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Humanization in the Digital Age: A Critique of Technophilia in Education

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This dissertation, HUMANIZATION IN THE DIGITAL AGE: A CRITQUE OF TECHNOPHILIA IN EDUCATION, by MORGAN D. ANDERSON, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree, Doctor of Philosophy, in the College of Education and Human Development, Georgia State University.

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HUMANIZATION IN THE DIGITAL AGE: A CRITIQUE OF TECHNOPHILIA

IN EDUCATION

By

MORGAN ANDERSON

Under the direction of Deron Boyles, Ph.D.

ABSTRACT

Despite ongoing claims that education is trapped in a bygone era resistant to innovation, educational practitioners, scholars, and policy makers have been enthusiastic about infusing technology into the everyday lives of children in schools. In the face of this dramatic uptick in the presence of technology in schools, little attention has been devoted to understanding how this constant exposure to technology is impacting the way students learn and experience the world. Overall, educational scholars and practitioners debate *how*, not *whether*, to incorporate the latest technology into schools. The centrality of technology in education rises to the level of technophilia, a world-view that sees all new technology as inherently positive and beneficial to human life. I will argue that the current landscape of educational policy and practice is characterized by a problematic relationship with technology that rises to the level of technophilia, and call for a reassessment of the relationship between education and technology in order to fulfill the demands of a robust, democratic educational program.

HUMANIZATION IN THE DIGITAL AGE: A CRITIQUE OF TECHNOPHILIA IN
EDUCATION

by

MORGAN ANDERSON

Under the Direction of Deron Boyles

A Dissertation

Presented in Partial Fulfillment of Requirements for the

Degree of

Doctor of Philosophy
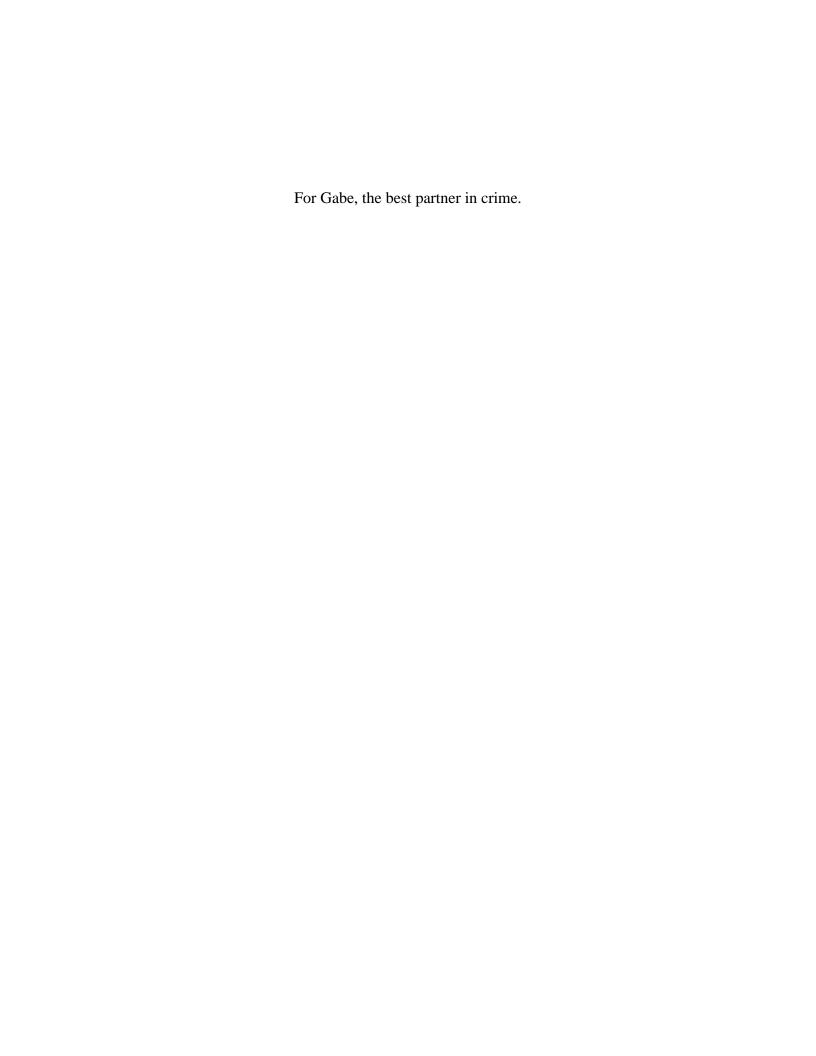
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in

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in

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For Gabe, the best partner in crime.

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TABLE OF CONTENTS

CHAPTER ONE

PUBLIC EDUCATION IN THE POSTHUMAN AGE

"The machine itself makes no demands and holds out no promises: it is the human spirit that makes demands and keeps promises."[1]

The Problem

While human beings have long since created technologies that have allowed us to intervene in and manipulate our environment, it is evident that technological "advancements"[2] of recent decades are distinct from the sharpened stick, the wheel, or even the printing press. While "simple machines" comprise the mechanical foundations that have made Western industrial society possible, many of the machines with which most people in the Western world interact on a daily basis are incredibly intricate and complex—some would argue even "intelligent."[3]

As Donna Haraway noted in her seminal piece "A Cyborg Manifesto," the relationship between human and machine is shifting. It still is. Since Haraway's groundbreaking 1991 essay, the boundaries separating human beings and technology have grown exponentially blurrier. "Smartphones" have replaced our brains in performing basic, everyday functions. Tasks such as simple math and everyday navigation, to the act of peering out the window to decide if one needs a raincoat, it seems clear that humans in the Western world have become intertwined with—and increasingly reliant on—machines in an unprecedented way. Many cultural theorists understand this shift in human subjectivity as the emergence of a "posthuman age." As N. Katherine Hayles

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[1] Lewis Mumford, *Technics and Civilization* (London: Routledge & Kegan Paul LTD, 1934), 6.
[2] Here, I utilize scare quotes to draw attention to the dominant discourse of technology that positions technology as inherently good. Phrases like "technological innovations," "technological advancements," and "technological progress" are commonplace. However, we seem to lack the language to describe changes in technology without positioning it as inherently ethical or positive—more on this in Chapter 2.
[3] Granting epistemic credit to machines, I later argue, is indicative of the culture of technophilia.

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notes, "[a]lthough the 'posthuman' differs in its articulations, a common theme is the union of

the human with the intelligent machine."[4] As early as 1977, Ihab Hassan argued:

> We need to first understand that the human form—including human desire and all its external representations—may be changing radically, and thus must be re-visioned. We need to understand that five hundred years of humanism may be coming to an end, as humanism transforms itself into something that we must helplessly call posthumanism.[5]

The alleged dawn of the posthuman era has been widely debated. While some scholars have

contested the historical and ontological validity of the posthuman era, debates surrounding the

normative implications for human life are more contentious.

Kim Toffoletti suggests that we might:

> [R]ead the 'post' prefix in the 'posthuman' as signaling something that comes after the human, but remains in a continuum of human existence and change. In this interpretation, the posthuman becomes part of the process of being human, which involves shaping and being shaped by our environments.[6]

Additionally, some feminist scholars have lauded the liberatory potentials of the posthuman era.

For example, Shannon C. Gleason advances the argument that posthumanity helps us to

challenge the Enlightenment view of human dominion over nature, "and the concept of an

essential, natural world."[7] Gleason embraces Haraway's cyborg—the union of human with

machine—citing "emancipatory potential" to turn away from "the tradition of racist, male-

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[4] N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999), 2. Here, I believe the term "intelligent" is up for debate.

[5] Ihab Hassan, "Prometheus and Performer: Toward a Posthumanist Culture?," *The Georgia Review* 31, no. 4 (Winter 1977): 830-850, 843.

[6] Kim Toffoletti, *Cyborgs and Barbie Dolls: Feminism, Popular Culture, and the Posthuman Body* (London: I.B. Tauris, 2007), 12.

[7] Shannon C. Gleason, "Don't Fear the Cyborg: Toward Embracing Posthuman and Feminist Cyborg Discourses in Teacher Education and Educational Technology Research," *Canadian Journal of Science, Mathematics and Technology Education* 14, no. 2 (2014): 120-134, 128.

dominant capitalism; the tradition of progress; the tradition of the appropriation of nature as a resource for the productions on culture."[8]

Others have approached the relationship between humans and machines with extreme skepticism. For example, in Martin Heidegger's 1955 essay, "The Question Concerning Technology," he argued that external forces such as technology would begin to compromise the free will of the human subject. Heidegger refers to this as *Gestell*, or "enframing," the process through which technology begins to define the parameters of human life.[9] Francis Fukuyama feared that this decentering of the subject would signal "the end of the human."[10] Specifically, Fukuyama is concerned with "advances" in biotechnology and the "possibility it will alter human nature."[11] Other scholars maintain that the term "posthuman" can refer to *anything* "which extends human capacity." Such a conception would qualify "something as ubiquitous, banal, and ancient as human tool-use"[12] part of the posthuman epoch.

While the normative debate surrounding the question of posthumanism continues, the notion that we have in fact entered an era we can characterize as the posthuman age seems less controversial as we consider the myriad ways in our daily lives in which we have become intertwined with technology. For example, in 2013, Americans age 18-34 were spending, on average, 4 hours per day on social networking platforms. Evidence indicates that this number is

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[8] Ibid., 130. I later argue to the contrary, that the posthuman era is in fact made possible through capitalism and the rhetoric of progress. Furthermore, I believe there is evidence to suggest that technology may actually support the Enlightenment project of the dominion of man over nature. To support this claim I will draw on C.A. Bowers, *Let Them Eat Data: How Computers Affect Education, Cultural Diversity, and the Prospects of Ecological Sustainability* (Athens: The University of Georgia Press, 2000).

[9] Martin Heidegger, "The Question Concerning Technology," in trans. William Lovitt, *The Question Concerning Technology and Other Essays* (New York: Harper & Row, 1977): 3-35.

[10] See Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (New York: Picador Publishing, 2002).

[11] Ibid., 7.

