capitalist.

Most of the ambiguity arises from the qualifications imposed in the definition, the first qualification being the participation in the sale of user data to other companies and the second being the goal of increasing shareholder valuation. In some cases, Zuboff's (2018) chosen examples demonstrate exclusion of one or both qualifications which raises questions as to the relation of the example to her definition. Zuboff never clearly and decisively defines who can be considered a surveillance capitalist.

Zuboff (2018) chose Apple Inc. as an example of companies that do not sell user data. In the bulk of her work, Apple was granted a reprieve from the intense scrutiny to which other companies such as Google, Microsoft, Facebook, and Amazon are subjected. Zuboff identified Apple as creating the initial revolution in capitalist enterprise that led to surveillance capitalism by realizing the power of IT to create new markets and seeing the value to the customer of such undertakings (iTunes for example and its ability to allow the user to create endless new sets of music). After describing Apple's initial discovery, Zuboff depicts the company as balancing internal and external forces that attempt to force the company to expand its efforts to collect and share user data to increase profits. This angel-on-each-shoulder portrayal leads one to wonder why the special treatment of a company that still collects user data and implements it to meet surveillance capitalism's objectives of behavioural modification and increases to shareholder valuation. For

example, the diminishing numbers of external ports on Apple devices, which forces users to rely on Apple's cloud storage and related subscription offerings, are an example of Apple's efforts to change user behaviour and increase profits. For Zuboff, the fact that Apple does not sell user data to third parties allows for their exemption even though they meet the qualifications of the rest of the definition.

On the other hand, Zuboff's (2018) narrative also included the actions of actors who implemented the methods of surveillance capitalism (IT used for extensive data collection and then behavioural adjustment) but may not have initially (or at all) reaped financial benefits from the capitalist side or increased shareholder valuation, as Apple has. In some cases, these actors received far more attention from Zuboff than Apple, which is an uneven application of her definition of surveillance capitalism and who or what qualifies as a surveillance capitalist. Examples from Zuboff's book include researchers who personally use the results of their research to create companies that profit from the data collected during research; those whose research was intended to expand our understanding yet was later encouraged by others to become a capitalist enterprise; and governments that use the same methods for suppression and tighter control of citizens.

The examples in Zuboff's work indicate a lack of clarity around whom Zuboff considers a surveillance capitalist based on her definition of surveillance capitalism. The fact that Zuboff showed how surveillance capitalism's methods are used by those not bound by the limitation of creating value for shareholder valuation (researchers) while excluding others who do implement these methods for increases to shareholder valuation but do not sell data to other companies (Apple), indicates that Zuboff's definition of surveillance capitalism is too restrictive. The restrictiveness fails to account for all

possible versions of who might be considered a surveillance capitalist (as demonstrated in Zuboff's own examples) as an entity that implements, promotes, and contributes to surveillance capitalism.

In this thesis, to avoid such misrepresentation of what constitutes a surveillance capitalist, such as the case of Apple or research that implements surveillance capitalism's methods, I instead adopt the wider view of who or what can be considered a surveillance capitalist to include those whose work or efforts use the methods promoted by surveillance capitalism, yet whose work may not be initially intended for monetization but offers significant reason to monetize. This will allow me to include as examples participants in areas such as medical and educational research, and the creators of applications such as video games and learning management systems in this thesis. All are areas that, I will show, implement surveillance capitalism's methods, are part of and benefit from surveillance capitalism's regime, but may not initially profit directly from the work that they do, sell the data they collect, nor be bound to shareholder demands for increased profits.

Casting a wider net to include these actors and label them as surveillance capitalists adds two dimensions to the argument. First, it allows for increased scrutiny of the methods employed in various sectors to avoid too narrow an application of Zuboff's definition of surveillance capitalism. Too narrow of an application risks missing key actors and the broader application of surveillance capitalism methods that have the potential to lead to increased acceptance and spread of surveillance capitalism. Secondly, as has been mentioned, education does not occur in a vacuum. Outside influences act upon the decision-making of educational stakeholders. The broader acceptance of who is considered a surveillance capitalist will allow actors who influence the educational

system and use surveillance capitalism's methods to be identified and included in discussions. This will allow for a greater understanding of surveillance capitalism's impact and reach while increasing the value of any future research based on this thesis's arguments.

Surveillance Capitalism Impact

Zuboff's (2018) investigation of these companies and their leaders leads her to ask the question: How can companies get away with controlling behaviour to improve shareholder valuation? The first answer she serves up: Technology and our willingness to accept it. It is the collection of our data and our acquiescence to the situation that enables companies to collect the data. Our acceptance of notions such as IT being "free" and "convenient" allowed companies into our lives and provided the access for surveillance technologies (Zuboff, 2018, p. 18). As an example, she discusses the video game *Pokemon Go* which was marketed as a free video game meant to increase physical activity. Players followed an actual map of their current location to search for and capture adorable little creatures and then meet other players at specific locations (called PokeStops) to compete in simulated combat. The game is a combination of mapping application and business marketing tool intended to drive increases in foot traffic. The paths that people walked to find the digital creatures were recorded. Stores that paid for the privilege were labelled as one of these PokeStops with the understanding that people playing the game would come to the store to find other players and while there potentially make purchases.

The second answer to "How they could get away with it?" is our consumer mindset as we have been previously conditioned by parents, advertisements, the media, and others to think like consumers. In a consumer world, "free" is one selling point that

the rational (perhaps irrational) economic actor cannot pass by. The convenience of technological delivery also makes it easier to be a consumer. Much like my tale of the joystick, the ability of technology to remove the old barriers of commercialism drove a new wave of consumerism and changed the way we consume (free browser, free access to the site, convenient order system, etc.). Zuboff (2018) points to Apple's monetization of music through iTunes as an example. Digitization provided types of product that allowed for a direct route to the consumer. There were no more physical demands on the product (no cases, labels, etc.) to tie the product to the stores. It allowed customers to have virtually endless combinations of music, giving them the ability to refresh their experience in endless ways. The value to the customer of nearly unlimited combinations of music proved to be incredible and was proven in Apple's rise to market dominance through iTunes and the iPod. This rise in dominance could also have foreshadowed a deeper understanding of the customer's value to the company as Apple reviewed the data about the new behaviours that they played a hand in creating.

Behind the technological reinvention of the consumer experience were the notions of neoliberalism and the drive to increase value for the shareholder. In the drive to increase profits and meet the shareholders need for increased wealth, IT allowed companies to provide the products to the consumer at lower costs by opting for "the smart machine over smart people" favouring "substituting machines and their algorithms for human contributors" across various jobs (Zuboff, 2018, p. 182). In the just-in-time world of today's version of capitalism, all other budget sheet items had been reduced to their lowest possible limits. The only remaining line item to reduce was human wages and benefits. The smart machine and its data collection abilities had provided a way for

continuous improvement without the need for expensive wages, health care, and professional development.

And the third answer to how “they” could get away with it is influence over education. Zuboff (2018), as an educator, provides descriptions of the pitfalls she sees for education under surveillance capitalist influence. She identifies three key concepts that have affected or are affecting education in the age of surveillance capitalism. First, surveillance capitalist influence in education has created a new division of learning characterized by three questions: Who knows? Who decides? And, who decides who decides? Zuboff’s answers are that the machines and the few who understand their operations are the keepers of the knowledge, the ones who know. In turn, they pass the data into the business models and narrow market forms that produce the predictions; these are the deciders and shapers of interactions. The decisions generated are in turn implemented and controlled by the few who can effect change to financial capital to increase shareholder value and maximize the profits; those who decide who gets to decide. Such a system changes learning by placing a high value on the few jobs oriented toward “keepers of the knowledge.” This realization leads me to envision an additional, new purpose or repurpose of education as now teaching for the acceptance and support of this division of learning.

In my experience, I have seen these changes quickly overtake computer programming courses. Computer programming is evolving to teach students how to become the keepers of knowledge. Courses have been introduced that teach students how to develop, deploy, and maintain the tools necessary to collect, store, and process the data. Technologies such as Hadoop servers and Python programming libraries support

this learning. Students learn the integration of technologies from levels such as networking and hardware to the creation of software that allows them to act as the person who knows the life cycle of the data and the creation, operation, and support of the machines that extract, transform, and load that data to produce the desired results.

At the same time, we teach them how to design interfaces and the related systems that are accessible to the largest range of users. Using guidelines such as the Web Content Accessibility Guidelines (WCAG) produced by the World Wide Web Consortium (W3C), the students develop interfaces that not only allow a larger range of people to interact with their systems (increasing the data collected), but that enable those who decide to make the decisions (through dashboards of interpreted data). These interfaces allow the data to be consumed and transformed so that decisions can be made. All without consideration of the impact of these technologies and strategies. We do not provide an ethical examination of the application of technology at any time during this learning, suggesting that what we teach is correct and acceptable. In essence we are moving closer to meeting and supporting at least two levels of the new division of learning that Zuboff suggests is occurring.

From a slightly different perspective, in their essay “No AI Is an Island: The Case for Teaming Intelligence,” Johnson and Vera (2019) make the case that the new division of learning can also be supported from the machine side. The authors focus on the need for artificial intelligences to be educated in working as part of a team; to work alongside and integrate better with the humans and other machines they are intended to help. One of the key barriers to this interaction between people and machines is trust. Johnson and Vera suggest that people tend to live in extremes when it comes to trusting technology:

either lack trust in or completely accept the trustworthiness of the machine. The machine needs to be trained to adapt and simulate the ability or skills to develop trust with its human counterpart(s). The machines then can better support each other and the humans whom they help at all three levels of the new division of learning and make it easier for the humans to accept them.

The second surveillance capitalist influence in education that Zuboff (2018) identifies is the commercialization of publicly funded research, and professors who monetize their research created, in part, through public dollars. To illustrate her point, Zuboff describes the activities of Alex Pentland, the director of the Human Dynamics Lab at MIT's Media Lab. Not only does Pentland advise many organizations around the world, but his work is also funded by a global group of companies, consultancies, and governments. Though Zuboff's focus is on Pentland's acceptance and application of behavioural control methods (which I discuss in the next chapter), she reveals that his research was being used to found companies that would market the results. For example, in 2009, Sociometric Solutions (later rebranded Humanyze) was founded to bring behavioural control monitoring and methods to the workplace. Pentland would go on to found other companies, listing 19 commercial ventures as part of his CV (Zuboff, 2018).

Zuboff's third point about surveillance capitalism's influence in education is the effect it has upon students. Students (or young people in general) are the first line of testing of these technological intrusive devices. Zuboff (2018) relates students to the "canaries in the coal mine" (p. 445). Young people have an acceptance of technology that older generations do not. Hence the development of theories like *digital natives* and *digital immigrants*. The ease at which students accept and use technology is incredible,

and they do so without real knowledge of how it works, the data it collects, or the effects it can have. Zuboff (2018) points to experiments where students were asked to go without their technology and the results show that “our children are the harbingers of the emotional toll” of a life where technology turns everyone else into an “it” and the child experiences themselves “as the ‘it’ that others see” (pp. 445–456). These experiments are warnings for educators that technology is having a more profound effect on our students than we are perhaps cognizant of.

Surveillance Capitalism: The Detractors

Surveillance capitalism, as defined and described by Zuboff (2018) has its detractors. Joseph Bongiovi (2019), for example, argues that the work lacks empirical data and analytical methods of analysis which might lend it more credibility. Bongiovi then relents that even though the data exists to do a more empirical study, that data is controlled by the very corporations under study and monetized to potentially make such a study incredibly difficult. This suggests a near totalitarian control over the use of and access to the data that Zuboff hints at in her work. The collection of the data and control over that collected data suggests for this thesis that any solution that I could suggest must take this into account. Data has already been collected and will be wielded to ensure surveillance capitalists continue to dominate behavioural control of consumers even if the flow of data is somehow restricted.

Katie Fitzpatrick (2019) suggests that the root concept of capitalism is the real evil behind the machinations of surveillance capitalists. For Fitzpatrick, the concept of the free or liberal consumer is a “nostalgia for an earlier form of market capitalism” (para. 18) which limits the value and application of Zuboff’s work. Zuboff’s redefinition

of the “worker” into a “user” simplifies the ongoing struggle of workers by ignoring workplace conditions and focusing on our more leisurely activities. Even though Fitzpatrick acknowledges that the same surveillance is permeating the workplace, the fact that Zuboff does not directly deal with surveillance in the workplace and how it makes the fight for workers’ rights more difficult, is a weakness. Fitzpatrick’s focus on the workplace is as limited as she suggests Zuboff’s focus on leisure activities is. I argue that the behaviours learned in any social interaction (at work or at school or in other social interactions) will change behaviours and be expressed throughout the roles we undertake in society. It does not matter if you are considered a worker, a gamer, or ascribed any other label; a change in behaviour, any change, will resonate throughout your life.

John Gray (2019) argues that Zuboff’s (2018) work is limited in its future observations and application. For Gray, Zuboff’s solutions fail on two fronts: Zuboff never defines the “we” who hold the power and will to stand against the surveillance capitalist influence; and Zuboff’s focus on corporations is limiting when it is not only corporations using these methods (examples such as governments, cartels, and cults). For Gray, much like for Fitzpatrick, the narrow focus of Zuboff’s work is seen as a limiting factor to its application. As was mentioned before, the theories that have combined to create surveillance capitalism (neoliberalism, consumerism, and technology) have leeched into all areas of life so it should be no real surprise that other centres of power beyond corporations would be using the same methods of control. The first step to addressing these power imbalances is understanding the methods that are used. Once the methods are understood, then the victims (the “we”) of each power imbalance can be

identified, protected, and taught how to fight back. Zuboff's work is the starting point from which that understanding is meant to begin.

In addressing her critics, Zuboff (2018) acknowledges that this work is "intended as an initial mapping of a terra incognita, a first foray that I hope will pave the way for more explorers" (p. 17). In invoking Zuboff's work as a central pillar of the following discussion, I will do as she suggests and use the work as a starting point. I intend to reveal that like neoliberalism, surveillance capitalism is leeching into all areas of life including education. I also argue that surveillance capitalism's influence is a potential threat to students as well as everyone else.

…Behaviour and Free Will

People are considered rational economic actors within the neoliberal space which is increasingly in the control of the surveillance capitalists. As one of those rational actors, I am assumed to have money or the predilection and means to acquire money whether through direct work or other means (government welfare, interest, etc.). If I have money, I am assumed to need or want to spend (consume) to take care of myself and my interests or perhaps place it in the hands of the neoliberal apparatus that will use it to increase shareholder-valuation (savings, investments, etc.). My will to act as a (somewhat) rational economic actor led me to search for the arcade joystick. As more of my life (career, entertainment, learning, etc.) turns to the digital, especially under threats such as coronaviruses, the rational economic actor finds the best way to stay safe and still spend money. In the digital realm, I am tracked, documented, and influenced all without my necessarily well-informed consent. That data is used to present me with advertisements shown on other sites that I visit (such as MSN) to keep the consumer in

me interested and continue the flow of data into the corporate servers. Surveillance capitalism, born out of the perfect storm of neoliberalism, consumerism, IT, and modified capitalism, makes exacting use of that data to tempt me to buy by influencing my behaviour.

In the preceding conceptual framework, education was shown to be influenced by the same applied concepts: neoliberalism, consumerism, IT, and capitalism. When these combine to usher in surveillance capitalism as Zuboff (2018) describes it, the process of education was not exempt from influence. From education research to classroom activities, the implementation of surveillance capitalist influences, methods, and directives reorganized educational endeavours around the dual influences of the application of software (learning management systems such as Google Classroom) and potentially flawed and improperly influenced digital learning theory to allow for the collection of data. Under mantras such as “be data driven,” data is collected with the expectation of better insight into student behaviour. Yet, surveillance capitalism’s influence does not stop at simply changing classroom pedagogy.

The classroom, meant in part as a behavioural design institution for the continuation and improvement of society, produces nearly unlimited amounts of behavioural data. Acceptance of surveillance capitalism’s ideology has allowed for broader acceptance of surveillance capitalism’s access to the classroom with a promise to help collect, understand, and share the data necessary to develop behaviour. Access for surveillance capitalists grants them partial control of that behavioural development and a chance to influence and better understand behavioural development. Yet, the goals of education and surveillance capitalism differ. The former has aimed for preparation for

social action, seeking and understanding of the truth of the world, and creation and understanding of one's self while the latter wants subjugation to the new division of learning where students are taught both implicitly and explicitly to accept surveillance, data collection, and the derived control as the foundation of society.

In this atmosphere, Zuboff (2018) contends that free will is at risk. Zuboff terms the threat to free will as the loss of the *right to future tense*. In the next section, I will discuss Zuboff's theory and point out an oversight in her reasoning or perhaps a limitation brought on by the scope of her endeavour that shifts the object of loss from free will to self-identity.

CHAPTER TWO: IDENTITY AND BEHAVIOUR

In the previous chapter, I discussed the relationship between neoliberalism, consumerism, technology, capitalism, and surveillance capitalism and their influences on education. Zuboff (2018) argues that based on ingrained neoliberal ideals, consumerist behaviour, and information technology (IT), surveillance capitalism has emerged as a dominant force. Surveillance capitalism is characterized by the collection of both digital- and real-world data using IT. The data is then processed to create, use, and sell predictions about when an intervention will elicit a desired behaviour (prod a person to be a consumer)—all to achieve the aim of increasing shareholder valuation. If surveillance capitalists maintain that power, Zuboff claims a loss to the *right to the future tense*, or more simply, a loss of the "ability to imagine, intend, promise, and construct a future" (p. 20).

In this chapter, I start by examining the concept of *the right to the future tense* to show what Zuboff (2018) contends is at stake. Within Zuboff's argument I identify an oversight or perhaps limitation of her argument because of the scope of a relationship between free will, behaviour, and the contracts that allow humans to tame their free will and work together. After that, I will show that it is not free will that is at stake, but self-identity created from the meaning we take from our behavioural experiences. I will also show that using agents introduced into our social networks and other means of surveillance, surveillance capitalists will partially control the meaning that defines self-identity. In the surveillance capitalist's attempt to gain and understand that control, I will show that access to education as a behavioural adjustment tool, occupies significant interest.

Zuboff's Future Tense

Zuboff (2018) summarizes *the right to the future tense* as an "individual's ability to imagine, intend, promise, and construct a future" (p. 20); this right is "an essential

condition of free will" (p. 20). Zuboff worries that the conditions created under surveillance capitalism challenge the *sanctity* of the individual. Chief among these is an attack on the "elemental rights that bear on individual sovereignty" (Zuboff, 2018, p. 54). Such an attack on individual rights interferes with individual agency and personal autonomy which are "essential prerequisites to freedom of will and to the very concept of democratic order" (Zuboff, 2018, p. 54). If the right to the future tense is lost, the very cornerstone of Western democracy would be under threat as well as what makes us human.

Zuboff (2018) asserts that the freedom of will cannot exist without uncertainty. The *promise* (or expression of free will) is how humans deal with that uncertainty. The promise provides control over uncertainty. I promise to accomplish a task and work towards that goal. A promise gives a human total authority over their little piece of the future. Zuboff (2018) concludes that "*the assertion of freedom of will also asserts the right to the future tense as a condition of a fully human life*" (p. 232; emphasis in original). Humans can and have the power to control their own future, at least in some domains.

It is in social interaction that the right to the future tense is expressed between humans. When humans interact in a social setting, these promises form the basis of social interaction. These promises when made between members of a social structure are known as *contracts*. Contracts were meant to bridge the uncertainty between a person and the community (Zuboff, 2018). Free will allows you to enter a contract so that you can participate in a social interaction and fulfill your promise as stated in the contract. This allows for multiple humans to create a future that they can agree to and create together.

For humans, Zuboff (2018) states that uncertainty is a necessary state for the existence of free will but, for surveillance capitalism, uncertainty is a threat to revenue by being an unnecessary friction in obtaining the guaranteed outcomes which are the goal of collecting data to create predictions. Uncertainty in the predictions means less accurate predictions meaning less revenue. So, for surveillance capitalists, reducing uncertainty is necessary. And control over behaviour reduces that uncertainty. For Zuboff this is best seen in the *uncontract*. These appear as if they were contracts between individuals but uncontracts impose a level of unilateral power (Zuboff, 2018). These uncontracts use legal methods to bypass human promises and override social engagement by monitoring and data collection. Entering an uncontract grants a promise that data flows in one direction only.

The argument for the future tense is the cornerstone to Zuboff's (2018) book, and the true reason readers should care about the state of the world in which contracts/uncontracts are negotiated and entered. The loss of control means that we no longer are human but essentially automatons authored to do what the surveillance capitalists command us to do. I agree with the argument that she lays out for the threat of a loss of control, but there was one thing that I could not understand and that was the relationship of the contract/uncontract and free will to behaviour. The surveillance capitalists are spending so much effort to control behaviour, but Zuboff appears to never describe how behaviour fits into her description of the future tense and free will. After some consideration, I believe I understand how it does, but in personally trying to understand the relationship between behaviour, free will, and contracts, I determined the

threat to control turns from free will to self-identity. In the coming sections, I will explain my thought process to show that change in focus from free will to self-identity.

The Problem With the Contract

As I scrutinized her argument about free will and the contract, I could not discern how behaviour operates in the system she describes that surveillance capitalism is trying to circumvent. If we have free will to design, negotiate, and enter contracts, what is the role of behaviour? It must play a role; otherwise, it would not be the focus of surveillance capitalists. The role of behaviour must be significant if control over behaviour can override our free will as Zuboff claims. In her descriptions, Zuboff, never really described how behaviour works in the threatened system.

It was necessary to re-read sections of the book before I could determine an answer. I found the solution in the contract that Zuboff uses as the expression of human free will to overcome uncertainty. As we negotiate and enter contracts with ourselves and others, the contract places upon us requirements, restrictions, and goals. The contract dictates how we are to act and how we are to accomplish our objectives under the contract. The contract dictates how we are to behave whether directly or indirectly until the end of the contract; it sets limits upon our freedom. By entering a contract, we restrict our free will to meet our agreed upon requirements under the contract. These restrictions become our behaviours. We have the free will to enter, negotiate, and accomplish these contracts, but by entering a contract, behaviours are determined.

As an example, Zuboff (2018) describes the writing of the book as entering a promise (contract) with herself to complete the work necessary; she says that “My promise, though, is an anchor that girds me against the vagaries of my moods and

temptations. It is the product of my will to will and a compass that steers my course toward a desired future that is not yet real" (p. 330). Within that promise is the control necessary to restrain those acts of free will that threaten to take her off course from achieving that promise. I see this as stating that the promise guides her to change her behaviours so that she can accomplish the work. She personally changes behaviours to avoid those that would derail her work and adopt those that would ensure completion.

In the realm of contracts, the enforcement of behaviour works pretty much the same way except it is not only you that holds you accountable, but another person. Between two (or more) signatories who care about the successful outcome of the contract, it is the other signatory who ensures compliance. In cases where one or more are not invested in the successful outcome or invested in another outcome other than that intended by the contract, those with whom future contracts will be signed will judge the actors based on past contracts and their outcomes. The rules of the contract state how both parties should act in accomplishing the goals as stated in the contract and be judged by future signatories of other contracts. This changes the behaviour of both parties. Even though free will exists to enter, negotiate, and fulfill contracts, each contract we enter reduces our free will. We become bound to the combination of contracts and each contract adjusts our behaviours. Under such an understanding of how behaviour works in the world that Zuboff describes we are losing, I reconsidered the threat of losing free will.

Reconsideration of Free Will

I found that free will may not be as free as Zuboff (2018) insists. In the Western democratic version of the self, free will plays a significant role in our understanding of the society we are trying to construct and be a part of. Yet, to be a part of these societies,

we must enter any number of (social) contracts that restrict our behaviours to participate within society. For my understanding, I had to rethink Zuboff's concept of free.

To explain my train of thought, I will start by co-opting the thought experiment first proposed by Erwin Schrodinger to describe the fact that quantum particles do not appear to have definite properties until they are measured. In this thought experiment a cat is placed in a box with a vial of poison and a device that will break the vial at some random point in the future. The box is sealed and then cast into space. Like a quantum particle, while in the sealed box the cat does not have definable properties so it can be understood to exist in all possible states between life and death. The only way to know for sure what state the cat is in is to open the box (take a measurement). Upon opening the box, all the possibilities collapse into the cat's current state (Hawking, 1988).

When applied to free will, people would "start out" with all the possibilities of free will (as the cat in sealed box has all possible states). Upon entering a contract (or opening the box), the number of possibilities that free will can offer, collapses. The contract places restrictions on our free will so that successful completion of the contract can be achieved. If you are part of a contract, to achieve and abide by the contract you need to adjust the way you do things or change your behaviour to meet the agreed upon restrictions and goals of the contract.

Each new contract continues to restrict the possible expression of free will. Free will becomes or is narrowed to a point where it is nearly indistinguishable from the surveillance capitalist-controlled behaviour that Zuboff (2018) rails against in her narrative. Zuboff's argument focuses on free will as the casualty of the surveillance capitalist contracts in question. Any contract you enter or are automatically included in

(social, surveillance capitalist, legal, etc.), the less free will you have the possibility of expressing. Furthermore, contracts influence other contracts. Adapting to the new contracts, the behaviours must adjust to accommodate all contracts so that all obligations can be met. Behaviour is partially a combination of all the agreed upon requirements as stated in the entered contracts.