[12] Norah Campbell, Aidan O'Driscoll and Michael Saren, "The Posthuman: The End and Beginning of the Human" *Journal of Consumer Behavior* 10, no. 1 (2010): 86-101, 91. Similarly, arguments in educational circles often cite tools such as language and pencils as being early iterations of a posthuman era. I will argue later in this dissertation why such tools are categorically distinct from modern technologies.

higher just 3 years later. For example, teens now spend an average of 9 hours per day on social media. 60% of all of this social media use is mediated by a mobile device (read: "smart"phones). Currently, the average American will spend 5 years and 4 months of their lifetimes using social media.[13] To put this in perspective, in the time the average American will spend on social media, they would have been able to fly to the moon and back 32 times, walk the Great Wall of China 3.5 times, or climb Mt. Everest 32 times.[14]

Furthermore, Sherry Turkle's extensive research has shown that many people knowingly risk their personal safety to attend to technology. In an interview with an 18 year old male, he revealed that he frequently feels the need to check Facebook while driving. He admits, "I know I should [stop] but it's not going to happen. If I get a Facebook message or something posted on my wall…I have to see it. I have to."[15]

Additionally, humans in the Western world are now assisted by technologies on a regular basis in ways that interrupt our native capacities, changing the ways in which we understand and interact with our environment. For example, most people now use some form of GPS to navigate their way around in lieu of traditional maps. GPS, short for Global Positioning System, was originally intended only for military use. However, once the Reagan administration decided that GPS should be made available for civilian use, in 1989, it has steadily become a widely used technology.[16] This seemingly innocuous technology has attracted the attention of researchers in recent years. For example, studies indicate that a reliance on GPS diminishes our capacity to

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[13] Evan Asano, "How Much Time do People Spend on Social Media?" *Social Media Today* January, 2017 http://www.socialmediatoday.com/marketing/how-much-time-do-people-spend-social-media-infographic.
[14] Ibid.
[15] Sherry Turkle, *Alone Together: Why We Expect More from Technology and Less from Each Other* (New York: Basic Books, 2011), 171. This is just one example of the ways in which the addictive quality of technology has become apparent. I address concerns surrounding technology and addictive behaviors in greater detail in Chapter 3.
[16] See Carolyn Rice, "GPS: From Launch to Everyday Life" *BBC News* (February 2014). http://www.bbc.com/news/technology-26153506.

perform the cognitive work of "mental mapping" which is essential for flexible problem solving.[17] As Leon Neyfakh notes, this means that with GPS "when we do mess up…we're never pushed to do the difficult work of recalculating for ourselves."[18] Stefan Munzer notes that GPS is an "egocentric" technology. A GPS device "is constantly reorienting itself to put the user in the center of the universe," resulting in a decreased ability to remember routes or flexibly navigate a route in the future.[19] Persistent use of technologies such as GPS reorient the way we understand our surroundings and our ability to navigate and problem solve.

The increasing popularity of wearable technology also seems to signify the emersion of the posthuman age; we are not only reliant on technology to perform routine tasks, we are often physically intertwined with machines. The Fitbit is one such example. The California-based company went to market in 2009 with its first device, the Fitbit Classic, which then kept track of steps taken, distances walked, and calories burned. Now, however, according to the Fitbit website, "Fitbit tracks every part of your day—including exercise, food, weight and sleep—to help you find your fit, stay motivated, and see how small steps make a big impact."[20] The notion that we would need a wearable device to let us know how well we have slept or if we need more caloric intake signals a fundamental shift even in the ways we experience our bodies. The technology utilized by biometric tracking devices like the Fitbit has already made its way into public education, and was among the concerns of teachers in West Virginia during their highly publicized strike earlier this year. In 2017, the Public Employees Insurance Board of West Virginia implemented Go365, an internet-based application that, using biometric tracking

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[17] See Leon Neyfakh, "Do Our Brains Pay a Price for GPS? How a Useful Technology Interferes With Our 'Mental Mapping'" *The Boston Globe* (August 2013) https://www.bostonglobe.com/ideas/2013/08/17/our-brains-pay-price-for-gps/d2Tnvo4hiWjuybid5UhQVO/story.html.
[18] Ibid.
[19] Ibid.
[20] See "Meet Fitbit" https://www.fitbit.com/whyfitbit. In Chapter 3, I argue that such technology contributes to the culture of technophilia through the "gamification" of everyday human activities.

technology, monitored teachers'—among other state employees—activity in order to determine their health insurance rates.[21]

As evidenced by the use of biometric technology to track teachers' activity levels to inform their health insurance costs, education exists within, not outside of, this broader context of an era characterized by an increased reliance on technology. As such, education and educational policy has been thrust into the posthuman age. Despite ongoing claims that education is trapped in a bygone era resistant to innovation, educational practitioners, scholars, and policy makers have been enthusiastic about infusing technology into the everyday lives of children in schools. From the widely criticized Channel One,[22] to the present app-ification of teaching through the use of online applications such as ClassDojo, Duolingo, Socrative, and EdModo, and the widespread implementation of Learning Management Systems (LMS) in higher education that provide platforms for online instruction, technology has been embraced at every level of the American educational process. Larry Cuban recognized this paradox as early as 1986 when he observed, "[f]ads, like changing dress hemlines and suit lapels, have entered and exited schools, yet these very same schools have been the targets of persistent criticism over their rigidity and resistance to reform."[23]

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[21] Jane McAlevey, "The West Virginia Teachers Strike Shows That Winning Big Requires Creating a Crisis," *The Nation* (March 11, 2018). https://www.thenation.com/article/the-west-virginia-teachers-strike-shows-that-winning-big-requires-creating-a-crisis/.

[22] See, for example, Alex Molnar, *Giving Kids the Business: The Commercialization of America's Schools* (Boulder, CO: Westview Press, 1996), 18-19; and Dennis Attick, "Consumption Is the Message: Television Advertising and Adolescents," in Deron Boyles Ed., *The Corporate Assault on Youth: Commercialism, Exploitation, and the End of Innocence* (New York: Peter Lang, 2008), 53-58.

[23] Larry Cuban, *Teachers and Machines: The Classroom Use of Technology Since 1920* (New York: Teachers College Press, 1986), 5.

As Li, et al., note, "[t]echnology access in classrooms has been steadily growing in the last two decades and education is experiencing an increase in classroom technology demands."[24] Despite this dramatic uptick in the presence of technology in schools—sometimes with technology subsuming school itself as in the case of cyberschools or virtual schools[25]—little attention has been devoted to understanding how this constant exposure to technology is altering the way students learn and experience the world. Although it is unsurprising that education has been confronted with the task of navigating the new technological reality that characterizes the posthuman age, it *should be* surprising that there is a dearth of normative discussions surrounding the priority that technology should have in public schools. Overall, educational scholars and practitioners debate *how*, not *whether*, to incorporate the latest technology into schools. On the contrary, the field of education widely regards technology as inherently beneficial for students, teachers, and pedagogical practice. Remaining absent from the dominant discourse surrounding technology in schools are critical examinations of how modern technologies impact human subjectivity, the ways schools should address these changes, and how the influx of technology in schools is the direct result of corporate influence, undermining the professional and intellectual autonomy of teachers, as well as exploiting captive markets. This dissertation confronts what I take to be a central problem facing the American educational system: the need to critically examine the relationship between education and technology.

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[24] Lan Li, Eric Worch, YuChun Zhou, and Rhonda Aguiton, "How and Why Digital Generation Teachers Use Technology in the Classroom: An Explanatory Sequential Mixed Methods Study," *International Journal for the Scholarship of Teaching and Learning* 9, no. 2 (2015), 1.

[25] See Gary Miron and Charisse Gulosino, "Virtual Schools Report 2016," *National Education Policy Center* (2016): 1-38. http://nepc.colorado.edu/publication/virtual-schools-annual-2017.

Technology v. Technophilia

      While I argue throughout this dissertation for the need to approach technology in education with caution and skepticism, my critique will be primarily concerned with what I take to be "technophilia" in education. Emerging in the 1960s, the term technophilia "refers generally to the enthusiasm generated by the use of technology…it is expressed by easily adapting to the social changes brought by technological innovations."[26] The term is used to "highlight how technology can evoke strong futuristic positive feelings."[27] In other words, technophilia is a world-view that sees all new technology as inherently positive and beneficial to human life. The language we use to describe technology is indicative that we live in a time of technophilia. Phrases like "technological advancements" or "technological progress" are commonplace; we seem to lack the language to describe changes in technology that do not imply that they are inherently beneficial. Additionally, deeming devices with the capacity to connect to the Internet as "smart" (e.g. "smartphones," "smart televisions," etc.), rhetorically reinscribes an ideology of technophilia while granting epistemic credit to inanimate devices. I argue that education and educational policy have been afflicted by a creeping technophilia, particularly in the last decade.

      This phenomenon can be traced to several converging trends in education. First, the hegemonic discourse of "innovation" that has engulfed educational policy in recent years rhetorically justifies the constant and often uncritical adaptation of new technologies. Regardless of whether or not a particular technology supports and improves the educational process, technology itself is widely seen as inherently innovative, and therefore beneficial, even when it creates more problems than it solves, or distracts from, rather than supports, the teaching and

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[26] Maria-Elena Osiceanu, "Psychological Implications of Modern Technologies: 'Technofobia' versus 'Technophilia,'" *Procedia-Social and Behavioral Sciences* 180, no. 1 (2015): 1138.
[27] Ibid., 1138.

learning process. For example, a "Smart" board is viewed as inherently superior even when it is being used in a way that is functionally equivalent to a whiteboard, and before that, the now extinct chalkboard. With the average "Smart" board costing over $4,000, the price of innovation is quite expensive.[28] However, in the technological realm of planned obsolescence, even the "Smart" board is quickly becoming a technology of the past. For example, in 2017, the Charleston County School district replaced all "Smart" boards in their district with "Promethean ActivPanels." Outfitting the entire district with the new 70 inch "wall tablets," as one teacher described them, will cost Charleston County schools $14 million over the next six years. The district spent $30 million to install the Smart boards—since replaced with the new technology—between 2008 and 2010.[29] The willingness of a school district to spend $44 million on one *piece* of technology, not on an entire technology budget, in less than a decade highlights the pressure schools are under to be "innovative." The pressure to be constantly innovative, a hallmark of technophilia, detracts from the autonomy of educators to decide *when*, *if*, or *how* to incorporate a particular technology. This is frequently exacerbated by administrative climates that require teachers to use a technology once it has been purchased, regardless of whether or not they find it supportive of their pedagogical practice.

Additionally, education scholars and practitioners are often seduced into finding "what works." Propagated by education technology companies that stand to benefit from packaging and selling devices uploaded with standardized materials, the myth that there are universal tools and pedagogies that should be used in all settings supports an increased reliance on technology and

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[28] See Sam Weber, "Do SMART Boards Make For Smart Students?," *PBS* (December 14, 2010). http://www.pbs.org/wnet/need-to-know/video/do-smart-boards-make-for-smart-students/5743/.