While expressing our behaviour under the contracts, feedback on how well contractual requirements and obligations are met is provided by those who have an interest in seeing the contract fulfilled. That feedback changes our understanding of the contract's expectations, which changes the behaviour so that we can better meet our requirements under the contract. Others help refine the understanding of the contract and obligations, which helps change behaviour under the contract's limitations. In other words, behaviour is refined through social interaction.

From Multiple Contracts to Multiple Identities

The framing of free will and contracts in Zuboff's (2018) argument demonstrates the value of what will be lost if surveillance capitalism continues the course that she describes. What is lost is the central pillar of Western democracies, our individual free will to participate. Surveillance capitalists seek to change behaviour to maximize shareholder valuation by removing the uncertainty that is the catalyst for human free will. Collecting data allows the removal of uncertainty using IT to not only collect but interpret that data. This is the central driving force of surveillance capitalism according to Zuboff.

In the previous section, I probed the place of behaviour in relation to contracts and demonstrated that free will is constricted with each contract that we enter. By nature,

the contract restricts the will by stating how a signatory (explicit or otherwise) will behave while under the contract. The more contracts entered the more restrictive the will becomes to behaviours. Behaviours are refined as we act under the restrictions of a contract and receive feedback from those who are also signatories of the contract. Soon the restrictions remove the ability of will as a force to effectively inspire change, so the argument for free will weakens leaving questions about will as an object of loss. If free will is so restricted as to be externally ineffective in making change even before surveillance capitalism is considered, then I propose that there is another object at risk of being lost through behavioural control: *identity*.

In the coming sections, I intend to reframe Zuboff's argument and discuss rationality, behaviour, and will in relation to identity. I believe this is a line of thought that Zuboff hints at in her work, but perhaps found little room to develop within the original work. In reframing the argument, I propose that the object of loss shifts from will to self-identity and by extension the self-concept. It is in the manipulation of these factors (self-identity through expected rationality and behaviour) that surveillance capitalism finds the power to author us and influence our expression of will as well as our self-concept. By the end of the chapter, this argument will essentially end up in the same place as Zuboff in that we can be authored but express a more educational focus as student self-identity is threatened at a time when it is most vulnerable, during its initial development.

To aid in understanding, I present the following simplified statement of the relationships between these concepts (behaviour, rationality, will, and identity). At this stage, these points lack the qualifications or explanation one would expect, but this is meant only as a primer or outline to my train of thought (for example, I mention students

exclusively, but this could apply to adults outside of education as well). I will expand on this framework in the coming sections. I see the relationships as follows:

- Rational decision-making is a learned behaviour (see Chapter 1, Neoliberalism).
- Students retain the ability to make considered choices (see previous section).
- In the coming sections:
    - Self-identity comes from internalizing feedback (take meaning) from behavioural expression.
    - Social feedback is important in the internalization of meaning.
    - The self-identity is an influence on choice/will.
    - Students learn behaviours through education (e.g., rational decision-making).
    - Students choose behaviour(s) to exhibit in response to an educational situation (e.g., an assignment).
    - Students rationally internalize the feedback from behavioural expression (e.g., feedback about the assignment).
    - Students are participating in a social environment which affects that internalization. (e.g., taking up an assignment with the entire class).
    - That internalization reinforces or extinguishes the behaviour (e.g., student is expected to improve in their understanding and application of the assignment's topic).
    - The internalized changes are then applied to the next expression of will (choice) and the resultant behaviour chosen.
    - Education can therefore influence self-identity.
    - Education can therefore influence will.

Education as a discipline plays a significant role in the application of will through the development of behaviour and the student self-identity at a time when it is under development.

From Arendt to Burke

To reframe Zuboff's (2018) argument considering the loss or restriction of *free* will as a potential object of loss, I will reform the basic assumptions Zuboff used. The first step in this process is to move away from contracts as discussed and substitute a similar concept: *identity theory* and, more to the point, *role identity*. Identity theory suggests that identity is a "reference to parts of a self composed of the meanings that persons attach to the multiple roles they typically play in highly differentiated contemporary societies" (Burke & Stryker, 2000, p. 284). *Role identities* more specifically are "the set of meanings individuals attribute to themselves while taking on a role that is attached to a position in society" (Stets & Burke, 2014, p. 414). The accumulation of meanings from various roles, in part, defines our *self-identity*.

Within the lexicon of the *self*, self-identity and self-concept are two terms that require clarification for this work. Here self-*identity* will be referred to using the combined work of Burke, Stets, and Stryker. Their combined work identifies two branches of self-identity research (Burke & Stryker, 2000). The first refers to the internal processes of self-validation (Fisher et al., 2016). The second branch of identity studies under Stryker focuses on the external, social relations in reference to identity (Fisher et al., 2016). Although simplified for this work, this combined focus provides a look at the internal reflection on external social feedback.

The self-*concept* is a comprehensive examination of the self that can be derived from the scrutiny of a series of key dimensions of the self as a whole including self-

identity, self-esteem, and self-worth, among others (Ackerman, 2021). Using different combinations of these base portions of the self can result in different forms of the self-concept (Ackerman, 2021). In this thesis, I focus on the self-identity as a portion of the self-concept acknowledging that changes in the self-identity made through interpretation of the meanings from social interactions may influence the self-concept.

As well, a distinction between contract and role-identity is also necessary. For Zuboff (2018), each contract dictates a small part of who a person is as the contracts define the limitations of our role as stated within the contract. Counter to that theory, the learning that surrounds each contract acts to provide the meaning for an identity as we evaluate the effects of our behaviour under the contract. In this scenario, identity and contracts are similar in scope in that they determine behaviour, but an identity is about the *meaning* of behaviour where a contract is about the *limitations* of behaviour. The boundaries of both contracts and identity define the limitations of our understanding of our behaviours, but identity is focused on meaning and provides the individual with the ability to define the self-concept primarily based upon the different roles that are undertaken. The subtle difference is that identity is enabling while contracts are constraining.

My intention is to show that as rational economic actors and as beings with the ability to interpret meaning from social feedback, we must take into consideration factors outside and inside of ourselves. In the initial stages, Zuboff's (2018) discussion of free will and contracts appears to inadvertently miss reconciling the limiting factors that contracts place upon will (the ability to choose) and the relationship to the expression of behaviour. When confronted by a situation a choice must be made and the result is an expression of the will or ability to choose followed by the learned behaviour appropriate

to the resolution. But those expressions are tempered by the contracts, experience, environment, and other considerations that play into the rational decision-making process, culminating in behavioural expression tempered by the internalized identity built from previous experience.

In my interpretation as described above, we retain the right of will, the right to choose. But the process is tempered by considered, rational decision-making based on external and internal understandings of current and past experience. In framing her argument as she did, Zuboff (2018) appears to neglect to balance free will versus the restricting effects of these other considerations whether through limiting factors of the argument or the format. In trying to bring that balance to the argument, my focus shifts from will to the factors that can affect that will: rationality, behaviour, and especially identity. It is in the manipulation of these factors that surveillance capitalism finds the power to author us and influence our expression of will. Identity manipulation becomes an extension to Zuboff's work that I focus on in the remainder of this thesis.

The importance of reframing and augmenting Zuboff's argument from free will to identity is two-fold. First, Zuboff (2018) reasons that it is important to address free will as if it is a human right because it is now under threat. In switching to the concept of identity theory, the identity process is similarly under threat as we will see in the following discussion. Secondly, education plays a significant role in determining how student identities develop. Education's role is to teach the behaviours and provide the understanding for those behaviours that set the identity that provides the reasoning and self-description of those behaviours. If the student identity can be influenced or authored, then will can, by extension, be influenced.

From Skinner to Bandura

The next step in reframing Zuboff's argument after shifting the focus to self-identity is to expand on the behavioural control methods that are the centre of Zuboff's claim. Skinner's (1953) work, like Zuboff's, is focused on the individual—but such an argument appears to be limited in today's highly connected world. Part of the data that the surveillance capitalists seek is the ability to map our individual physical and online activities and our circle of influence or the network in which we act (Memon et al., 2010). Whom do you interact with and in what ways? Such information is useful because influencing even one person in a network can spread desired effects throughout the network. Influence two people, and the spread is faster and more potent. There is a social influence that allows for reinforcement or extinction of behaviours. Thus, Skinner's work should be supplemented with the work of Albert Bandura's social cognitive theories (Daniels & Brooker, 2014).

Social cognitive theory suggests that social feedback from behavioural expression allows the behaviour to be modified, reinforced, or extinguished so that the probability of it reoccurring is greater or lesser depending on society's beliefs. "Personal identity is partially constructed from one's social identity as reflected in how one is treated by significant others" (Bandura, 2006, p. 170). The feedback from others influences our identity. Skinner never counted on our highly connected world that, as Zuboff (2018) suggests, makes it possible to now reach the vision that Skinner had to make his ideas come true. Such reach also changes the dynamic as other tools and methods are available to influence behaviour beyond the direct individual experimentation on which Skinner focused.

Zuboff (2018) contends that Skinner's operant behavioural conditioning can now be implemented at scale. This grants behavioural control but is limited to the individual. I would expand this to add that in the highly connected social network experience these days, the social aspect must be considered. Expanding Skinner to include Bandura's social cognitive theory of behavioural reinforcement must be done as it directly influences role identity development.

Bandura (2006) reinforces the idea that behaviour changes over time in a discussion of occupational activities. Bandura points out that a major source of personal identity is our occupational activities (possible *roles* in society). People need to change occupations and be retrained, which renews our identity over time. And, in the "new world of accelerated social, informational, and technological changes with instant communicative access worldwide … people [have] expanded opportunities to bring their influence to bear on events that affect their lives" (Bandura, 2006, p. 177). This allows them to influence others through feedback and distribution of ideas. The individual still plays a role, but the individual's social circle is playing an increasing role as technology takes center stage in our lives.

Identity Theory and Social Cognitive Theory

In moving from free will and contracts to role identities and social cognitive theory, two questions arise: How do role identities and social cognitive theory come together to elaborate Zuboff's (2018) theory? And furthermore, what advantages does such a move provide for understanding the goals of surveillance capitalism? In this section, I would like to examine these questions and related answers to provide a more robust understanding of the philosophical underpinning of this discussion. As well, I

would like to demonstrate how these questions help expand on Zuboff's efforts to show the impact of surveillance capitalism on the people who participate in it whether knowingly or unknowingly.

Surveillance capitalists are searching for behavioural control (Zuboff, 2018). Identity is the meaning taken from a learned behaviour that manifests when an identified role is called to act in relation to an event. Those events usually take place in a social environment. Other people in the environment provide feedback (conditioning) on whether our expression of our role identity's behaviour is acceptable for dealing with the situation. The response helps us adjust our future response(s); it changes our behaviour, the meaning we take from that expression, and ultimately our identity. These changes to identity are then newly expressed in future acts of behavioural expression. These changes are also used to judge the behavioural expression of others. If someone else's behaviour differs, we may issue feedback (expression of acceptance or rejection) to modify their behaviour to conform to our identity's understanding of an acceptable behaviour(s). In the process, we are influencing their identity. Surveillance capitalism controls behavioural adjustment methods, both individual and social, therefore it can change people's identity.

Like Zuboff's (2018) claim that free will and the contracts that we enter can be swayed and changed by behavioural control, identity can be changed through behavioural control. Our highly connected world also makes it possible for a single entity to influence larger groups of people. This is accomplished by allowing behavioural modification to cascade through networked groups thus reducing the need for directly influencing multiple individuals. Influence of one person's behaviour can influence the behaviour of

many more without the need for a single entity to influence every person on an individual level. In surveillance capitalism terms, gathering individual data and data about the network the individual is a part of provides even more behavioural control methods than those proposed by Skinner (1953).

Behaviour in Education

Let us now examine education's role in identity and behavioural development to assess the extent of the influence the process of education can have on identity and behavioural conditioning. Education has been identified as playing a role in identity development (Daniels & Brooker, 2014; Verhoeven et al., 2018). Education teaches the limits and behaviours that make one a success at assuming a given role in society. During their tenure in the formal educational system, "Adolescents are supposed to be concerned with developing educational and professional goals while shaping an image of who they are and want to be" (Verhoeven et al., 2018, p. 35). We stream our students by ability and increase their knowledge of the successful behaviours that relate to the roles they may assume within society. Students spend time in each class, focused on one topic, all to learn the role presented. Students attend a history class to learn the behaviours focused on the roles of citizen, historian, and others without worrying about the specific role of a mathematician (though it may play a role in historical pursuits).

Education shows us acceptable role behaviours during learning. Identity develops as those roles and related behaviours are learned. Education is one version of social cognitive theory, as society determines what I learn. The socially acceptable behaviours that are expected are demonstrated and internalized to develop an understanding of the various roles in society that can be adopted. Education is a process in which students

develop multiple role identities and the initial, socially acceptable behaviours that are expected in those roles and the meaning of those behaviours that define the identities.

From the expression of those role identities in a supervised format, the meanings that students use as part of their self-identity are also formed. Attending school, I learned the behaviours that make a successful programmer: adding comments to my code, using good variable names, creating modular code, and proper indentation, among others. As I moved on to other roles such as my role as a teacher of adult programmers, social feedback from students and other colleagues has shown that comments in my programming code have a great impact on students who have had to modify the code after me. It also modified the way I code so that I do so with a bit more verbose style than most other programmers so that it can be better understood by the students who I am not only demonstrating acceptable behavior for, but also trying to instill expected behaviours into.

Education plays an important role in identity development and social reinforcement of those identities. As a dominant force in education, IT is becoming more involved in the way students learn. IT exposes students perhaps less to the more formal, structured educational system by allowing informal, non-formal, and self-directed learning styles to be easier and more approachable at a time of the student's choosing (Bandura, 2006) and more to surveillance capitalist methods.

Surveillance capitalists are looking for routes into the education system to gain access to and influence over behavioural development. In June 2019, parents in Alberta received letters asking for permission so that the schools could create Google accounts for their children (Desson, 2018). Even though the privacy policies surrounding the

software limit the data that can be collected, data is still collected (location, network, and phone number), and that data is stored outside of Canada. Furthermore, other sites outside of the software linked to from within the primary application are not covered by the agreements for third-party sites meaning there are no restrictions on data collection by these third-party sites. The ability to affect behaviour to control identity development at the early education level is a gold mine for surveillance capitalism; they not only may turn students more quickly into consumers with neoliberal beliefs and a penchant and understanding for one suite of products before other parts of the identity are set, but they also will collect enormous amounts of individualized data at the same time that will be used to affect behaviours. They will affect behaviours from which the meanings used to create role identities will be fostered.

Surveillance capitalism offers three things to educational institutions, among others. It offers money to fund research as shown in the Alex Pentland story. It also offers monetarily free or nearly free software that educational institutions adopt to at least some degree help balance out the budget such as the adoption of Google Classrooms by the Alberta school districts. Finally, it offers the methods, techniques, and tools for collecting, understanding, and processing data. This is where education finds itself: an age-old responsibility to teach the behaviours necessary to develop identities that will serve society balanced against the pressures of an institution dedicated to the creation of citizens expected to continue and improve society in general, the need to pay for this learning, and the need to understand that learning process.

Education’s position is made more difficult because surveillance capitalism’s methods surrounding the gathering of data offer education research more and better tools that will aid in the development of better teaching and content delivery. Educators are

told to “follow the data” and use more technology in the classroom usually under the auspices of “going where the students are.” The balance of access to unheard of amounts of data and the benefits of using that data makes many of these processes interesting for educational researchers. Education appears caught in a balancing act of competing forces and potentially weakening in its ability to maintain the balance and this will result in student identity development being influenced by those who do not hold the traditional goals of education.

Coming Full Circle

Combining Burke and Bandura we can see that identities determine the perception of ourselves and are expressed through our behaviours. Those behaviours, when demonstrated in a social situation, receive feedback that is internalized and changes the identities related to the behaviour. So, behavioural control using social methods such as social media has an effect in that they can influence the person’s identity, or as Zuboff (2018) suggests, “author us.”

I come full circle and end where Zuboff ended: Surveillance capitalism collects real- and digital-life data with a goal of “authoring” human behaviour to increase certainty in predictions about human behaviour to increase shareholder valuation. This agreement with Zuboff leaves this narrative at the “so what” point. In the next chapter, I will describe one possible outcome of this interpretation of Zuboff’s work by returning to a discussion of surveillance capitalism, technology, and education. Education’s role in this outcome is important because education is significant in the development of the identities and the understanding that comes from the research that is affected by the surveillance capitalist approach to data collection and understanding of that data. That understanding requires the creation of *agents*.

CHAPTER THREE: AGENTS, IDENTITY, AND FUTURE PROFIT

Through the first half of this thesis, I detailed the current mix of influences (neoliberalism, consumerism, and technology) in education and with which this research is concerned. This provided a conceptual framework to guide the philosophical inquiry. I focused on Zuboff's (2018) work because it provided a recent and approachable description of that situation. Neoliberalism, consumerism, and IT have combined into a new type of capitalism (surveillance capitalism) focused on collecting data to suppress free will by controlling behaviour. The motivation behind surveillance capitalism is to maximize corporate profit. To maximize profit, purveyors of surveillance capitalism work to reduce uncertainty in their predictions built from the collected data and used to control behaviour. Uncertainty reduces the value of their predictions.

For Zuboff, that uncertainty is necessary for the existence of free will. Zuboff (2018) suggests that humans enter a series of contracts as a method to help us overcome the uncertainty of life. Uncertainty forces humans to express the will necessary to create and enter contracts that provide the structure and stability needed to live in a social society. As surveillance capitalists interfere in this system of mutual contracts and tip the balance of these contracts in their favour with uncontracts, we lose our *right to the future tense* (our free will) and become *authored* beings, written through the behavioural adjustments of the surveillance capitalists.

In the latter half of the last chapter, I described how Zuboff (2018) either failed to or was constrained in her attempt to reconcile behaviour in the description of free will and contracts. In my attempt to reconcile the oversight, I used identity theory and social cognitive theory to show that even though the result is the same (i.e., that we can be

authored), it is identity that is under threat. One expression of that threat is in education. The education of students plays a prominent role in identity development. Education decision makers are willing to seed varying levels of control (of data and classroom management) and access to those who have far different goals than those historically attributed to education in an effort to balance limited budgets and apply theories built from beliefs in student use of IT that may be fundamentally flawed (e.g., digital natives, go where the students are, be data driven).

In this chapter I discuss the possibility that we could be authored in a different way. The meaning we take from social interactions is internalized to allow us to discover and define our role identity (our active participation in social life). I argue that those meanings can be controlled through behavioural adjustment using technological agents and that education may be helping this come to fruition.

Surveillance Capitalism's Goal Refocused

At the time I was dreaming of the arcade joystick, I was working through Zuboff's (2018) book. That effort led me to try to reconcile free will, behaviour, and contracts in a world dominated by technological data collection and predictions. In a parallel reading, I found a term that brought the concepts together. The term was in an article describing how a hospital was going to use artificial intelligence (AI) and data science to better understand mental health (Casey, 2019). In this article, the doctors were proposing to improve mental health care with the ambition to perform *whole person modelling*.

Casey (2019) defined whole person modelling as an action "where one team will try to make sense of all the data the centre is collecting, from demographic to brain

imaging to genomic information along with an individual's exercise and sleep patterns" (para. 7). In other words, data would be collected not only about mental health, but every life aspect about which data can be gathered that contributes to understanding health. This massive collection of data would create a computational model to understand risk factors and other related health effects. It was unclear whether this meant the model was for a specific person, a more generalized model, or both. If it were the generalized model, it would be easy to theorize that the more individual models collected and digitized, the better the predictions about risk factors and health would become when based on the generalized model and applied to an individual. These whole person models become tools used by the medical profession, insurance companies, and health-based businesses to change behaviour to improve health.

I argue that whole person modelling is not contained to just the medical field. In Zuboff's (2018) work she describes how data collection moved from the online- to the real-world. More and more areas of life are being digitized and collated. Even our networks are being mapped. Certainty for the predictions can only become reality if a whole person model can be created. And it must be both types of models: generalized and individual. In creating the general you provide large scale predictions. In creating the individual, you create small scale predictions. Sell the predictions or access to the model and you have the next form of surveillance capital consumable good.

From Models to Agents

In Chapter 1, I described how a lack of understanding about IT and how it works, turns IT from a benign tool into a tool with agency, to act on our behalf. Also, in our rush to express our consumer identity, we give up control over our future by allowing for

behavioural control methods to be applied to us through those IT tools. In Chapter 2, I discussed how this imperils identity creation. The creation of whole person models as tools, gives those that create, implement, and use the technology the right to define the agency that the tool will assume. By agreeing to the uncontract that accompanies these tools, we give up our right to define the use of the tool. We provide others with the ability to define the tool's agency and then accept that the tool (not the designer of the tool) is working for our betterment because we do not understand how it all works.

That agency is partially granted based on our belief that IT is going to act rationally. Users of computational models, such as the medical whole person model, see the agency in the model (the tool) as benign, rational, benevolent, and beneficial. The model is provided with the data. The result is a practical, rational, and implementable answer that can be refined and implemented to improve the individual's health and the health of others.

A computational model reports its results, but when it combines with or forms the basis of artificial intelligence, even a narrow one, the tool is no longer a benign tool granted agency through ignorance of understanding. The tool *becomes* an agent. Merriam-Webster's defines an agent as "a computer application designed to automate certain tasks (such as gathering information online)" (Merriam-Webster, n.d.-a). Other definitions expand on this idea and suggest that these computational agents have steps that can be broken down into primitive operations and understandable steps (Pool & Mackworth, 2017).

Reality is more complicated. As companies like Microsoft and Facebook create and release these new computational model/AI hybrids that resemble humans and human

responses, the creators lose the ability to break the model's steps into the primitive operations. The creators do not understand how the model arrived at its answer. Facebook designed an AI engine that developed its own language, and the designers cannot explain how it managed to do it (Bradley, 2017). Microsoft created an AI (a chatbot) that became racist in its very brief lifetime, because it started mimicking those it was interacting with (Reese, 2016). No longer are the primitive operations explainable. These programs have become agents of a different sort.

Agents of this type are better defined as "a person or thing that takes an active role or produces a specified effect" (Merriam-Webster, n.d.-a). No longer is it simply a generalized computational model acting as a whole person, but it now becomes an agent that acts with its own purpose even if it is in a narrow field of action. The tool has been granted or developed[1] agency to arrive at an answer based on a programmed computational model. These programs are now reacting to the data in ways we cannot explain nor predict such as becoming racist or developing a new language.

Agents in the Network

Social cognitive theory suggests that human actors experience life through social interactions. Those interactions provide feedback on whether our expressed behaviours are appropriate for the situation. That feedback and the meaning taken from it in part help us define and provide an understanding of who we are. Surveillance capitalists want to control our interpretation of that meaning to guide us to buy more stuff to increase the money shareholders can claim. Part of that strategy is to place new technological agents

[1] The distinction between "granted" or "developed" is beyond the scope of this thesis at this point. It could be argued that it is both; the programmed code grants the agent the ability to develop agency.

like those discussed in the previous section inside our networks to influence our experiences' social meaning.

Smart speakers, digital assistants, and chat bots are all agents that have been introduced to make our lives easier. Smart speakers provide faster access to information and filter that information for us down to a single response. They have been designed to act as if they were human with human voices, responses, and tone. Researchers are even asking how we can train humans to better accept and work alongside these devices (Johnson & Vera, 2019) which are now starting to ask us questions in return (Priest, 2020). The technological agents are integrating themselves into our social networks and providing us with guidance. Their responses to our queries influence our behaviour and our understanding of ourselves in our acceptance to change based on their feedback as social members of our lives.

There has been a branch of research dedicated to the theory that computers are social actors (or more commonly, CASA; Nass & Moon, 2002). This at first glance may appear to validate the concepts discussed in the previous paragraph, but the CASA paradigm does not quite go as far as I have suggested. Under CASA, humans have developed scripts (pre-learned behaviours) that form the basis of communication. When confronted with a social interaction, we fall back on these scripts as models which we adapt to the situation at hand (Gambino et al., 2020). These scripts were designed for human-to-human communication. With the introduction of human-to-machine communication, especially in cases where the machines demonstrate social cues such as those contained in language, humans apply the human-to-human scripts to interact with the machines in a mindless way; without really considering that we are dealing with a

non-human (Nass & Moon, 2002). We do this because IT is so new, we have not yet developed the scripts to deal with IT. In using these human-to-human scripts, we grant IT social standing. This indicates that IT, as long as it shows social cues, will be seen as human and handled much like we would other humans.