[29] Paul Bowers, "Charlestown County Schools Replacing All SMART Boards with Next-Gen Promethean Panels," *The Post and Courier* (October 11, 2017). https://www.postandcourier.com/news/charleston-county-schools-replacing-all-smart-boards-with-next-gen/article_41822c86-aadc-11e7-a0a5-9f2b4696bbcd.html.

reifies the narrative that knowledge is a commodity that can be standardized and delivered. Furthermore, "what works" frequently refers to "classroom management" strategies that utilize technology as a means of social control and surveillance. These technologies may be effective at maintaining order in the classroom, like the app ClassDojo,[30] but do not support critical inquiry. Furthermore, the current educational "audit culture"[31] characterized by a myopic focus on accountability and efficiency lends itself to the data-fication of the schooling process via technology. Such data-mining can then be used for purposes such as targeted advertising, as evidenced by Google's entanglement in a student privacy lawsuit in 2014.[32]

"Technology" is not a monolithic concept. Technologies are ever changing and serve a growing array of purposes. I recognize that much technology is positive, ethical, and can serve as a vital tool for human survival. Technology has improved human lives across a variety of areas such as medicine, transportation, and even access to clean drinking water. Indeed, Neil Postman points out that "a wise man…must begin his critique of technology by acknowledging its successes."[33] Technology makes modern human life possible, and I am not advocating for a return to a time before modern medicine or air travel. On the other hand, biotechnologies such as biometric bracelets that measure student "engagement," or technologies of warfare such as drones frequently outpace ethical and philosophical considerations of the implications of unfettered technological "advancements." For example, professors at Stanford University are in the process of developing a computer science ethics course for next year. The goal is to "train the

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[30] ClassDojo is a classroom management application that allows teachers to track and publicly display student behavior in the classroom, as well as share updates with parents in real time. See https://www.classdojo.com/#LearnMore

[31] See Michael Apple, *Educating the Right Way: Markets, Standards, God, and Inequality* (New York: Routledge, 2006), 96-104.

[32] Benjamin Herold, "Google Under Fire for Data Analysis of Student Emails," *Education Week* (March 2014): 22-24.

[33] Neil Postman, *Technopoly: The Surrender of Culture to Technology* (New York: Vintage Books, 1993), 7. I would expand Postman's astute analysis to include wise men *and women.*

next generation of technologists and policymakers to consider the ramifications of innovations—

like autonomous weapons or self-driving cars—before those products go on sale."[34] While the

development of a technology ethics course is vital at a time of rapidly changing technology, the

timing of the project indicates that ethical concerns have generally followed, not preceded, the

quest for "innovation." Furthermore, many technologies that have not undergone ethical or

philosophical consideration are already being widely used in public schools. This specific debate

lies outside the scope of this dissertation. My concern lies instead with the widely shared

assumption that the centrality of technology in human life is inevitable, and therefore beneficial,

and that more technology is always better all of the time. Specifically as it pertains to education,

the culture of technophilia has gone largely unquestioned. I argue throughout this dissertation

that the current landscape of educational policy and practice is characterized by a problematic

relationship with technology that rises to the level of technophilia, and therefore contend that a

reassessment of the relationship between education and technology is necessary in order to fulfill

the demands of a robust, democratic educational program.

The Neoliberal Restructuring of Public Education

Market-based solutions to complex human problems are a hallmark of the neoliberal era.

Discourse touting the "free market" as the panacea for public ills has seemingly won the day. As

Michael Apple has argued, "[t]he attacks on the very idea that something 'public' might actually

be valuable have intensified."[35] Additionally, Michael Fabricant and Michelle Fine claim that,

"[w]e are witnessing a strategic redefinition of democracy in which the free marketplace of

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[34] Natasha Singer, "On Campus, Computer Science Departments Find a Blind Spot: Ethics," *The New York Times* (February 13, 2018), B4.

[35] Michael W. Apple, *Educating the "Right" Way: Markets, Standards, God, and Inequality* (New York: Routledge, 2006), xiv.

goods and services is not merely a necessary prerequisite, but represented as the highest form of democracy."[36]

While the assault on all things public has heightened, particularly since the "Great Recession" which further destabilized faith in public institutions, education has felt this attack most acutely. Conceptualizing the teaching and learning process as a consumer transaction has been a feature of educational policy for the past several decades.[37] As Alex Molnar notes, "[c]ommercialism has already helped make the term *citizen* virtually synonymous with the term *consumer* and the possession of objects synonymous with happiness."[38] This reconstituting of citizenship in economic terms has been documented elsewhere. As David Harvey has argued, "[t]he conflation of political freedom with freedom of the market and trade has long been a cardinal feature of neo-liberal policy."[39]

In K-12 schooling, this has manifested in a myopic focus on standardization, measurement, and accountability where knowledge is viewed as something to be transferred, and teachers are understood as content deliverers. Such attempts to transform public schools into, as Steven C. Ward argues, "servants of the economy" have resulted in the reduction of the messy tasks of teaching and learning to a system of efficiency, accountability, and control.[40] Corporate logic is not exclusive to corporate models of schooling. On the contrary, neoliberal ideology pervades both the public and private spheres, evidenced by the fact that "efficiency"

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[36] Michael Fabricant and Michelle Fine, *Charter Schools and the Corporate Makeover of Public Education: What's at Stake?* (New York: Teachers College Press, 2012), ix.

[37] Some would argue that this trend can be traced to at least the early 1900s, and the rise of Taylorism in education. See Raymond Callahan, *Education and the Cult of Efficiency: A Study of the Social Forces That Have Shaped the Administration of Public Schools* (Chicago, IL: University of Chicago Press, 1962).

[38] Alex Molnar, *Giving Kids the Business: The Commercialization of America's Schools* (Boulder, CO: Westview Press, 1996), 68.

[39] David Harvey, *Spaces of Global Capitalism: Towards a Theory of Uneven Geographical Development* (New York: Verso, 2006), 11.

[40] Steven C. Ward, "From *E Pluribus Unum* to *Caveat Emptor:* How Neoliberal Policies are Capturing and Dismantling the Liberal University," *New Political Science* 36, no. 4 (2014): 459-473, 461.

and "accountability" are often taken for granted as universal virtues. In other words, while corporate school reform may be one piece of the landscape of educational policy, the *logic* of neoliberalism is seemingly ubiquitous. This infiltration of corporate logic into schools may be unsurprising if one considers how deeply embedded the spirit of consumerism has become in American society. Indeed, it may even be a logical extension of a society steeped in an ethos of corporate commercialism.

Wrestling education out of the public sphere and into the hands of corporate reformers in the name of "free choice" and "accountability" has fundamentally shifted the understanding of the role of public education in a democratic society. By making access to a quality education a matter of choice, neoliberal policy advocates can shift the responsibility away from the state and onto individual families. The more parents and students are understood as consumers, rather than students and citizens, the greater the success of the neoliberal school project.

The critique of the corporate takeover of schools is not to imply that public education and education policy have been without issues. Indeed, a common rhetorical strategy by corporate reformers has been to cast their critics as defenders of the "status quo." Unequitable funding, a dearth of culturally responsive curricula, and a homogenous teaching force that does not represent the United States student population are among some of the issues that have plagued public schools for years. Part of the strategy behind the neoliberal restructuring of public education, however, has been to frame the issue with schools as the lack of competition and accountability. Scholars have referred to this process as "creative destruction" or "churn."[41] By

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[41] The term "creative destruction" was first used by Joseph Schumpeter, but has been taken up by many contemporary scholars of education policy. See Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy* 3rd edition (New York: HarperPerennial, 2008).

casting public schools as continually "failing" and "in crisis"[42] neoliberal reformers have been able to define both the problem *and* the solutions for public school policy. The neoliberal restructuring of public education has laid the groundwork for the *technological* restructuring of public education, as technology becomes a central mechanism through which neoliberal reform is made possible. I discuss the technological restructuring of public education at greater length in Chapter 2.

The Technological Restructuring of the Human Subject

Not intending to create hyperbole, Postman argues, "the accusation can be made that the uncontrolled growth of technology destroys the vital sources of our humanity."[43] In light of the increasing ubiquity of technology in our everyday lives, it is uncontroversial to suggest that technology is altering human life in new, and often unforeseen ways. Because education is a fundamentally human endeavor, education scholars and practitioners must contend with the ways in which technology is influencing the ontology of the human subject. What it means to know, to relate to others and oneself, and even to come of age are all rapidly changing in light of ongoing changes in technology. Despite the shifting nature of human experiences in the digital age, educators and policy makers have yet to seriously consider the effects of technology on teaching and learning. Quite to the contrary, and despite ongoing rhetoric surrounding the stubbornness of education as an institution, schools have actively and uncritically embraced the infusion of technology into more and more aspects of the schooling process.

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[42] Naomi Klein has written extensively on the manipulation of crisis to advance neoliberal agendas. See, for example, Naomi Klein, "The Rise of Disaster Capitalism," *The Nation* (May 2005) https://www.thenation.com/article/rise-disaster-capitalism/.
[43] Postman, Technopoly, xii.

For example, in 2001, Marc Prensky coined the term "digital native."[44] He argues, "[t]odays students are *no longer the people* our educational system was designed to teach."[45] This claim is wholly radical, largely unsupported, and yet widely accepted.[46] To the contrary, evidence shows a greater correlation between income, rather than age, and technological adeptness.[47] The notion that our younger generation is akin to a different species should give educators pause. While there *is* ample research in the area of neuroplasticity, for example, which strongly suggests that constant and ongoing exposure to screen time negatively affects things like attention span and reading comprehension,[48] these are the detrimental results of unrestricted exposure to technology that ought to be challenged, not uncritically embraced. The concept of the "digital native," however, is reflected in both education policy and practice that assumes that technology is necessary for educating the current generation of students. In this way, the technological restructuring of the human subject is not a natural, teleological process but instead the direct result of increased exposure to, and reliance on, machines. The lack of widespread critique of the validity of the "digital native" generation offers little by way of normative considerations and instead supports the project of technophilia in education.

Critical Pedagogy in the Digital Age

Public schools are microcosms of the broader U.S. society. While schools are frequently scapegoated for social problems such as poverty and income inequality, and are charged both discursively and through policy initiatives with the task of addressing social ills, they are largely

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[44] Marc Prentsky, "Digital Natives, Digital Immigrants," *On the Horizon* 9, no. 5 (October 2001), 1.
[45] Ibid. Emphasis added.
[46] See, for example, Paul A. Kirschner and Pedro De Bruyckere, "The Myths of the Digital Native and the Multitasker," *Teaching and Teacher Education* 67, no. 1 (2017): 135-142.
[47] See Eszter Hargittai, "Digital Na(t)ives? Variation in Internet Skills and Uses Among Members of the 'Net Generation,'" *Sociological Inquiry* 80, no. 1 (February 2010): 92-113.
[48] See, for example, Torkel Klingberg, *The Overflowing Brain: Information Overload and the Limits of Working Memory*, trans. Neil Betteridge (Oxford: Oxford University Press, 2009), 36.

sites of social reproduction. This has become most apparent through the ways in which schools have become directed at serving the needs of the economy and private interests, rather than as democratic sites of student-centered inquiry.

Furthermore, public education has historically been a reactionary institution, adhering more to the whims of public opinion and trends rather than a field characterized by intellectual and professional autonomy. For scholars and educators working in the tradition of critical pedagogy, in particular, schools functioning as sites of social reproduction, rather than sites of social change, pose a significant challenge.