Since its introduction, much has changed and the research around CASA is documenting that change. CASA is sometimes compared to the process of anthropomorphism where human characteristics or behaviours are attributed to a non-human object. Recent research clarifies that CASA does not really support anthropomorphism, but *ethopoeia*—the response to a non-human entity as if it were human even though we know it is not human (Wang, 2017). From this change in orientation, it is theorized that people can be placed on a continuum that demonstrates their belief in the agency of computers with those who believe computers are simply tools at one end and those who believe computers are agents that can affect our lives at the other (Wang, 2017). Most people fall somewhere in between these opposite ends. This continuum demonstrates that humans are starting to show variance in their social interactions with machines. That variance is interesting because "As involuntary input by sensors and proactive responses from smartphones/computers become common in human computer interactions, examining the social and psychological effects of these new technologies becomes critical" (Wang, 2017, p. 232).

Part of those social effects is that there is some demonstration of the development of new human-to-machine scripts. It has been posited and some research is starting to show that CASA's focus on applying human-to-human scripts to machines is weakening as we are developing new human-to-machine scripts because of the range of changes that

have occurred in technology and our experience with it since about 2000 (Gambino et al., 2020). From this research there is a potential warning that "rather than treating computers like people, we may end up treating people like computers" (Gambino et al., 2020, p. 79). Equating people to computers and computers to people would suggest that the social balance is beginning to level out where computers are becoming an accepted part of our social fabric with the ability to act as agents rather than simply tools that we use.

One interesting study of the agency of these devices demonstrated how they rise to become an integral part of our social networks; not quite at the level of true human-to-human social standing, but much like a beloved pet (Lee et al., 2020). In the study of 218 families performed with an eye towards the marketers of smart voice assistant speakers (SVAS), Lee et al. (2020) noted that the sharing of a smart speaker improved the perceived harmony of the group and that the "unique openness [of the device—its always-on nature] promotes the intelligent SVAS to the position of a trusted member of the family that creates a communal space of connectedness" (p. 576); they liken the device's social standing to the "influence on a family [that] a new puppy dog [has] when it becomes a new member of the family" (p. 576).

Lee et al. (2020) theorized that people accepted the smart speaker because its voice elicits social cues (as CASA suggests). As the family members were exposed to the device over time, they became more use to it and more intimate with it as part of their lives. As well, continued use of the same terminology by all members of the group (the wake-up words for the device) invoked the echo effect which brings members of a group closer together by allowing the group members to imitate each other's verbal patterns and feel like a part of the group. In summary, the more prolonged use of the device, the closer

the family members felt to each other, the less security was considered a drawback to the device's use, and the more the device became part of their social group (Lee et al., 2020).

Agents (e.g., smart speakers) are programmed to simulate human reactions and interactions and are generally accepted as participants in social networks. This position allows the agent to place pressure on an individual within the network. Examples of pressure can range from narrowing suggestions to only a single 'correct' answer as chosen by the agent or providing direct sponsored advertising when asked for suggestions. Agents are even being championed by educators, parents, and administrators to help students. Smart speakers and how to effectively use them has been a topic of consideration recently as students attempt to use them to do homework and perform daily activities (Lavato et al., 2019; Miles, 2020). This is an example of the pressures that education is finding itself under. Pressures to use the new tools available to help student success (collect data to analyze and create models to produce predictions) but doing so could be putting the students at risk by allowing surveillance capitalists even more access to affect change in the students.

Could this indicate (unwitting) complicity in the introduction of surveillance capitalist tools into the classroom? Keeping student attention and interest in learning during this age of digital immediate gratification has proven to be extremely difficult. Many teachers have little time in the day to test and experiment with every new technological toy that is promoted as "the next best thing for education." So, in turn, they rely on the advice, review, and example of others who promote these devices. Educational technologists are a specialized role who are tasked specifically to help with the introduction, use, and study of these devices. In my experience and as an area of

further consideration, the resources that are supplied for teachers and educational technologists appear to be more advertisement than actual discussions of the device's true merits and faults.

Aristotle, Heidegger, and Resource Management

Before discussing education and its position in such a situation, I would like to take a moment and discuss the new position or role of humans. I will use this opportunity to illustrate an assumption about educational stakeholders that will change education considering Zuboff's (2018) new division of learning. To do so I will apply Aristotle's four factors of causation to the ideas presented in this thesis and in Zuboff's (2018) work. I intend to trace the change of the position of the human actors and then relate the results to Martin Heidegger's work. My goal is to reveal that humans are no longer the driving force in change and no longer have control of that change but are the resource from which that change grows. This concept is also paralleled in Zuboff's (2018) work. The distinction will be that instead of surveillance capitalism driving the changes as Zuboff suggests, in this interpretation the technologies take on the role of agents supplanting the capitalists.

Heidegger's (1977) essay "The Question Concerning Technology" is credited with focusing thought on questioning our relationship with technology and what it reveals about us and our thinking about technology. In providing an understanding of Heidegger's writing, Lovitt (1973) suggested that Heidegger sees our current "instrumental definition of technology [as] correct (*richtig*), but not true" (p. 45). That instrumental definition posits that technology is a means to an end (Waddington, 2005) or that technology is a benign object. In the process, as technology reveals itself to us, we

try to control it. “For the more technology reveals itself as something inhuman – as something slipping out of man’s control and threatening to engulf him – the more technology is defined and pursued as an instrument to-be-controlled” (Lovitt, 1973, p. 45). It is in our attempts to control technology that we miss the point. For “so long as we represent technology as instrument, we remain caught up in the will to master it and race past technology in its essence” (Lovitt, 1973, p. 58). In other words, if we see technology as a benign tool with a purpose, one thing we miss is the fact that it is an agent. One path that Heidegger uses to explain this misdirection is causality (Lovitt, 1973).

Heidegger (1977) uses Aristotle’s four factors of causation to explain how technology and the thinking engendered by it has produced a way of thinking that forces order upon the natural world and turns natural objects into raw materials to be stacked, stored, and ordered so that they have little value and can be replaced indefinitely (Waddington, 2005). It is in this realization of the thought process to turn everything into a resource that we are provided an understanding of how surveillance capitalism and the agents it has created have fundamentally changed the position of the human actors in the process. To illustrate this thought process, I will also employ the four factors of causation. I will begin first by characterizing Heidegger’s interpretation of the four factors of causation and then demonstrate how the relationship between the factors changes under the technological structure of surveillance capitalism.

The four factors of causation are the *efficient*, *material*, *formal*, and *final* causes. It is important to note that together they contain the property of “indebtedness.” Indebtedness is a quality where each one influences all three of the others. Not only is there influence, but they operate cooperatively, and each is considered to have equal

impact upon the others. This allows the four factors to operate together and support each other to arrive at the final cause. So, when discussing these factors and using them to arrive at various conclusions, it must be remembered that they are expected to operate in a cooperative fashion.

The *efficient* cause is the actor that wills an outcome from the process using tools that are not consumed in the process nor have influence in the process. The *formal* cause is the plans, the guides, the understandings, or skills available to the efficient cause used in the process. The *material* cause is the item or resource that will be transformed by the efficient cause's application of the formal cause. The three work together (the property of indebtedness) and influence each other to create the *final* cause or the outcome. The final cause also influences the others because to arrive at a successful, desired outcome the other three must all work towards that specific outcome. The final requires a particular material shaped by an efficient that understands the material and the formal as well as having the goal of the final in mind.

Heidegger (1977) demonstrated his interpretation of the four factors of causation by describing the creation of a silver chalice, specifically the Christian symbol of the ceremony of communion (as cited in Zuern, 1998). In the creation of a chalice, the silversmith (the efficient) has the intention and the plans (the formal) for the silver (the material) to take on the form of a chalice for use in the ceremony (the final). It is in the quality of indebtedness, the working together, that the four factors of causation create the chalice. The chalice's material and final causes define its "chaliceness" or what it means to be a chalice and therefore nothing else (Zuern, 1998). The formal provides the boundaries that are used to define what a chalice is and combined with the material and

final create the limits of what it is to be a chalice. The silversmith is the agent that brings the formal and material together and realizes the potential of the interaction of these disparate causes to effect change and bring about the final. Working, supporting, and influencing each other, the silversmith, silver, need, and intended result all work together to create a chalice.

Future Profit: Humans as a Resource

For the balance of this section, I will apply Heidegger's interpretation of the four factors of causation and attempt to trace the evolution of the human participants under surveillance capitalism. To do this, I will examine four cases. The first case will show the development of tools with agency based on the discussion from Chapter 1. The second and third will summarize two of Zuboff's (2018) conclusions. The second case will demonstrate the development of predictions while the third will demonstrate the application of the agentic machines and predictions (the final causes from cases 1 and 2) to produce behavioural control methods. In the final case, I will demonstrate that using the behavioural control methods, the agentic machines and predictions have transformed humans into the resource used to increase shareholder-valuation. I will then proceed to the discussion of education and its role in the behavioural development of those placed in its charge considering this new interpretation of what it is to be human.

Before embarking on the discussion, I will necessarily make one important addition to the original application of Aristotle's four factors of causation and Heidegger's interpretation of it. In the original intent, these factors were meant to apply to physical objects produced through processes and tools controlled by a human actor to show how a practical object could be arrived at (a chalice). As has been discussed

previously, data has become a new commodity something to be stacked, sorted, and ordered for the purposes of being changed into something else (such as predictions) via various processes (agent intervention) but it does not have a physical presence per say. In the knowledge economy, data, ideas, and their effects have taken on practical influence much like a more physical object such as a chalice. So, in the coming section, some of the items I discuss will be of a more knowledge-based reality than the practical reality that Aristotle and Heidegger intended.

Case 1

In this first case, I draw upon the discussion from Chapter 1 about the distinction between a benign tool versus a tool with agency. From that discussion it was noted that the user's lack of understanding of how a tool works to accomplish a task, results in the tool being imbued with agency to act on behalf of the user. Using Heidegger's method of applying the four factors of causation: the user would be the efficient; the benign tool the material; the lack of understanding represents the formal; and the tool with agency would be the final.

In the more traditional interpretation, the final cause would be the outcome of an application of a tool by the efficient cause (the silversmith employs the tools of fire and molds to create the chalice). The tool would not be consumed or changed in the process so avoids being considered a cause of the process. I argue that it is necessary to divest the tool from the practical application of its use (the final cause) and from its relationship to the plan or process (the formal). As demonstrated earlier by Lovitt (1973), in trying to master the tool we lose sight of the tool's essence therefore not seeing it for what it is. By separating the tool from its intended direct application, we no longer need to master the

tool to accomplish the task—the tool is no longer an instrument with a purpose. We then would be able to see the tool in its essence and its relationship to the user.

By removing the need to master the tool, the tool's essence should more clearly be illustrated. Without a reason to master the tool, the tool can take the place of the material cause. The tool can be acted upon by the other three causes (the person, the understanding, and the agentic tool). It is in the quality of indebtedness that the benign tool becomes an agent—a final cause—that can then become the efficient cause in other cases.

Without the reason to master it, the tool becomes the "thing" (the material) that is being consumed or transformed into a new object. In the position of the efficient cause, the interpreter of the tool relies on a lack of deep understanding of the tool which shapes the user's approach to the tool. With no need to master the tool's use, the user's perception is shaped by the tool itself (form, feel, and access) and the user's limited sense of the tool (intended application, method of use, and intended result). These three causes work together to grant the benign tool agency as in the discussion from Chapter 1. That agency continues the lack of understanding for the user does not take the time or effort to improve their understanding of the benign or the agentic tool because there is no need or want to do so even if it fails in its intended or expected job. The agentic tool is considered to work on our behalf, we are told it does so, and we see the expected results so there is no need to question it. The agentic tool perpetuates the lack of understanding through user acceptance of it and what it can do.

Consider the simple cookie file and its related process that led to the presentation of the joystick on the MSN page. For this interpretation to be valid, I need to divest the

cookie from its intended purpose. It is a surprisingly easy task as I really do not know which task the cookie is intended to pursue so I cannot pigeonhole the cookie specifically—it is an instrument without an understood purpose. That vagueness of the cookie's purpose forces me to consider it in a more general way. Perhaps simply as a vehicle of data transfer much like silver is a mineral to be shaped. There are numerous reasons for using a cookie (tracking, settings, passing data, etc.) as there are many applications of silver (tooth fillings, coins, wires, etc.). Without knowing the cookie under consideration and therefore its particular purpose, I consider the cookie more generally relieving the burden of application. I also have no control over the cookie other than perhaps saying I do not want to allow cookies. Therefore, I do not strive to control the cookie because I cannot control it as if it were a benign tool used to arrive at a given result and cannot assume control even if I wanted.

The fact that I can approach the cookie more generally also demonstrates a lack of knowledge about the operation and use of cookies. In my line of work, I do have an appreciation for how cookies are created but how they are implemented and used by other entities specifically eludes me, leaving me in the dark about their intended use. I use cookies (or am I forced to?) without knowing the true reason for their application. They are added to my computer from just about every page I visit yet I rarely venture into the cookies and review their contents (contents that are usually encoded so interpretation without the proper tools is impossible). They are specifically designed to create a lack of understanding and perpetuate that lack of understanding.

In their use, these tools (cookies) begin to offer up information about me both directly and indirectly (data saved to the cookie and data about the cookie itself) to speak

on my behalf as agents of record of my traversals of the internet to other agents. They are read and the data used to improve the cookie system itself and continue to obfuscate the process so that my lack of understanding is increased. Without the ability to question, understand, or interfere in the process (other than removing cookies before they can be read—an increasingly difficult game of Whac-A-Mole) my lack of understanding continues to deepen. I as the efficient cause am also changed as the cookie begins to speak for me; the results of my technological decisions are modified and refined to react in the way the system interprets the values stored in or about the cookie. Even something as simple as a text file can become an agentic tool that speaks on my behalf.

In summary, by suspending the tool's application and therefore the need to master it, the user's relationship with a benign tool combined with a lack of understanding of how the tool itself is to be perceived, used, or how it arrives at its answers, results in tools that have agency. That agency then perpetuates the lack of understanding and user acceptance of this mode of causality.

Case 2

In this second application of the factors of causation, I would like to partially summarize Zuboff's (2018) efforts. In this case the surveillance capitalist (using IT tools) acts as the efficient cause. The data they collect act as the material, and the algorithms form the formal. The final cause, the outcome, is the predictions that can be sold. Having discussed this relationship at length in the previous chapters, only a brief recap about the indebtedness between the causes is presented here.

The surveillance capitalist decides which data to collect and which algorithms are to be used to process the acquired data. The data influences the capitalist by promising

potential monetary increase if it is collected, stored, and passed to the algorithms. The data influences the algorithms in that it shapes the inputs, the outputs, and the processing methods that the algorithms must use. The algorithms expect the data to be of a certain type, in a certain form, and then provide results in ways that the capitalists must learn how to interpret such as using statistical mathematical methods and models or specially designed interfaces that the algorithms create for interpretation. The predictions influence the data that gets collected. As more insights are gained more data streams are added and used to improve the algorithms. The predictions influence the capitalists by revealing new data (new sources of revenue) that can be mined and refined through adapting or creating new algorithms to create new and refined predictions. The indebtedness of these four causes lays the groundwork for Zuboff's (2018) book.

Case 3

Using the final causes from the previous two cases (agentic tools and predictions), a third case can be made that places the tools with agency (using other algorithms) as the efficient cause. The predictions take the form of the material. The formal cause is the goals of surveillance capitalism and the assorted methods that have been developed to meet those goals. Combined, these three causes result in the behavioural control methods as the final cause. This again is a summary of Zuboff's (2018) work and it is in the indebtedness between the four factors that the results can be seen.

The agentic tools pass the predictions, the patterns in the original data, to other algorithms (the tools in this case). These algorithms have been created to mirror humans, such as the whole person model. The purpose of these models is to use the patterns in the original data (the predictions) to increase certainty in the accuracy of the model's results.

The model was built upon certain concepts of surveillance capitalism such as more data means more accurate results, that data is a resource that can be mined, and certain values are required as output to demonstrate expected results. These new results demonstrate human behaviours related to the combination of the agentic tool, the original predictions, and the models themselves. These behaviours also are used to refine the agentic tool to look for other data that may provide greater insight which provides new data, new tweaks to the predictions, and improvements to the reach and effectiveness of surveillance capitalism's understanding of the process itself.

Returning to the example of the cookie, the plugin that the user comes across on another site is the conduit through which the agent (the cookie) passes the data to another algorithm. This second algorithm uses what it knows from the cookie to create a profile. This profile is then compared against others who meet certain requirements (perhaps they also looked at the same joystick). From the generalized results, Amazon can refine the model of shoppers (in general) and people who looked at the joystick (more specifically). This allows Amazon to draw conclusions about behaviours of this group. These behaviours can then be codified and processes implemented to take advantage of the understanding of these behaviours. The cookie system can be refined to collect more data. The predictions or patterns indicated by the cookie system can be passed to a general model of a shopper. This model suggests that those who looked at the joystick will tend to behave in a particular way. Amazon can then adjust marketing strategies to better target these people to try and get them to buy the joystick (improve the plugin for example).

Case 4

In the final case the efficient is identified as the tool with agency using the behavioural control methods as the tool. The original efficient cause, the human users,

now reappear as the material cause. The formal is the unknown/unknowable patterns that are discovered through the predictions and behavioural analysis. This results in the increasing of shareholder valuation as the final cause. In other words, humans have become the thing that will be changed by the efforts of the agentic tool to arrive at control of consumer habits through means that even the surveillance capitalists cannot define. In line with Aristotle's factors, humans have now become the material cause and as Heidegger describes can be stacked, stored, and ordered. Surveillance capitalism has created a new resource, and this is the most troubling expression of the results of surveillance capitalist enterprise.

Waddington (2005) describes how Heidegger hints at this conclusion in the use of the term "human resources." Zuboff (2018) also summarizes this end point in her book as follows: "knowledge, authority, and power rest with surveillance capital, for which we are merely 'human natural resources'" (p. 100). Humans are now the natural resource from which data is extracted to refine behavioural control to get humans to act as consumers to improve shareholder-valuation. We are also the natural resource from which the agents are designed, built, and then set against. This then is the new societal role of the human who is entered into the education system. If education accepts the surveillance capitalist collection of data and if that process eventually turns educational stakeholders (if it has not already) into a simple natural resource, what position does that leave education in?

Education: The Building Pressure

In Chapter 1, I undertook to provide a conceptual framework to discuss the past and current situation in which this research was to take place and ended by highlighting Zuboff's (2018) concern that currently, under surveillance capitalism, our right to

determine our own futures was under stress through behavioural manipulation. In Chapter 2, I explored further the concept of surveillance capitalism pointing out Zuboff's oversight in regard to identity creation. I proposed a move away from free will and operant conditioning suggesting that identity theory and social cognitive theory were more adapted to explaining and categorizing that identity creation was under threat. This substitution left the results at the same endpoint, that surveillance capitalists can author us. In the first part of this chapter, I expanded on this threat to show we are being authored or at the very least influenced, in part, by the introduction of surveillance capitalist designed digital agents such as smart speakers into our social networks.

In each section, I described education's role and place in the past and present situation in relation to these other concepts (neoliberalism, consumerism, capitalism, and surveillance capitalism). In Chapter 1, education was portrayed as being influenced by the concepts of neoliberalism, consumerism, and technological advance, making it more receptive to the result of these three influences coming together: surveillance capitalism. In Chapter 2, education was shown to play a significant role in the development of the behaviours that students recognize as responses to social situations and the meaning taken from those behaviours and the identity that results. Here at the end of Chapter 3, I would like to return to a specific discussion of education and the perception of its position considering the arguments put forth in the previous chapters of this work including the acceptance of surveillance capitalism's methods, agentic computer models, student identity, and the new position of humans as a resource.

At the end of the second chapter, I noted that education is caught in a conundrum: the need to teach necessary behaviours to have an active role in society, how to discover

the truth of the world, and how to interpret meaning from experience to create an identity; balanced against various influences and needs. Influences, such as surveillance capitalism, that have vested interests in the educational process and needs that are difficult to meet such as sufficient funding for programs that place pressures upon decisions and the decision-making process. The adoption of surveillance capitalist methodologies such as massive data collection, processing, and interpretation in research and practical daily operations to better understand pedagogy, students, and other educational pursuits while also improving efficiencies has provided many opportunities and understandings that were not available before.

In contrast, the linking of collected data to a student's educational pursuits would provide surveillance capitalists with two (perhaps more) valuable data sources from which to build profit: data about the role identity of being a student to create or refine generalized models to which access would be sold, and identifiable individual data linked to a specific student for advertising purposes. This would fill in areas of uncertainty in the models not the least of which is what the student learned. In both cases, education has so far acted as a filter on both data sources. Yet, even with structures and policies in place, the intrusion (or invitation) of surveillance capitalism into the classroom is wearing on the defense of the student identity. I have identified three ways in which surveillance capitalism's introduction into the classroom is changing identity development.

The first revolves around the misnomers that education is currently operating under. In Chapter 1, I discussed the fact that education is operating under the assumption that students are digital natives and that the accepted definition does not accurately reflect reality. Education influences identity development as discussed in Chapter 2 through

aiding students to interpret meaning from behavioural feedback. In this case, if the behavioural feedback is based on flawed theories, then student identity cannot avoid being impacted negatively.

"Go where the students are" is a popular saying when it comes to information technology's implementation in the classroom. Under this paradigm educators tend to give up control of the platform on which their content is provided to students. In return surveillance capitalists collect the usage and individual data of the students (e.g., posting class videos on YouTube). Another is the directive to be data driven. The tools needed to collect and analyze that data are either outsourced to surveillance capitalist institutions or are provided by those same companies. Learning management systems are an example of data collection points as well as providers of data interpretation tools. In all cases, these terms have become a part of the educational lexicon and are driven and supported by the surveillance capitalist narrative. All these points are reflected in the recommendations in the National Education Policy Center's September 2020 report on selecting digital platforms (Boninger & Molnar, 2020, p. 4). And all these points potentially have negative consequences for student identity development as the data and the resultant theories are influenced by outside forces.

The second influence on identity development is the collection of data. Like the *be data driven* mantra, instead of giving up the data to another entity, education collects the data for itself and implements the results of processing that collected data to generally improve the educational process. Platforms such as learning management systems (LMSs) are used to provide classroom structure and ease for performing classroom management tasks yet collect massive amounts of identifiable data about students

(Boninger & Molnar, 2020). Then, there is the research being conducted in the classroom aided by digital platforms such as video games that collect identifiable progress, grades, and skill level. The collection of all this data is a gold mine that education cannot excavate without the help of surveillance capitalist enterprises for tools from data storage to platforms such as LMSs to artificially intelligent machines. Educational institutions are collecting troves of data that cannot be gathered anywhere else but may not have the resources to process in-house. Requiring the data, the interpretation, and/or the storage to be handled by partners that do not have the same goals (education versus profit). This also places these entities in a position to influence education, and the students in education's care, both directly and indirectly by suggesting behaviours (such as everyone needs to know how to code) that education must instill. All done so a student can be a functioning part of society, be able to see the truth of the world (as prescribed by surveillance capitalists) and identify as the person society (or surveillance capitalists) need them to or are authored to be.

The third way student identity is compromised is through the collection of data about individual students. Contrary to the research goal of using unidentifiable data, there are areas where the collected data is being used to track and make changes to student life in and beyond the classroom. Though the data is collected and scrubbed to create a generalized model, that model is then applied to the individual student whose identifiable data is available and fed to the generalized model. The results are then used to help that student perform better (shape behaviour and therefore identity) and to better tune the generalized model. Generalized predictions are useless unless there is a specific instance to which the prediction can be applied (change behaviour), and the generalized model

cannot be refined unless there is specific data to extrapolate from (behaviour to chart and map).

Collected data linked to a specific student's educational pursuits throughout their career at a given institution have existed since education became institutionalized. Records have always been kept about a student's performance, but the detail has never been at this scale, accuracy, and open for access to non-educational bodies (stored on servers not within the educational system). Data about students even extends beyond school tasks to the world beyond the classroom. In our college (like most postsecondary institutions), students can use their student ID cards at various on-campus (print stations, libraries, etc.) and off campus (deals at local companies, local transit) facilities with data collected at each use. The identifiable data collected is nearly limitless and shared between entities that collect and use the data.

More influences from surveillance capitalist activities in education are appearing as time moves forward and data collection becomes more culturally accepted. Access to education, therefore, plays an important place in the future of surveillance capitalism. Once that access is gained, education research will also have completed part of the work for the surveillance capitalists by already completing a generalized whole person model of what a student is generally. Already, experiments are underway like the one described earlier about the fractions video game where computational models and agents representing general students are being designed and improved.

On the other hand, surveillance capitalists or their agents in the classroom could also control the identity creation narrative. This means making changes in the data that is collected, who gets it, where it goes, and who uses it. Education is also doing the work of

surveillance capitalism through researchers' actions, providing ways of manipulating behaviour and adjusting responses. Programs such as educational data management (EDM) and learning analytics (LA) and related research are bringing the tools of surveillance capitalism and agent design into the classroom and paving the way for surveillance capitalist interests by storing data outside of school institutions and providing tools designed explicitly to study developing behaviours, identities, and roles.