As Richard Quantz notes, "[w]hile social reconstructionists have developed into many different strands of educational thought, today this philosophy is best represented by a school of philosophy referred to as critical pedagogy."[49] With intellectual roots in social reconstructionism, "[c]ritical pedagogy is an educational philosophy that chooses to work for change."[50] The notion of radical humanization—both of oneself and others—lies at the heart of critical pedagogy. Indeed, Paulo Freire devotes a significant portion of Chapter 1 of *Pedagogy of the Oppressed* to outlining his theory of humanization. He contrasts humanization with humanitarianism—doing *with* rather than *for* others—while also drawing on Martin Buber's notion of I/Thou as he calls for the subject-ification (rather than objectification) of others. Freire calls for a pedagogy "forged *with* not *for* …individuals or peoples in the incessant struggle to regain their humanity."[51] Here, Freire *begins with the assumption* that something about our humanity has been lost, and that the central objective of problem posing pedagogy is to *regain* that humanity as we pursue radical liberation.

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[49] Richard A. Quantz, *Sociocultural Studies in Education: Critical Thinking for Democracy* (Boulder: Paradigm Publishers, 2015), 99.
[50] Ibid.,100.
[51] Paulo Freire, *Pedagogy of the Oppressed,* 48.

Although critical pedagogy has been the object of ongoing critique,[52] it remains a vibrant tradition for scholars and educators seeking social change. However, as people in the Western world move into an age many characterize as "posthuman," the centrality of the concept of "humanity" as it is understood in the tradition of critical pedagogy must be reexamined. While many argue that in the posthuman era, technologies allow us to augment our humanity, I argue that there is also reason to suspect that our humanity has become degraded. The ontology of the human subject is shifting as we interact with technology, curate online identities, and communicate with others via social media and other technological platforms. In some ways, technology affords us the opportunity to become extended. We can instantaneously access information, or communicate with loved ones across the globe. In other ways, human experiences are truncated. Interacting with someone via social media instead of IRL (in real life), for example, can often minimize empathy for others' viewpoints. If we are indeed in a posthuman era characterized by a shift in human ontology and subjectivity, critical pedagogy must conceptualize what it means to be human in a posthuman age.

The more students and teachers grow accustomed to technologically-mediated social relations, the greater the demand on those working in the tradition of critical pedagogy to explore the effects technology has on the ability of educators to foster authentic dialogue and student agency. For example, with the proliferation of social media our students, particularly at the university level, spend more time engaging in asynchronous, technologically mediated "conversations" than ever before. The often uncritical "sharing" of news articles without regard to validity or authenticity, as well as the ways in which sites like Facebook tailor news based on users' previous "likes" contributes to dialogic echo-chambers where users are more likely to be

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[52] See, for example, Elizabeth Ellsworth, "Why Doesn't This Feel Empowering?" *Harvard Education Review* 53, no. 9 (1989): 297-324.

exposed only to content that reflects their own beliefs.[53] Some have theorized that social media is a type of collective cognition that democratizes the production and consumption of knowledge. Others have credited social media as having emancipatory powers, with its ability to enable various types of activism and protest, such as the role Twitter played in the Occupy Wall Street Movement and the protests surrounding the Dakota Access Pipeline. Critics, however, contend that social media contributes to solitude by creating only an illusion of companionship and dialogue. While social media is not itself a particularly new phenomenon—social networking sites such as "Classmates" and "Sixdegrees" emerged in the 1990s—the ubiquity of social media and the use of online platforms for political and social engagement is at an all-time high. This may be most apparent in the role that Twitter played in the recent Presidential election, and the role social media continues to play in post-election backlash and ongoing political discourse.

Furthermore, I argue that these changes cannot be understood outside of the context of global capital. If critical pedagogues are to take seriously the task of educating toward a more socially just society, then we must confront the current educational paradigm that regards technology as neutral, apolitical, or even inherently beneficial for teachers and students. A central purpose of this dissertation is to confront the assumption that the posthuman age is part of a teleological progression of humankind. Rather, I argue that the posthuman era is epiphenomenal of economic forces. In other words, consumeristic demand is a central impetus for the creation of new technologies; what may appear to be the "natural" march of "progress" of technology is deeply intertwined with the market. Consequently, I argue that educational technology is neither neutral nor an inherently positive tool; educational scholars must reassess

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[53] See, for example, Eli Pariser, *The Filter Bubble: How the New Personalized Web is Changing What We Read and How We Think* (New York: Penguin Books, 2011).

their position on technology and how it is employed in schools and universities in order to fulfill

the demands of critical pedagogy. Put differently, I argue that technology is another system of

power—similar to race, class, gender, etc.—that must be taken up as part of a robust project of

critical pedagogy. In Chapter 4, I turn to the tradition of critical pedagogy to argue that the

project of humanization takes on new meaning in the digital age.

Research Questions

1. What is the relationship between corporate school reform and educational technology?
2. How are the goals of critical pedagogy, specifically that of humanization and dialogue impacted by technology in the posthuman era?
3. In what ways does technology impact the intellectual autonomy of educators?
4. How does technology function as a system of control?

Significance of the Study

Presently, technology has come to dominate nearly all aspects of K-12 public schools, as

well as higher education. For example, the United States now provides one computer for every 5

students, and public schools currently spend $3billion each year for digital content.[54]

Additionally, since the 2015-2016 academic year, more standardized tests are administered

through technology than are given on paper. Since the advent of "big data," student information

is often tracked throughout their entire education, promising "teachers and learners a new era of

personalized instruction, responsive formative assessment, actively engaged pedagogy, and

collaborative learning."[55] In recent years, this rise in big data has even caused an entirely new

field, "education data science" to emerge. Furthermore, by the year 2011, 32 percent of college

students were enrolled in at least one online class, and by 2012, more than 6.7 million college

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[54] Benjamin Herold, "Technology in Education: An Overview" *Education Week* (May 2017). http://www.edweek.org/ew/issues/technology-in-education/.
[55] Bill Cope and Mary Kalantzis, "Big Data Comes to School: Implications for Learning, Assessment, and Research," *AERA Open* 2, no. 1 (April/June 2016): 1-19, 1.

students nationwide were enrolled in "traditional, credit-bearing online courses."[56] These

numbers have since increased, as universities continue to incentivize the creation of fully online

and hybrid courses among faculty.

Recently, the *Silicon Valley Business Journal* projected that spending on "educational"

technology would reach $13.7 billion by the end of 2017.[57] Educational technology, commonly

referred to as "EdTech" is defined by the Association for Educational Communications and

Technology (AECT) as "the study and ethical practice of facilitating learning and improving

performance by creating, using, and managing appropriate technological processes and

resources."[58] Educational technology is highly varied, and includes a wide range of type of

technologies, as well as their degree of infiltration into the educational process—everything from

"Smart" boards in classrooms to fully online K-12 schools fall into the category of EdTech.

However, as Randall Nichols and Vanessa Allen-Brown note, educational technology also

"includes the ways in which technology gets into learning and schooling without anyone taking

much formal notice."[59]

Despite being such a quickly accelerating sector of both the domestic and international

economies, as well as a central pillar of educational policy and practice, educational technology

has remained largely under-criticized. By providing several key examples of what I argue is the

technocratization and mechanization of education through technology, I also highlight the

significance of the present study. Specifically, I argue that the creation and adoption of new

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[56] Peter Shea, "A National Study of Differences Between Online and Classroom-Only Community College Students in Time to First Associate Degree Attainment, Transfer, and Dropout," *Online Learning* 20, no. 3 (September 2016):14-15, 15.

[57] Kenneth Saltman, *Scripted Bodies: Corporate Power, Smart Technologies, and the Undoing of Public Education* (New York: Routledge, 2017), 78.

[58] See Rhonda Robinson, Michael Molenda, and Landra Rezabek "Facilitating Learning" *Association for Educational Communications and Technology* (March 2016): 1-34.

[59] Randall G. Nichols and Vanessa Allen-Brown, "Critical Theory and Educational Technology."

technologies far outpaces their critique. Drawing on examples such as the predatory practices of

EdTech companies, the nearly ubiquitous adoption of Learning Management Systems (LMS) in

higher education, and the emergence of fully online K-12 "cyber schools," or "virtual schools" I

argue that technology serves as a central pillar of the neoliberal educational agenda.

The active embrace of technology is not entirely the result of choices made autonomously

by educational experts; on the contrary, cash-strapped schools often accept "philanthropic

donations" in the form of technology and other media. Ironically, however, as Kenneth Saltman

notes, "[o]nce the technology is in the classroom, the public is beholden to it…educational

spending gets channeled toward acquiring, maintaining, and upgrading not only the hardware but

also the software."[60] Bill Gates, who bankrolled the development and implementation of the

Common Core Standards to the tune of millions of dollars has argued that "one of the benefits of

the common standards would be to open the classroom to digital learning, making it easier for

software developers…to develop new products for the country's 15,000 school districts."[61]

Furthermore, in February 2016 Microsoft teamed up with Pearson to upload Pearson's Common

Core materials onto the Surface, Microsoft's feature tablet—allowing Microsoft to compete with

Apple's iPad, the leading tablet used in classrooms. However, as Saltman notes, "[t]he growing

convergence of the education and media sectors must be understood more centrally as the

consequence of corporate consolidation and monopolistic tendencies endemic to contemporary

capitalism."[62] These technology monopolies, rely on the disinvestment in public schools to

capitalize on captive markets through the planned obsolescence of the technologies they sell to

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[60] Kenneth Saltman, "Corporate Schooling Meets Corporate Media: Standards, Testing, and Technophilia" *Review of Education, Pedagogy, and Cultural Studies* 38, no. 1 (April 2016): 105-123, 118.
[61] Lyndsey Layton, "How Bill Gates Pulled Off the Swift Common Core Revolution" *The Washington Post* (June 2014). https://www.washingtonpost.com/politics/how-bill-gates-pulled-off-the-swift-common-core-revolution/2014/06/07/a830e32e-ec34-11e3-9f5c-9075d.
[62] Saltman, "Corporate Schooling," 107.

schools.[63] Such technophilia is discursively justified under the auspices of innovation and efficiency.

Another way we have observed the technocratization of teaching and learning through technology is with the use of Learning Management Systems (LMS).[64] Some of the most popular LMS adopted by universities are Blackboard, Moodle, Sakai, Lore, and iCollege.[65] This "e-learning" or "web-based learning" is "defined as the delivery of education in a flexible and easy way through the use of the internet to support individual learning or organizational performance goals."[66] Supporters of e-learning claim that "by eliminating the barriers of time and distance, individuals can now take charge of their own lifelong learning."[67] Furthermore, "Learning Management Systems represent an evolution from the processes and systems developed by certain institutions to register students on specific courses and keep records of students' activities."[68]

I argue in this dissertation that the neoliberal turn of the university has largely been made possible with technology. As early as the 1990s, scholars and academics had growing suspicions of the role of technology in advancing the neoliberal agenda in the university. For example, in 1998 David Noble warned that technology such as CD ROMS and websites would result in the

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[63] Planned obsolescence is the business practice of deliberately outdating an item to force consumers into purchasing upgraded versions of devices or software.

[64] Drawing on the work of George Ritzer, some scholars have argued that such trends represent the "McDonaldization" of the university. See George Ritzer, *The McDonaldization of Society* (New York: SAGE, 2007); Andrew Nadolny and Suzanne Ryan, "McUniversities Revisited: A Comparison of University and McDonald's Casual Employee Experiences in Australia," *Studies in Higher Education* 40, no. 1 (2015); and Dennis Hayes and Robin Wynyward, *The McDonaldization of Higher Education* (New York: Praeger, 2002).

[65] Shehryar Nabi, "7 Blackboard Competitors With Online Learning Solutions," *Education Dive* (January 2012). http://www.educationdive.com/news/7-blackboard-competitors-with-online-learning-solutions/35847/.

[66] Tagreed, Kattoua, Musa Al-Lozi, and Ala'adin Alrowwad, "A Review of Literature on E-Learning Systems in Higher Education," *International Journal of Business Management and Economic Research* 7, no. 5 (2016): 748-762, 754.

[67] Kattoua, et al., "A Review of the Literature," 755.

[68] N.N.M. Kasim, F. Khalid, "Choosing the Right Learning Management System (LMS) for the Higher Education Institution Context: A Systematic Review," *International Journal of Emerging Technologies in Learning* 11, no. 6 (Fall 2016): 55-61, 55.

commodification of classroom teaching, as lessons could be transformed into marketable goods.[69] He noted, "[w]ith the commodization of instruction, this transformation of academia is now reaching the breaking point."[70] Nearly twenty years after Noble's assertion, technology is no longer merely encroaching into university life—*technology itself now makes university life possible.* Online platforms such as "Blackboard" and "iCollege" are now the portals through which nearly every university student manages all aspects of student life. The introduction of such technology allows for greater convenience in tasks such as registering for classes or obtaining financial aid, and this technological infrastructure at face value seems relatively benign. However, concern should arise when such technology no longer just *assists* university life, but subsumes it. Here, I am specifically concerned with the trend away from "brick and mortar" classrooms toward fully online instruction. While some have argued that online instruction democratizes higher learning by offering increased access to degree granting institutions, I believe that the proliferation of online learning is an instrument of the rationalization of the university.[71] In other words, the trend toward online instruction cannot support the democratization of education, as argued by Larreamendy-Joerns and Leinhardt, as it supports the mechanization, technocratization, and rationalization of teaching and learning. As Noble argued, "this new commercial ethos has irreversibly corrupted the university as a site of reliably independent thought and disinterested inquiry, placing in jeopardy a precious and irreplaceable public resource."[72] The school, and subsequently the university, as Alasdair

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[69] David Noble, *Digital Diploma Mills: The Automation of Higher Education* (New York: Monthly Review Press, 2001), 8-11.

[70] Ibid.,10.

[71] See, for example, Jorge Larreamendy-Joerns and Gaea Leinhardt, "Going the Distance With Online Education," *Review of Educational Research* 76, no. 4 (December 2006): 567-605.

[72] Noble, *Digital Diploma Mills*, 10.

MacIntyre has noted, is now hegemonically conceived of as "an input-output machine."[73]As Schram notes, we are observing a period where "US institutions of higher learning are now prioritizing cost-efficiency in the provision of education as a commodity at the expense of promoting the liberal learning essential to fostering a democratic citizenry."[74]

Colleges of Education nationwide are embracing the model of online instruction, offering an increasing number of courses online, even those that would seemingly require face-to-face interaction such as multicultural education courses. Aside from the vast array of online universities such as Capella University and Kaplan University where customers can receive a fully online teaching degree, online courses are increasingly commonplace even in the most reputable teaching programs. Online courses reinforce the idea that knowledge is a deliverable commodity as research and assessments regarding the quality of online instruction is often focused on student satisfaction, rather than the quality of the educational experience.[75]

The effort to increase efficiency and cost-cutting may be most apparent in the explosion of fully online K-12 schools, or "cyberschools" where technology is not just part of the educational process, but completely subsumes it. Recent studies of cyber schools conducted in Ohio, Colorado, South Carolina, Pennsylvania, and Tennessee indicate that such schools fare abysmally when compared to traditional schools.[76] Despite such miserable outcomes for students, K12 Inc. reported a revenue of $848 million in 2013.[77] The emergence of the cyber

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[73] Alasdair MacIntyre and Joseph Dunne, "Alasdair Macintyre on Education: In Dialogue with Joseph Dunne," in *Education and Practice: Upholding the Integrity of Teaching and Learning*, ed. Joseph Dunne and Pádraig Hogan (Malden, MA: Blackwell, 2004), 3.

[74] MacInture and Dunne, 3.

[75] See, for example, Yu-Chun Kuo, Andrew E. Walker, Kerstein E.E. Schroder, and Brian R. Belland, "Interaction, Internet Self-Efficacy, and Self-Regulated Learning as Predictors of Student Satisfaction in Online Education Courses" *The Internet and Higher Education* 20, no. 1 (January 2014): 35-50.

[76] Stephanie Simon, "Cyber Schools Flunk, Tax Money Flows" *Politico* (September 2013). http://www.politico.com/story/2013/09/cyber-schools-flunk-but-tax-money-keeps-flowing-097375.

[77] Ibid.

school seems to be a *reductio ad absurdum* of the EdTech industry's own making, revealing the true goal of educational technology: to fully replace teacher labor, not merely provide supportive "tools." Here, technology potentially provides the logical conclusion to the austerity policies that have dominated educational policy, particularly in the last decade—to completely eliminate teacher labor.

Despite the dominant discourse that positions technology as always and inherently beneficial to the teaching and learning process, I argue that such rhetoric is belied by the justification of educational technology with the logic that it will support the next generation of workers.[78] For example, "[t]he International Society for Technology in Education was founded on the principle of preparing students to compete in a technology-driven world by providing them with the skills to be technology literate."[79] Despite the push under the Common Core Standards to infuse more technology into lessons across the curriculum, many scholars lament that the CCSS does not go far enough in promoting "digital literacy" and other skills among students. [80] The American Library Association defines digital literacy as the "ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills."[81] Despite attempts by advocates of EdTech to frame access to technology as a social justice issue, as in the case of the discourse surrounding the "digital divide," it is clear that the ultimate goal is to groom students to function in a workforce that is heavily mediated by technology.

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[78] This is another example of the ways in which "education" and "job training" have become conflated.
[79] Charlyque Joy Harris, "The Effective Integration of Technology Into Schools' Curriculum," *Distance Learning* 13, no. 2 (April 2016): 27-37, 27-28.
[80] See, for example, Liana Heitin, "A Small Nod for Digital Skills," *Education Week* (November 2016): 13-17.
[81] Liana Heitin, "Digital Literacy: Forging Agreement on a Definition," *Education Week* (November 2016), 5.

Liana Heitin, for example, argues that digital literacy is necessary as the ways we "consume," "create," and "share" information continues to change. According to Donald Leu, simply having students read texts on digital devices such as a Kindle does not go far enough, as it too closely resembles reading print.[82] The point, for Leu, is for the digital texts to be interactive, similar to an online news article filled with hyperlinks and videos.

However, research shows that such multimedia interfaces actually diminish student comprehension as it fractures attention. For example, a study conducted by Jakob Nielsen in 2006 on the ways our eye movements change when we read online, as opposed to in traditional print, revealed that when reading text online most participants' eye movements tend to follow a pattern that resembles the letter "F." In other words, our eyes tend to only scan for information when reading text online. He found that on multimedia interfaces, like the ones recommended by Leu to enhance "digital literacy," people read on average only 18% of the verbiage. The findings of this study were confirmed the following year by research done at the Software Usability Research Laboratory at Wichita State University.[83] In a 2003 study of 113 "well-educated people," library science professor Ziming Liu found that 81% of participants report that they spend more time skimming and browsing when engaging with digital print. Liu notes, "the digital environment tends to encourage people to explore many topics extensively, but at a more superficial level…hyperlinks distract people from reading and thinking deeply."[84]

Despite evidence that indicates that technology is detrimental to sustained attention and deep inquiry, many students spend the majority of their days at school reading from and working

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[82] Ibid., 5.

[83] Sav Shrestha and Kelsi Lenz, "Eye Gaze Patterns While Searching vs. Browsing a Website," *Usability News* 9, no. 1 (January 2007): 1-10.

[84] See Ziming Liu, "Reading Behavior in the Digital Environment" *Journal of Documentation* 61, no. 6 (2005): 700-712.

with screens. Furthermore, arguments that position technology as a way to foster an increase in sustained learning are contradicted, a recent "best practice" called the "brain break" encourages teachers to use technology to *give students a break* from learning. One popular education blog notes, "[l]et's utilize the technology we have to give the kids a healthy dose of pop culture and silliness all into one. So, smack up one of these short clips on your SMART Board or Promethean Board and get to steppin'!"[85] Despite claims that infusing more technology into lessons will support higher-order thinking skills, research indicates that high levels of screen time dulls critical thinking, increases passivity, and prevents sustained attention. As Saltman argues, "[s]creens are highly effective at habituating children and adults to repose in a disposition for passive stimulated receptivity."[86]

Critical studies surrounding the ways technology affects the way we learn are ironically not coming from within education. On the contrary, education continues to embrace technology at every level while EdTech companies reap the financial benefits. Despite the growing body of research on the ways that technology has negative effects on the human brain and the cognitive and emotional consequences of high levels of exposure to technology, particularly on children, little attention has been paid to the potential negative consequences of technology in schools. On the contrary, the corporeal research that has been of the greatest interest to educational reformers is the research on the biometric measurement of student bodies. For example, in 2012 it was reported that the Bill and Melinda Gates Foundation commissioned a $1.4 million project aimed at studying students' physical reactions to lessons "by having students wear biometric bracelets

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[85] Teach, Train, Love, "20 Brain Break Clips: Fight the Fidgeting!" http://teachtrainlove.com/20-brain-break-clips-fight-the-fidgeting/.
[86] Saltman, *Scripted Bodies*, 65.

that run an electric current across the skin to measure changes in electrical charges"[87] in order to track emotional changes throughout a lesson to isolate "best practices" in teaching. Such research embodies—quite literally—the logical conclusion of the myopic focus on measurement that has characterized the last several decades of educational policy. Technology in this case is not used as a supplemental tool. Rather, it exerts bodily control on children, violating their physical privacy while undermining teacher autonomy by reducing the art of teaching to electric pulses.

While this may appear at first glance to be an extreme example of the role technology has come to play in schools, I argue that it belies a wider ideology that dominates the way we understand teaching and learning, and is indicative of the growing technophilia in education. If, at its core, education ought to be concerned with fundamental questions surrounding teaching and learning, then the current role of technology in education must be critically analyzed and confronted.

The Altar of Technology

Technophilia has firmly rooted itself in modern Western culture. Voices of dissent are frequently dismissed as Luddite naysayers, unwilling to adapt to the new technological reality. This widespread orientation towards technology has risen to a level of near religious fervor. Bathed in blue light[88], the technophiles embrace the creeping technological trance that so often characterizes life in the digital age.

The rate at which new technologies are created and embraced far outpaces critical considerations of their long term effects on human life. Technology has become synonymous

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[87] Ibid., 55.