Education can still reduce the pressure of surveillance capitalist influences in the classroom. To do so requires acknowledgement that there is a problem and that the lines are blurring between education and surveillance capitalism. This simple acknowledgement could reinforce data collection practices and experimental research approaches that could curtail surveillance capitalist interest and access to educational data. Paraphrasing Zuboff's (2018) closing to her book, education can help reclaim the students' digital future and identity by simply changing the narrative of *be data driven* to *no more loss of control*. Education needs to reclaim control before surveillance capitalism takes so much that it is impossible to get it back.

CHAPTER FOUR: DISCUSSION

Over the course of this research, there have been many related newsworthy events:

- Amazon's Alexa digital agent began asking questions of those who use its services (Priest, 2020);
- An artificial intelligence wrote 8 essays on the topic of why humans should not fear the rise of AI (GPT-3, 2020); and
- COVID-19 changed more than where you performed your daily work-related duties by creating a greater focus on IT:
    - Changes in our behaviour are confusing the existing AI models (Heaven, 2020);
    - The conditions under which work is being done, provide warnings about our nearly unlimited adoption of technology (Pittis, 2020);
    - A reformation of education has become a key question as the aims and goals of education are questioned considering the "new normal" (Siddell, 2020).

There are two competing thoughts in the above articles: this may be a time for change and opportunity or it may be a time for acquiescence and intrusion. I wonder where the power to act lies and which choice those holding the power will make?

Zuboff (2018) shows that the power currently rests in a new version of capitalism combining neoliberalism, consumerism, and emerging information technologies that use behavioural data collection to influence consumer behaviour to improve shareholder returns. Surveillance capitalism, made up of the big businesses that can afford to create, use, and maintain the technological tools to perform data collection and behavioural

modification, hold that power. Zuboff saw this as a threat to free will, the cornerstone of Western democracy. After trying to reconcile an oversight or limitation in Zuboff's work, I identified that self-identity was under threat. The key to self-identity is the meaning we take from social feedback because of behavioural expression.

The insertion of digital agents (smart speakers, digital assistants, and the like) into our social networks is increasing the social control of our behaviour. This is granting an ability to influence our identity as we derive meaning from the feedback (the search results) provided by these agents. More and more, agents assume and resemble roles that other humans would usually undertake in our lives and are accepted into our social networks. That acceptance allows them to exert influence over behaviour and the meaning taken from social interactions and our resulting identity. This furthers their goal defined by Zuboff (2018) as an effort to *author us*.

Through education, surveillance capitalists can achieve better access to earlier behavioural control. Furthermore, surveillance capitalists can access the structure and interpretation of the meaning of behaviours through general education. Corporations have been identified as school officials under the law (Boninger & Molnar, 2020), and guide what is acceptable behaviour and its expression. Educators then end up teaching acceptance of these beliefs, not social needs, or employment skills. A recent report from the National Education Policy Center marked this as one of their seven key issues to consider when choosing a learning platform (Boninger & Molnar, 2020). The report noted that "digital platforms and learning programs may socialize children to accept surveillance" (Boninger & Molnar, 2020, p. 11) though I would say their qualification of

the statement is unnecessary. A new division of learning as Zuboff (2018) suggested is emerging, and the corporate surveillance capitalists are the power holders.

Under this new division of learning, education continues to play a role as both a social network and a guide in identity development. Educational research has adopted surveillance capitalist methods and is contributing to the definition of the whole person model of *a student* that will result in educational agents. Through the application of research methods such as educational data management (EDM) and learning analytics (LA), education is defining the basis of the agents necessary for the surveillance capitalists to make use of as they enter education through providing funds, classroom materials, and being invited by different educational stakeholders.

Throughout this work, I have argued three major points. First that surveillance capitalism has accessed education because of an acceptance of neoliberalism, consumerism, and IT. That acceptance places student data and identity development in jeopardy. Second, the data is being used to behaviourally modify responses to social interactions so that the meaning taken from the feedback of others in those social interactions can "author" our identity. Thirdly, data is also being used to create technological agents that are being welcomed into our social networks to exert behavioural modification and distribute those changes throughout the network. But it may not be too late to affect change to protect students and others.

In the end, consumers (including students who have been framed as consumers) can take two initial steps to protect their right to create personal identities and educational venues can help: create an understanding of the use of collective democratic rights to impose laws to restrict, define, and protect the data that can be collected; and act like

rational economic actors by demanding payment, improved benefits, or even exercising the right to a no-choice option. In terms of the former, the European Union (EU) has been one of the leading governmental bodies to create and turn into law policies for equalisation and data protection. The most notable of these might be the *right to be forgotten (*Zuboff, 2018). Though the data exists, it is suppressed by the surveillance capitalists to keep results from appearing during searches. Some may question why the data would be left in their care and only available to them rather than being scrubbed altogether. Yet, such a law helps place some control back into the hands of those who may be harmed by the data. This EU law shows that governments with the will to protect their charges can have an effect.

In the latter case, how many subscription services are you paying for? The data is being collected and so is your money while the data is used to make even more money without providing you remuneration. A rational economic actor would demand that subscriptions be based on the value of the data. Perhaps, better, more desirable data means less fees or even a paycheck. Paying users for their information is not a new concept in the business world as marketers have done it before (Chetia, 2020). In a truly equitable world, there should be no subscriptions for the future value of any data collected (modelled after the original system of data collection for improvement of services). Yet currently the trend seems to be in the opposite direction where we want the benefits of shared data but may not be willing to fight to keep ours out of the pool or attach a value to that data (Desjardins, 2016; Glikman & Glady, 2015).

For those who would like to try monetizing their data, some companies have developed apps that install on your device, collect usage data, and in return provide

various incentives like cash, points for merchandise, and contests. The Neilson Company offers one such app (Mercadante, 2020). The problem is that apps like this collect data on top of the other app's data, so data is collected twice (or more) but users get paid once. Other attempts are being tested where smaller businesses and newer startups are developing business models to pay users for the data collected (Chetia, 2020). To compete with the larger corporations for the data, they offer incentives.

These types of deals are popping up because there is an awakening occurring where users are starting to realize the value of their data and are beginning to push back against the monopolies of the larger corporations who have dominated surveillance capitalism for years (Chetia, 2020). The new anti-trust cases brought against Google are examples of this pushback. Other examples are hiding as Zuboff (2018) suggests or providing false data. One study showed that almost 25% of all consumers have at times provided false data to the companies they interacted with to access data anonymously (Chahal, 2015; Pritchard, 2017) and it is not only customers doing this as companies are actively providing fake data to competitors (Taskiner, 2020). False data costs money in improperly targeted groups and misleading results. So, companies have incentive to reach an agreement with customers to ensure their data is accurate to protect their business model.

Rather than hide or lie, citizens may have another route. Anti-trust lawsuits stoke fears of government regulation on the capitalist system. Smaller businesses are attempting to offset the damage the big corporations may have done (and get their piece of the pie) as their larger brethren come under greater scrutiny for monopolization and unfair dealings. This fear may provide leverage that the government can use to intervene

on behalf of its citizens. As governments can and have leveled the playing fields of various economic enterprises in the past, they may be able to level this one by simply placing a value, like a minimum wage, on data collection. Using data usage calculators that are already available, a percentage of the data traffic could be calculated to show what portion of the traffic is collected and kept with the intention of putting it to use in surveillance capitalist enterprises. That percentage could then be given a value. That value could then be returned to the user if not as a paycheck then at least as a reduction in service fees or perhaps lump sum payments to governments who could use it to provide tax breaks. Our governments could negotiate for us as a collective body. Companies would then be incentivized to compete to offer better compensation rates for data collection making people employees rather than simply natural resources to be exploited.

A very recent example of this process could be the Australian government versus Google and Facebook (Yadav, 2021). In these cases, the Australian government is standing up for local news outlets whose articles and work appear on the search engines and news aggregation sites of Google and Facebook without remuneration. These articles are providing traffic to Google and Facebook who collect revenues but are not sharing those revenues with the companies that produced the content. Google has threatened to discontinue the Google web browser in Australia and Facebook recently shutdown access to Australian news sites and blocked Australians from sharing articles (Acri, 2021; Culbertson, 2021). Questions in the cases focus on what is considered fair value of an article and how this would be enforced. The outcome of this process could be a blueprint for something more widespread that covers users in a more general form.

Another interesting possibility is the no-choice option (Dahr, 1997). A rational economic actor should recognize that given all the possibilities for a particular item, say all arcade-style joysticks, the items are essentially the same (a stick with buttons) and the only difference would be the additional functions (say macro controls to automate complicated button press sequences). During the selection and research phase, especially when there is little difference between items, some economic actors will push the decision to a later time or make no choice at all. These actors choose not to decide until more time is used for research. Though in cases where there are glaring differences, the decision is often made. Advertisers know this and often compare one item to another of significantly lower quality to spur the decision. Our behaviour has already been manipulated to believe that *not* deciding is very un-consumer.

I suggest that as rational economic actors the no choice option should be the very first option adopted when new technologies appear. At this point, all technical choices tend to have the same central functionality: collect data. They are only separated by their additional functions. So, if rational economic actors approach information technology as all having the same underlying goal of collecting data, the no-choice option should be our first (and only rational) choice. Even if listed as free, patience and research should be exercised and allow the mistakes to be made and competitors to arrive. There will always be early adopters, those living on the bleeding edge. However, most rational actors should choose the no-choice option at the release of a technology and allow the pitfalls of its use to come to light before adopting.

In either case, education can play a significant role in changing these attitudes for the better by teaching students, educators, and administrators the value of their data to

these companies. Teach the education stakeholders where data goes and who is in control of it, especially now when they do not have any control over it. Teach that the no-choice option always exists even if peer-pressure says otherwise. Usually at this point, an educator such as myself, might call for entirely new classes to be designed and included in an already crowded field offered in a limited time frame. I do not think that such a thing would be feasible or productive. What is required is targeted distribution of these concepts as critical topics within existing classes. Rather than entire classes, single lessons or even modules can be added to existing curriculum to provide insight. I would even argue that self-directed learning would provide a more effective means of delivery as it would allow students to discover these themes for themselves. The personal discovery and realization of the problem's depth would have a greater impact than simply being told about them.

Beyond including the learning in existing formats, educators have other options as well. Modeling good data handling procedures and being upfront with students about their data is one change that can be made without much impact to the workday. An explanation at the beginning of the term or class to tell students about the software, the data it collects, and why it is collected can go a long way to changing student behaviour in the long run. Educators can also post good data handling guidelines for students in the classroom including backup methods and the institution's data privacy regulations and commitment. An educator's job is to provide the information necessary for students to understand a concept and provide the proper and necessary skills so that information can be parsed and delivered, and appropriate behaviours learned.

Part of that necessary information is how to resist. In the conclusion to her work, Zuboff (2018) calls on people to become the friction that resists the surveillance machine

from achieving total certainty in the predictions. Zuboff focuses on the democratic process (assuming democracy itself has not been inadvertently affected already) as the key method through which we can resist. Another method of resistance is proposed by Joyce Bellous (1995). In her essay, she suggests that teachers can aid students and eventually the democratic process by instilling the behaviours of empowered resistance. Bellous describes creating a classroom atmosphere that teaches students how to resist the education system itself for their own and society's betterment. Teaching students to resist the unbalanced power relationships within the classroom will better prepare them for life in a democratic society. "Resistance would be motivated by a democratic urge to be mature, participating citizens" (Bellous, 1995, p. 7) but if we teach for acceptance of the current unbalanced power relationships within the classroom, we remove the mature and participatory necessities of the democratic process. I suggest that empowered resistance can be extended to help resist surveillance capitalism and support Zuboff's assertion that democracy is a powerful tool in the resistance assuming it has not been corrupted through granting political positions to advocates for surveillance capitalist companies (Zuboff, 2018).

This resistance to the education system would be led by teaching the ability to ask authentic questions, assess the reasons provided in answer to the question considering democratic principles, and then challenge those reasons when they do not align with the perceived relationships of democratic learning (Bellous, 1995). Bellous acknowledges that these are learned behaviours and that students may not exercise them well at first. Educators would need to teach the necessary behaviours for this type of resistance. If done well, an internal, educated, and managed resistance to education will have benefits against surveillance capitalism both inside and outside education.

If we can achieve Bellous's (1995) resistance paradigm within the classroom and remove mere acceptance of the status quo, these behaviours can then be focused to resist the use of IT in the classroom and in life more generally. Academics are noticing that algorithms within the technology are influencing teaching and curriculum (Boninger & Molnar, 2020). By granting students the behaviours necessary to question what happens in the classroom, we also grant them the ability to question the IT they are being asked to use and its influence upon them. Students may then stand up and question education's use of IT considering its impact not only on their learning but also its impact on other areas of life that impact education such as the environment—power creation and consumption; mining and use of rare Earth metals; recycling and reuse (Deibert, 2020). This may lead to a reduction in technology use and in exposure to surveillance methods.