[88] Blue light is the short wavelength light emitted from most electronic devices with screens. Research suggests that long term exposure to blue light can damage eyesight and interrupt the body's ability to produce key hormones such as melatonin. See, for example, Jan L. Souman, Angelica M. Tinga, Susan F. te Pas, Raymond Van Ee, and Bjorn Vlaskamp, "Acute Alerting Effects of Light: A Systematic Literature Review," *Behavioral Brain Research* 337, no. 1 (January 2018): 228-239.

with progress, and its infiltration into every aspect of our lives has gone largely unquestioned. The generation of students currently sitting in our public schools does not remember life before "smart" phones. They may never have to learn how to read a map, or ever have to memorize someone's phone number. It is not uncommon for toddlers to learn how to operate a "smart" phone or tablet before they learn how to speak. Strolling across a university campus, one is more likely to see zombified herds of undergraduate students staring at hand held screens rather than playing instruments, reading books, or directly sharing ideas.[89] This culture of technophilia has become normalized. The occasional Luddite-leaning family member may banish screens from the proverbial dinner table, but generally speaking, people in the Western world have come to uncritically accept the role that technology is made to play in their everyday lives.

The human experience is being fundamentally altered by these changes in technology. However, educational scholars and practitioners have yet to approach the unfettered embrace of technology in the lives of children with caution, or to take seriously the ways in which technology might impact what it means to be human. To the contrary, educators have embraced technology, even when the technology they advocate threatens to undermine their labor and intellectual autonomy. It seems many educators might be unknowingly sacrificing their own jobs on the altar of technology.[90]

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[89] Here, I do not intend to paint too idealistic of a picture of college campuses before the presence of constant, ambient technology. However, I do argue that the presence of such technology inhibits humanizing interactions. An online piece published in 2012 on the issue of phones on college campuses notes, "[o]n the quad, in class, at the dining hall—take a look around any of these campus haunts and you'll likely see students with their heads down, focused intently on their phones. Phones allow students to be constantly connected." My point is that students staring at their phones in crowded public spaces do not represent connection, but a degradation of humane interaction. See Mykel Nahorniak, "Mobile Media: How Do College Students Use Mobile Phones?," *Social Media Today* (July 6, 2012). https://www.socialmediatoday.com/content/mobile-media-how-do-college-students-use-mobile-phones.

[90] See, for example, Gordon Lafer, "What Happens When Your Teacher is a Video Game?," *The Nation* (October 13, 2014). https://www.thenation.com/article/what-happens-when-your-teacher-robot/.

The aspects of human life that are most affected by the rise of the constant, ambient presence of technology are deeply connected to some of the most fundamental questions concerning education, especially among those working in the tradition of critical pedagogy. What does it mean to engage in dialogue? (e.g. Is asynchronous posting the same as dialogue)?; Who, or what, has knowledge? (e.g. Is the human mind comparable to a computer hard drive)?; How do students develop social and political identities? (e.g. Does social media help or hinder healthy identity development)?; How do we foster agency through praxis? (e.g. Does Tweeting count as activism)?

Digital literacy has become more of a concern than literacy itself.[91] The idea of citizenship has expanded to include "digital citizenship."[92] Access to screens continues to be framed as a social justice issue. The possibilities for the surveillance of students and teachers are unprecedented. All the while, both national and local policy initiatives in "partnerships" with "educational technology" companies, continue to advance the narrative that all technology is inherently beneficial to the teaching and learning process. Philosophical, ethical, and educational questions are jettisoned in the interest of promoting a hegemonic culture of technophilia.

It is a commonplace view that the purpose of education is to prepare children to be well-adapted to the "real world" that lies beyond the school house walls. This accommodationist orientation toward the purpose of teaching and learning has supported the justification of

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[91] See, for example, Tyler H.J. Frank and Jill Castek, "From Digital Literacies to Digital Problem Solving: Expanding Technology-Rich Learning Opportunities for Adults," *Journal of Research & Practice for Adult Literacy* vol. 6, no. 2 (Summer 2017): 66-70; and Carolyn M. Cunningham, "Computers for Youth: Teaching Latino/a Youth Digital Literacy," *Texas Speech Communication Journal* 39, no. 1 (Fall 2015): 6-18.

[92] See, for example, Jane Kenway and Helen Nixon, "Cyberfeminisms, Cyberliteracies, and Educational Cyberspheres," *Educational Theory* 49, no. 4 (Fall 1999): 457-474; and Lisa M. Jones and Kimberly J. Mitchell, "Defining and Measuring Youth Digital Citizenship," *New Media & Society* 18, no. 9 (October 2016): 2063-2079; and Moonsun Choi, Michael Glassman, and Dean Cristol, "What it Means to be a Citizen in the Internet Age: Developing a Reliable and Valid Digital Citizenship Scale," *Computers & Education* 107, no. 1 (April 2017): 100-112.

pedagogical practices that support the status quo, and undermines the potential for liberatory teaching that imagines possible alternatives for living and being in the world. Preparing children for life under 21st century global capitalism has justified schooling practices that are both symbolically and materially violent.[93] Classroom management strategies reward docility in the face of authority, rather than cultivate agentive criticality. The "skills" children need to be prepared for the global economy are to tolerate unfulfilling work, to accept widening racial and socioeconomic inequality, and to navigate life in the age of the precariat where "advances" in technology are a constant threat to job security. Preparing students for this reality does little to change it.

Despite lip service paid by education policy makers to the democratic goals of public education, a candid examination reveals that schools prepare children for an unequal society. These issues are among those that I raise throughout this dissertation. Technophilia as a hegemonic ideology is totalizing in nature. Reminiscent of the many-headed Hydra of Greek mythology, the ideology of technophilia has nestled itself in nearly every aspect of education and education policy, both in K-12 and in the university. As such, my critique takes the form of a conceptual analysis. By providing illustrations from across the landscape of the field, I argue that technology is a central conduit through which the neoliberal restructuring of public education is made possible. Public schools are continuing to undergo a neoliberal, *technological* restructuring that undermines democratic ideals, reifies systems of power, privilege, and control, and benefits the neoliberal and corporate governance elite over teachers, students, and their communities. As Postman noted, "the benefits and deficits of a new technology are not distributed equally. There

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[93] Here, I am referring to Pierre Bourdieu's notion of "symbolic violence." See Pierre Bourdieu and Loic J. D. Waquant, *An Inivitation to Reflexive Sociology* (Chicago: University of Chicago Press, 1992).

are, as it were, winners and losers."[94] In the chapters that follow, I to return to this point in order

to highlight the beneficiaries of technophilia, and to underscore the consequences that emerge

when our schools kneel at the altar of technology.

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[94] Neil Postman, *Technopoly: The Surrender of Culture to Technology* (New York, Vintage Books, 1993), 9.

CHAPTER TWO

THE TECHNOLOGICAL RESTRUCTURING OF PUBLIC EDUCATION

"Innovation is moving at a scarily fast pace."
-Bill Gates

"Unless you are breaking stuff, you're not moving fast enough."
-Mark Zuckerberg

As discussed in Chapter One, the neoliberal restructuring of public education has been

widely documented. This neoliberal paradigm has firmly rooted itself in public education for at

least several decades. Both in K-12 and higher education, regimes of accountability and

surveillance through standardized testing and the data-fication of learning reframes knowledge as

a neutral, transferrable commodity. In this framework, students are consumers and teachers are

reduced to service providers. By successfully advancing the notion that public schools are part of

a broken, bureaucratic public sector relic impervious to reform, both neoliberals and

neoconservatives have been able to advocate for the privatization of public schools. While the

school choice movement has been the central reform agenda for the neoliberal restructuring and

takeover of public schools,[95]technology has proven to be a key mechanism by which such

restructuring is possible.

Although the explicit purpose of schools has been to prepare students for the workforce

since the early part of the 20th century,[96] the landscape of the 21st century global economy is

rapidly changing. Concerns among employers regarding the "digital literacy" of students as they

enter workplaces that demand more and more familiarity with technology abound. Before the

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[95] See, for example, Wayne Au and Joseph J. Ferrare, *Mapping Corporate Education Reform: Power and Policy Networks in the Neoliberal State* (New York: Routledge, 2015); and Kristen Buras, *Charter Schools, Race, and Urban Space: Where the Market Meets Grassroots Resistance* (New York, Routledge, 2015).
[96] See Raymond E. Callahan, *Education and the Cult of Efficiency: The Study of the Social Forces That Have Shaped the Administration of the Public Schools* (Chicago: The University of Chicago Press, 1962).

shift to the post-Fordist economy, the hegemonic understanding of the role of education in

society was for schools to produce the "knowledge and skills for the labor force but wrapped in

ideologies conducive for students to take their places in the work force."[97] However

problematically conceived, this remains true today. While the purpose of schools is still widely

assumed to be, both in educational policy and in general public perception,[98] the preparation of

the future workforce, the nature of the economic landscape has shifted dramatically. The

outsourcing of manufacturing jobs to cheaper, off-shore labor forces, de-unionization, wage

stagnation, and a shift toward a knowledge economy have contributed to an increasingly

precarious workforce.[99]

Due to this longstanding link between schools and the economy, business elites have long

influenced public school policy. What *has* changed, however, is that the business elites shaping

public education are increasingly members of the new technology elite. Members of the new

Silicon Valley "know-it-all" class, to use Noam Cohen's language,[100] continue to influence all

aspects of public policy. Likening this elite class of "techie" giants to the wizard from "The

Wizard of Oz," Cohen argues, "the self-proclaimed geniuses claiming to serve mankind who

dominate the digital economy are far more dangerous than the benevolent Wizard because of the

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[97] Kenneth J. Saltman, "Corporate Power and Corporeal Control: Aspirations for Agency and Democracy in the Era of Educational Repression," *Curriculum and Teaching Dialogue* 19, no. 1 & 2 (2017), xxxvi.

[98] These assumptions are codified in educational policies at the national and state levels, as well as embedded in the dominant rhetoric surrounding the purpose of public schools. See, for example, Achieve, "Closing the Expectations Gap: 2014 Annual Report on the Alignment of State K-12 Policies and Practice with the Demands of College and Careers," (January 2015).

[99] See, for example, Jean Anyon, *Radical Possibilities: Public Policy, Urban Education, and a New Social Movement* (New York: Routledge, 2014): 29-42.

[100] See Noam Cohen, *The Know-It-Alls: The Rise of Silicon Valley as a Political Powerhouse and Social Wrecking Ball* (New York: The New Press, 2017), 8.

overwhelming collateral damage wrought as these leaders pursue their dreams."[101] The ideology

of Silicon Valley, as Cohen argues, is met with general favorability among the public. He notes:

> To oppose Silicon Valley can appear to be opposing progress, even if that progress has been defined as online monopolies; propaganda that distorts elections; driverless cars and trucks that threaten to erase the jobs of millions of people; the Uberization of work life, where each of us must fend for ourselves in a pitiless market.[102]

It is unsurprising, then, that the new class of Silicon Valley elites have come to greatly influence

the technological restructuring of education and public school policy. Capitalizing on the

rhetorical groundwork already laid by school privatization reformers—that public school is an

immutable institution caught in a bygone era of antiquity—CEOs of companies like Facebook,

Google, Microsoft, and Apple position technology as innovation incarnate, and as a panacea for

the troubles facing schools. Although the corporate takeover of public schools has sometimes

been positioned as a conservative movement, Naomi Klein reminds us that both liberals *and*

conservatives have supported this type of "philanthrocapitalism."[103] She notes that, "elite liberals

have been looking to the billionaire class to solve the problems we used to address with

collective action and a strong public sector."[104] As public schools continue to be forced to

operate on austerity budgets,[105] the new technology elite is able to position themselves as

benevolent benefactors, allowing them to exert great influence over the direction of public

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[101] Noam Cohen, *The Know-It-Alls: The Rise of Silicon Valley as a Political Powerhouse and Social Wrecking Ball* (New York: The New Press, 2017), 10.
[102] Noam Cohen, "Silicon Valley Is Not Your Friend," *The New York Times* (October 13, 2017). https://www.nytimes.com/interactive/2017/10/13/opinion/sunday/Silicon-Valley-Is-Not-Your-Friend.html.
[103] Naomi Klein, *No is Not Enough: Resisting Trump's Shock Politics and Winning the World We Need* (Chicago, IL: Haymarket Books, 2017), 116.
[104] Ibid.
[105] The state of Georgia, for example, does not fund public schools adequately based on its own Quality of Basic Education (QBE) formula. See Greg Bluestein and Ty Tagami, "Georgia's Scorned School Formula Persist," *The Atlanta Journal Constitution* (January 19, 2018). https://www.myajc.com/news/state--regional-govt--politics/like-predecessors-deal-lets-georgia-scorned-school-formula-persist/xNUch5brGlK029OAuyYaBI/.

education. The influence of such companies extends from informing curriculum changes—such as the inclusion of coding in core classes—as well as the shift away from "brick and mortar" schools toward completely online, virtual schools. By offering technology as a technical solution to a complex, human problem, the technology governance elite is able to capitalize on public schools eager to find "what works."

A central promise of technology is that it will increase the efficiency of content delivery and improve the management of schools. Raymond Callahan explains that this has been a key concern for school administrators for over a century, since the application of Taylorism to public education.[106] Callahan notes that at an annual meeting of The Department of Superintendence in 1913 between superintendents and businessmen, the school administrators listened intently to the businessmen extol the virtues of scientific management in a way that suggested they were hoping "a prophet would appear to lead them out of the wilderness" and that they had been "advised, urged, and even warned by businessmen and by some of their leaders to use the new *panacea.*"[107] Since this time, the ideology of scientific management has remained a central tenet of public education. In this framework of neoliberal techno-rationality, technology presents itself as the ultimate panacea for solving the "problem" of schooling. The ideological thread running through the use of technology as a technical solution to a human problem is the culture of positivism. Taken for granted assumptions regarding the direction of public school reform—that schools ought to be more efficient and accountable—supports the turn toward technology to "improve" public schools. By highlighting the ways in which strategies of discursive control, the culture of positivism, and members of the Silicon Valley elite work in tandem to promote an

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[106] Raymond Callahan, *Education and the Cult of Efficiency: A Study of the Social Forces That Have Shaped the Administration of the Public Schools* (Chicago: The University of Chicago Press, 1962), 65.
[107] Ibid. Emphasis added.

ideology of technophilia, I argue that we are currently observing a technological restructuring of public education that must be confronted if we are to salvage public education as a tool for democracy.

Technophilia and the Culture of Positivism

Since the concept of positivism as a philosophical theory was put forth by Auguste Comte in the nineteenth century,[108] the dogmas of positivism[109] have plagued a variety of fields, and education is no exception. Though, as Henry Giroux argues, the term "positivism" has undergone so many changes since it was first used that it is more helpful to discuss what he calls the "culture of positivism," or the ways in which positivism functions as an ideology, rather than on positivism as a philosophical concept.[110] Indeed, Giroux notes, "'culture of positivism,' in this context, is used to make a distinction between a specific philosophic movement and *a form* of cultural hegemony. The distinction is important because it shifts the focus of debate about the tenets of positivism from the terrain of philosophy to the field of ideology."[111] Influenced by scientific methodology, the key assumptions embedded in the ideology of positivism are the value-neutrality of knowledge, the importance of technical control, and the privileging of rationality and efficiency. Theodor Adorno put it succinctly in his critique of Comte when he argues that:

> [T]here are two principles by which, according to Comte, society is ruled, and which, moreover, are very rigidly and mechanically distinguished by him, the static and the

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[108] Rehearsing Comte's theory of positivist philosophy is beyond the scope of this dissertation. I am here primarily concerned with the legacy of his positivist thought on contemporary public education. See Ed. Gertrude Lenzer, *The Essential Writings: Auguste Comte and Positivism* (New York: Routledge, 1975).

[109] Here, I am referring to the way Kenneth Howe uses the concept of dogma to discuss the legacy of positivism. See Kenneth R. Howe, "Epistemology, Methodology, and Education Sciences: Positivist Dogmas, Rhetoric, and the Education Science Question," *Educational Researcher* 38, no. 6 (August/September 2009): 428-440.

[110] See Henry Giroux, *On Critical Pedagogy* (New York: Bloomsbury Academic, 2011): 24-25.

[111] Ibid., 25.

dynamic principles, the principles of order and of progress, all his sympathy, all the positive accents, are on the side of order, of the static; and that the problem he really poses is how the dynamic element is to be held in check.[112]

The last several waves of educational policy reform have been heavily influenced by the culture of positivism. The proliferation of standardized testing under No Child Left Behind, and the creation of a set of national standards for math and literacy under the Obama administration have been aspects of the neoliberal regime of standardization, accountability, and control.[113] Under the logic of positivism, the teaching and learning process—a distinctly human endeavor—becomes something to control for and measure. It comes as no surprise, then, that technology becomes a mechanism through which such reform initiatives are implemented. As Saltman notes, the Race to the Top program "included in funds for North Carolina a $30 million grant for educational technology."[114]

The quest to control the dynamic, unpredictable aspects of human life, then is the ideologically totalizing legacy of positivism. Understood in this way, the ideology of positivism is an animating force in the technological restructuring of public education as we look to machines to tamp down what is otherwise a naturally chaotic aspect of human relations. Technology becomes a useful tool in the positivist paradigm of education, because machines are widely, and problematically, accepted as value-neutral tools that compensate for human subjectivity, inefficiency, and error.

In the neoliberal, positivist paradigm of education, the understanding of knowledge has been shifted to value-neutral units of facts that can be delivered from teachers to students. If

[112] Theodor W. Adorno, *Introduction to Sociology* (Stanford: Stanford University Press, 2000), 12.
[113] See National Governors Association Center for Best Practices and Council of Chief State School Officers, "Common Core State Standards," *National Governors Association Center for Best Practices*, 2010.
[114] Kenneth Saltman, *Scripted Bodies: Corporate Power, Smart Technologies, and the Undoing of Public Education* (New York: Routledge, 2017), 78.

knowledge is framed as value-free, it can be measured and controlled. When knowledge is no longer understood as socially constructed, the idea of knowledge as a site of political and social contestation is unintelligible. Subjectivity, under the culture of positivism, is something to be overcome, and technology becomes the mechanism through which we account for, obfuscate, and undermine human influence. In other words, as Kenneth Saltman notes, "[p]ositvist ideology treats knowledge as a collection of facts that are disconnected from matters of interpretation, as well as from the interests, social positions, and values of those who promote particular interpretations and claims to truth."[115] Questions of epistemology—what ought to lie at the center of the project of education—are jettisoned entirely as knowledge is reduced to transferable, "bite-sized" commodities. Online instruction is the epitome of this sort of orientation toward knowledge. Framed in terms of convenience and access which reinforce consumerist understandings of the teaching and learning process, students—in complete detachment from natural environments—consume data and perform for an anonymous spectator (the instructor) in order to "demonstrate" what they have "learned." Akin to Thomas Nagel's "view from nowhere," the relationship between student and teacher in online instruction more closely resembles that of the surveiller and the surveilled. [116] This is not relegated only to fully online instruction; many software programs currently being used in K-12 schools during school hours—when children could otherwise be interacting as they co-construct knowledge—promote "individualized instruction" through the use of instructional programs and educational games.[117]

The use of technology to control the teaching and learning process in this way reveals a problematic relationship between neoliberal, positivist approaches to schooling and rationality.

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[115] Kenneth J. Saltman, *Scripted Bodies:* 22-23.
[116] See Thomas Nagel, *The View From Nowhere* (Oxford: Oxford University Press, 1986).
[117] I discuss the gamification of learning through technology greater depth in Chapter 3.

As George Ritzer has illustrated, a myopic focus on rationality often results in highly irrational outcomes. Ritzer, **e**xpanding upon Max Weber's critique of rationality and bureaucracy, particularly his notion of the "iron cage," that would be created by creeping rationality,[118] offers a modern critique of what he called the "McDonaldization" of society.[119] According to Ritzer, the McDonaldization of society can be characterized by four elements: efficiency, calculability, predictability, and control. The packaging of entire courses in the form of online instruction through Learning Management Systems, virtual academies, or software accessed through laptops and tablets in traditional classrooms all represent the use of technology to restructure the educational process to more closely resemble a McDonald's "happy meal" than anything resembling organic, human inquiry. However, such a hyper-rationale approach can result in irrational consequences. The reductionism built into the introduction of technology to control the teaching and learning process turns dialogue into "discussion posts" that are then monitored and scored by an instructor, who instead of engaging in the co-construction of knowledge alongside students is frequently reduced to a scorekeeper. When teachers are asked to have students work on "instructional" software programs because they've already been purchased, teachers come to more closely resemble tech support rather than intellectuals with expertise. The "rationality" of resorting to technology to make the learning process more efficient or "innovative" results in the irrational outcome of undermining teachers' intellectual autonomy, or the ongoing trouble-shooting of malfunctioning devices that results in an inefficient lesson.[120]

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[118] See Max Weber, *The Protestant Ethic and the Spirit of Capitalism* (New York: Routledge, 1992): 123-124.

[119] George Ritzer, *The McDonaldization of Society* (London: Pine Forge Press, 2004).

[120] Here, I do not mean to suggest that the aim of education should be efficiency. Instead, I use this illustration to underscore how technology often results in the types of inefficiencies that the proponents of techno-rationality seek to overcome.