Bellous's (1995) argument for empowered resistance works well within the classroom where the teacher is expected to be amenable to the feedback (hence the term *empowered* resistance), but what about after education has been changed and student resistance meets corporate resistance which is much more likely to be, as Bellous terms it, *coercive* resistance? Coercive resistance is where the corporations believe they hold all the power and are not amenable to criticism or challenges to their power in the relationship with their users. The hope would be that corporate resistance would have been weakened through a loss of data collection, better student understanding of surveillance capitalist methods, and practiced behaviours of resistance. When the students find themselves in the halls of democratic power or express that power through voting, they can use those same behaviours to temper surveillance capitalism further and be the friction that causes resistance to the acceptance of surveillance. Through restrictive laws

on surveillance practices such as the European Union has done and through simply not using certain products by accepting a no-choice option, students and future citizens can resist. And there are others in the education system who can also be part of the resistance.

Educational technologists and IT departments can play an effective role by helping instructors and others in the field of education understand what data collection and use means for each application. Educational technologists need the critical skills to evaluate technology and the skills to communicate the critiques to those who wish to implement these technologies. Part of that communication needs to be methods for reading, interpreting, and explaining the end user license agreements (EULAs) particularly regarding data collection and handling. Making these available for staff (much like hazardous material handling guidelines) with the necessary annotations around the data collection rules could help staff understand why their requests may not be in the best interest of the students or institution. They could also be used as teaching artifacts to show students the perils of entering a contract without reading the agreement.

Overseeing all these changes and team effort, administrators can aid the effort by providing time for professional development, being involved in the process, and being a spokesperson for good data handling and use within the institution. A proactive approach rather than wait for government regulation is critical. Administrators use the collected data to make decisions regarding the operation of the institution and protecting that data means better decisions can be made. Working with the team administrators can put in place effective policies and guidelines that are not just lip service to the ideas of data protection, but that protect student data and improve the value of decisions made with the data. The assessment, verification, and choice of digital platforms under the concepts of

data protection, pedagogical impact, and fit for the educational institution are starting to be recognized as key components in the future application of digital tools in the classroom (Boninger & Molnar, 2020).

Future Research

With such a combination of theories and arguments under consideration, there are many areas in which this research can be extended. I offer five possibilities here but recognize that there are many more.

One area is the idea of the *irrational* consumer or economic agent. This thesis has been focused on the person involved being considered a *rational* economic agent. But what if as agents we are not truly rational? Has capitalism known that consumers are not as rational as they tell us we should think we are? Incorporated into the irrationality discussion should be *availability bias*. Availability bias looks at the effects that the strength of the emotional response to and nearness in time to a previous event can have on the decision-making process. This indicates that people's rational assessment of situations may be restricted or narrowed. Irrationality and availability bias may change the data, the data collection process, the interpretation of that data and throw some conclusions in this thesis into question.

What happens when humans break the perceived models? What happens when we, at least to the machine, start to act irrationally? At the beginning of this chapter, I referenced an article that discusses the confusion for the machines that the COVID-19 virus has had by simply changing our routines (Heaven, 2020). The machines expect us to essentially act the same way most of the time (certainty). The uncertainty wrought by the virus has impacted the machines and their predictions. The machines simply were not

ready for such a drastic and widespread disruption in their collected data. What impact will this data have on the future models? Will the irrationality of the COVID-19 lockdowns change far more when the next predictions arise? What if irrationality is more widespread in human endeavours than the machines can account for or were programmed to accept?

Another concern, and this is pure supposition at this point, is that search algorithms may be prone to a version of availability bias. Part of the algorithm used shows responses based on the number of people that have accessed a resource. This can change over time as the topic perhaps fades in and out of importance. Each time it comes into force, the topic is researched, and search algorithms tally which resources are used moving items up and down the results list. As the force of the topic as an item for searching dissipates, the most popular resource retains its high tally of access. The next time the topic comes into vogue, the resource with the highest rating initially returns to the top of the list. The algorithm learns from the human emotional need to find out about the topic and then does not forget the last time (the most recent time) the item was important using that information the next time it is needed. To me, this indicates classic availability bias in the machine.

Another area of research would be the changes created by surveillance capitalism's acceptance within other neoliberal influenced institutions such as government. Education, as an arm of the government, has shown to be susceptible to the machinations of surveillance capitalism. What other institutions have been affected and what have those effects accomplished? What would happen if you added the *surveillance* adjective to democracy, socialism, or communism? What is *surveillance education*? Research into other specific institutions would illicit the reach and effects of surveillance

capitalist enterprise into other areas as well such as non-democratic states but also show the range and effect of changes in neoliberalism if changes are forthcoming as mentioned at the outset.

There would also be interest in the reach and extension of surveillance capitalism after the COVID-19 danger has passed. Investigating the levels of technological acceptance before, during, and after will show how far surveillance capitalism has increased or perhaps even decreased its influence. Such a study may even show how much more people rely on IT afterwards. With many governments asking people to install surveillance apps to track the spread of the disease, how many were downloaded and how many remain on phones after the danger passes? Even how COVID-19 is changing business itself by observing topics like paying employees by where they live rather than by the job they do if they do remote work would be interesting to research.

Though briefly touched upon here, Heidegger's work regarding the thought processes behind the use and adoption of technology would also be an area for further study. What do Heidegger's theories say about surveillance capitalism? Can Heidegger's understanding of the thought processes around technology explain the rise of surveillance capitalism? To change the surveillance capitalist mind set, there needs to be a study of the thought process behind it. Perhaps Heidegger can shed light and more detail on how surveillance capitalist thinking has been able to leverage the concepts of challenging-forth and standing-reserve to supplant human agency (efficient cause) delegating it to the role of material cause.

Lastly, I would offer further investigation of those that do not fit the neoliberal definition of citizen. What about those who do not have the means or ability to participate in the system as described? How are those who do not have the money to act as

consumers treated in society at large and in education specifically? Without the means to participate, the effects of the system could be radically different for these vulnerable people. As surveillance grows and expands into the real world, there will be no place to hide if you do not have the money with which to construct your blind. Yet, without access to the constant barrage of tools through which surveillance is currently accessed, are they better protected from the effects?

CHAPTER FIVE: CONCLUSION

Through its Partners in Education program, Microsoft funds a group called Innovative Teaching and Learning. In 2009–2010 the group released a report into their pilot research program. The executive summary's opening banner headline claimed that there was "growing consensus among education leaders, researchers, and educators that teaching, and learning must change to help students develop the skills they will need to succeed in the 21st century" (Microsoft Partners in Education, 2010). One result of this research was the creation of the 21st Century Learning Design (21CLD) program aimed at teachers to provide them "clear and practical ways to develop 21st [century] skills using digital technologies with their students" (Microsoft Educator Center, 2021, para. 1). Countries such as Finland, Russia, Senegal, Indonesia, Mexico, the United States, England, and Australia joined and participated in the research program for the 2010–2011 school year.

Google Classroom is a complement to learning management systems (Edwards, 2020) that some teachers and districts have adopted most recently in response to the viral outbreak that sent so much of our learning online. Others had already adopted the program for use before the viral outbreak as well (Desson, 2018). Classroom is a "free and easy tool helping educators efficiently manage and assess progress, while enhancing connections with learners" (Google, n.d., para. 1). Apparently only lacking the ability to integrate with school systems to track and report grades, teachers have found it a great addition to their students' learning. Google does not scan the data or use any of it for advertising purposes and there are no advertisements within the application itself (Edwards, 2020).

Apple Inc. provides its own program suite called Classroom that is “an app for teachers ... to guide learning, share work, and manage supported iPad and Mac devices” (Apple Inc., 2021b, para. 1). This can be combined with a program called Apple School Manager that is a web-based portal for IT administrators to control and support Apple devices used in the classroom (Apple Inc., 2021a). Combined with mobile device management (MDM) classes can be developed that build off Classroom to create, for example, group projects focused to a specific set of Apple devices (Apple Inc., 2021b). Use of Apple’s applications and technology provides the teacher with a classroom management system with student-specific capabilities to build an integrated learning environment.

In all three cases IT is a Trojan horse for changes to pedagogy within the classroom to allow for the collection of data and influence over student identity through behaviour. Microsoft looks to create students who are more accepting of technology (and surveillance) by providing not only the software and hardware but also the pedagogical approach of its use and acceptance. Google looks to leverage existing pedagogy to collect the usage data from within the application (it may not scan the students’ data but use provides volumes of other types of data) without specifically stating what that data will be used for. Apple looks to integrate the methodology, hardware, and software into the classroom while collecting the usage data for its own purposes.

The influence goes even deeper. Devices, once considered tools simply created to achieve a successful result at a given task, now take the place of valued members of our social group. Devices that can answer a question for us and provide a single response that is considered the only correct answer. Devices that even their creators have no idea of

how they work or how they arrived at a particular answer. These agents are now a focus of educational research for helping students achieve in the classroom. All based on the idea propagated by the developers of the device that IT can improve student performance and their chances of success in the world created and defined by the very companies that built the IT.

The blame could be laid squarely at the feet of capitalism. It is from the notions spurred by capitalist ideology that the precursors of neoliberalism's competition driven ideology, consumerism's habits, and IT's reach that surveillance capitalism was born. And the surveillance is not restricted to capitalist states. The belief that surveillance and the resultant collection of data will solve issues has spurred all forms of economic and political expression or suppression through adoption of surveillance methodologies. The Chinese Communist government for example is making spectacular and worrying use of surveillance technologies because their form of government removes many of the safeguards that democracies have put in place to protect citizens from corporate overreach (Zuboff, 2018). I personally believe that placing the surveillance modifier in front of practically any word would result in an interesting study of IT's influence on our lives.

Hence the idea of *surveillance education*. In the preceding pages, I have described the emerging discipline of surveillance education and what it could look like. Classrooms filled with IT agents that track everything in the real world (temperature, Galvanic skin responses, light levels, facial expressions) and the digital world (time spent on task, sites visited, attention levels) all interpreted by other IT agents that provide a single answer as to how to correct the variables to achieve the best learning results (a level of certainty that

a student will demonstrate the approved behaviour when faced with a situation in the world beyond the walls of education). All the while teaching acceptance of this system of education and the system of surveillance in the larger world. Teaching behaviours that affect student identity through the feedback of the machine, teacher, other students, and other stakeholders all themselves influenced by IT agents and their handlers.

But what of identity? If identity plays a critical role in our application of will to choose the behaviours we exhibit and is used as part of our self-evaluation, what is identity once the control of the meaning we derive from behavioural expression is controlled? We become nothing more than the raw resources that can be stacked and stored then processed to meet the needs of the surveillance society like Heidegger and Zuboff suggested. For the programmers out there: education becomes an integrated development environment (IDE) used to write the code (the behaviours) by which humans are programmed (identity) to react to data (considered will). That reaction (expressed behaviour) collects even more data (social response and meaning) further refining the code (identity) for future responses. The pedagogy of education becomes a scripting language to turn humans into the obedient agents necessary to take input from other agents and produce an expected result.

There could be one bright spot in such a post-human future. If Zuboff (2018) is correct and uncertainty is a necessary precursor to will and by extension identity, perhaps humans will crave that uncertainty. Harari (2014) suggested that human imagination has gotten us this far. Imagination in response to uncertainty has in the past helped humans deal with problems providing both good and bad responses. What about imagination as a response to certainty? If uncertainty is removed, the human imagination may look for and

find or create sources of uncertainty, both real (create the chaos that breeds uncertainty) and imagined (the puzzles and threats of video games). Imagination in response to certainty may allow humanity to find non-approved meaning in the social interactions and retain the right to develop identity independent of others. Or it might simply allow us to accept an IT controlled world more readily.

In the meantime, we must take control of our understanding of data to protect our right to interpret meaning to create an identity. Besides, it is not the arcade joystick that is the problem. The problem is that to get the joystick I must accept that I am not the "me" I think I am but only a vision of someone else's design to which I have agreed. Has my identity changed because of the joystick incident? I would say the experience has reinforced an already ingrained behaviour to attempt to hide from the surveillance. Though I let their agents into my life in most cases for the sake of simplicity, I try desperately to restrict my usage to one surveillance capitalist enterprise (that collects most of my data), use at least three different script blocking applications (which collect their own portions of my data), and use software that scrubs my computers after each use (and collect data about it). By accepting some discomfort, I feel I am better protecting myself. Now, if I can band together with others who see similar benefit in maintaining the right to define our individual selves, together we can retake control of the meaning of our social interactions and define our own identities. In that process, we should then be better able to help students better understand their current and potential future positions under surveillance education.

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