The culture of positivism undergirds the technological restructuring of education. As policy makers increase mechanisms of accountability, measurement, and control, and universities increase profit by reducing academic labor and increasing access and convenience, technology becomes the central mechanism through which such goals are achieved. The logic of positivism is hegemonic and totalizing. Stanley Aronowitz points out that science and technology, as vestiges of the Enlightenment, remain hegemonic ideologies nearly impervious to critique.[121] The coupling of science and technology as discourses works to neutralize issues of power and ideology. Occupying a "privileged space in the pantheon of knowledges,"[122] the ideology of positivism, when applied to inherently messy human relations, becomes self-justifying, always demanding more of itself. Because the decidedly untidy process of humans engaging in teaching and learning is *inherently* inefficient, value-laden, and irrational, education as a process will always have room for improvement as far as the ideology of positivism is concerned. In other words, teaching and learning are diametrically opposed to the logic of positivism. When positivism is applied in the educational context, it will never succeed and therefore always find room to ratchet up the intensity.

Technophilia and the Problem of Innovation

"The most optimistic soul, if candid, will admit that we are mostly doing the old things with new names attached."[123]

A 1927 photograph from the National Archives shows an image of a geography lesson being taught in the cabin of an airplane.[124] The teacher can be seen pointing to a globe at the front of the cabin while seven children sit in typical classroom desks. A few seem to be paying

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[121] Stanley Aronowitz, "Science and Technology as Hegemony," in Stanley Aronowtiz, *Science as Power: Discourse and Ideology in Modern Society* (Minneapolis: University of Minnesota Press, 1988): 3-34.

[122] Ibid., viii.

[123] John Dewey, "Education as Engineering," *New Republic* (September 20, 1922), 91.

[124] "To-day's Aerial Geography Lesson," *National Archives* no. 306-NT-520A-6 (Los Angeles, 1927).

attention to the teacher, and at least one young boy can be seen staring out of the window of the cabin, day dreaming like a child might do in a typical, terrestrial classroom. In Larry Cuban's *Teachers and Machines: The Classroom Use of Technology Since 1920* he refers to this juxtaposition of modern technology with dated approaches as the "perennial paradox" of public education: "constancy amid change."[125] The image is powerful, and draws attention to the ways in which education has long had a strained relationship with "innovation."

What makes the image powerful, and even humorous, is that the same traditional paradigm of instruction is being utilized; but the *presence* of technology alone is meant to make the classroom seemingly "innovative." One does not need to turn to the 1920s to find examples of this type of thinking. There are many contemporary examples where schools encourage, and even mandate, teachers to utilize technology to achieve the same outcome that could have been achieved without the use of a machine. For example, "Smart" boards, while they do contain some features that would not be easily achieved by a traditional blackboard or whiteboard, are frequently used in a way that is functionally equivalent to their analog ancestors. Swapping out a blackboard and chalk with a screen and a stylus makes the use of "Smart" boards innovative, and therefore justifiable.[126] Another example is the use of Internet-based word-processing programs where teachers can edit and make comments on student work from their personal devices, rather than marking a hard copy of a student essay.[127] Teachers have always revised and made

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[125] Larry Cuban, *Teachers and Machines: The Classroom Use of Technology Since 1920* (New York: Teachers College Press, 1986), 1.

[126] In some cases, the use of these types of screens in lieu of the analog versions creates new problems. Screens such as "Smart" boards require Internet access, which is easily disrupted, and they frequently need to be calibrated to ensure the accuracy of the stylus on the screen. Waiting for Internet access, or having to interrupt a lesson to calibrate the stylus demonstrates the irrationality of using machines—which are prone to such issues throughout a typical school day—to perform a task that could have otherwise been achieved without the technology.

[127] Here, I am referring to programs like Google Docs, which are now heavily utilized in public schools. A separate issue with such programs is that once a student "shares" the document with their teacher, it gives the instructor the ability of student surveillance at any point while a student has the document open.

comments on student work, but the introduction of technology to perform the same task is considered "innovative." Otherwise essentialist, efficiency-minded teaching is considered innovative with the introduction of a machine.

The collapsing of "technology" with "innovation" has been one success of proponents of educational technology. In this way, "innovation" functions both as discourse and ideology. The discourse of innovation allows technology to be justified on its own terms, without question. To question technology is to question progress itself. This is due in large part to changes in science and technology in the early twentieth century. Giroux notes that such developments contributed to the shift in "both the pattern of culture and the existing concept of progress."[128] This shift is important to highlight as it marks not only a change in the dominant understanding of notions of "progress," but the collapsing of the concept of "progress" with developments in technology. As Giroux points out:

> Whereas progress in the United States in the eighteenth and nineteenth centuries was linked to the development of moral self-improvement and self-discipline in the interest of building a better society, progress in the twentieth century was stripped of its concern with ameliorating the human condition and became applicable only to the realm of material and technical growth.[129]

The discourse of innovation is one of the central drivers behind the modern culture of technophilia. The coupling of the concepts of "innovation" and "technology" has made one nearly synonymous with the other, and this assumption structures contemporary debates and policy surrounding the implementation of technologies in schools. Rarely are pedagogical approaches that utilize technology questioned on their educational merit. To the contrary, as will be discussed in Chapter 3, the infusion of technology as a way to promote innovation is a central

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[128] Henry Giroux, *On Critical Pedagogy* (New York: Bloomsbury Academic, 2011), 23.
[129] Ibid., 24-25.

component of many teacher evaluation tools and aspects of both national and state level educational reform strategies. In this way, the concept of innovation is both a discursive strategy and an ideological tool.

Affect theory is another helpful tool for theorizing this trend, as the concept of innovation is not only powerful because it is discursively totalizing, but because it is *affective* in nature. Notions of progress evoke feelings of optimism, and progress for public schools is deeply associated with improving the lives of children. In Lauren Berlant's *Cruel Optimism* she seeks to defend her thesis that our lives tend to be governed by what she considers cruel attachments, which are forms of cruel optimism. According to Berlant:

> A relation to cruel optimism exists when something you desire is actually an obstacle to your flourishing…these kinds of optimistic relations are not inherently cruel. They become cruel only when the object that draws your attachment actively impedes the aim that brought you to it initially.[130]

For example, Berlant argues, that things such as upward mobility, job security, and even "the good life" become cruel attachments; we organize our lives around seeking these attachments only to discover that the very pursuit impedes attaining that which we sought in the first place. We may spend all of our time saving our money in order to one day have the "good life," for example, when in reality, a myopic pursuit of the "good life" prevents us from enjoying our lives in the present. The quest to be innovative at all costs becomes an instantiation of Berlant's cruel optimism. In prioritizing innovation, which has already been collapsed with technology, we limit possibilities for authentically shifting the education paradigm to imagine alternatives. Just like the aerial geography lesson, education scholars and practitioners often uncritically embrace technology because it is taken to be "innovative," and then end up repeating the same age-old strategies—just with shinier tools. Within the totalizing discourse of technology, however, to

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[130] Lauren Berlant, *Cruel Optimism* (Durham, N.C.: Duke University Press, 2011), 1.

point this out borders on the heretical. In an educational climate of technophilia that understands technology as a symbol of progress and innovation, critique cannot exist. As David Noble lamented, "[t]he ideology of technological progress takes no prisoners. In this cultural context, any and all critics are at once disarmed and marginalized, dismissed as ignorant cranks, Luddites, and lunatics who dare stand in the way of inevitable progress."[131]

The culture of positivism and the discourse of innovation are key aspects of the current paradigm of the technological restructuring of public education. Neoliberal, corporate school reformers capitalize on the dominant assumption that improving schools equates to making schools more efficient, more standardized, and more accountable. This neoliberal hijacking of education is made possible through technologies that are actively and uncritically embraced as schools clamor to prove their commitment to innovation and progress. As Callahan argued as early as 1962, schools:

> [A]re also being urged, often with the hope of economizing, to introduce new panaceas such as teaching machines and educational television. Unfortunately, their training does not enable them to understand the *educational aspects*, advantages and limitations, of these devices; so if they are adopted it is apt to be for public relations purposes. In American education it is important to be able to say that one's school system is abreast of the latest developments.[132]

The sort of criticality that Callahan was calling for has proven even more difficult to attain as technology has come to infiltrate much, if not all, of the teaching and learning process. Additionally, the rise of Silicon Valley as a key influencer of public policy has added another dimension to the climate of technophilia that makes it highly resistant to critique.

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[131] David F. Noble, *Digital Diploma Mills: The Automation of Higher Education* (New York: Monthly Review Press, 2001): x-xi.
[132] Callahan, *Education and the Cult of Efficiency*, 255-256.

The Silicon Valley Elite

An aspect of the technological restructuring of public education that cannot be overlooked is the role of the new Silicon Valley governance elite.[133] The success of the technological sector in positioning itself at the forefront of innovative problem solving by deriding the bureaucracy of public institutions has afforded the new technology elite the ability to exert its influence over public policy. This has resulted in what Stephen Ball and Carolina Junemann have called a shift away from government and toward governance. Ball and Junemann note, "a contrast is drawn between *governance*, which is accomplished through the 'informal authority' of diverse and flexible networks, and *government*, which is carried out through hierarchies or specifically within administrations and by bureaucratic methods."[134] This leveraging of power and capital has been an effective—and affective—strategy of "edu-preneurs" in shifting schools out of the public and into the private sector. Wayne Au and Joseph Ferrare note, "[t]hese elites combine financial largesse with networks of non-profit and for-profit organizations, and strategically seize upon discontent with public schools originating in marginalized communities."[135] Looking to members of the billionaire class to solve complex social problems has been a rising trend, as Naomi Klein argues, since the 1990s. The fact that an individual has managed to accumulate great wealth has, in recent years, presumed to be an indication of their public policy knowledge, regardless of how far outside their expertise the particular social problems may fall. As Klein explains, "there is now so much private wealth

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[133] In using the word "governance" I am drawing on the work of Stephen Ball and Carolina Junemann.

[134] Stephen J. Ball and Carolina Junemann, *Networks, New Governance and Education* (Bristol: The Policy Press, 2012), 3.

[135] Wayne Au and Joseph J. Ferrare, "Other People's Policy: Wealthy Elites and Charter School Reform in Washington State," in Ed. Wayne Au and Joseph J. Ferrare, *Mapping Corporate School Reform: Power and Policy Networks in the Neoliberal State* (New York: Routledge, 2015): 178-179.

sloshing around our planet that every single problem on earth, no matter how large, can be solved by convincing the ultrarich to do the right things with their loose change."[136] One of the most recent iterations of this phenomenon has been the role of the technology elite in exerting its influence over public school policy.

The rise of Silicon Valley as an incubation site where technological innovations are piloted with the goal of "making the world a better place" can be traced back to 1939 when two electrical engineering students at Stanford University, William Hewlett and David Packard, founded Hewlett-Packard in a Palo Alto garage. The garage remains on the national registry as the "birthplace of Silicon Valley."[137] The realization of the potential of Silicon Valley to fundamentally alter human experience, however, did not become apparent until the advent of artificial intelligence (AI), a term that should give educators pause, in the 1960s. In the years to come, John McCarthy, head of Stanford's artificial intelligence lab, and Joseph Wizenbaum, a computer science professor at MIT, came to represent two opposing views regarding the moral, ethical, and philosophical implications for the future of AI and its role in modern society. McCarthy in 1973 asked an audience at a debate in Stanford regarding the limits of AI, "What do judges know that we cannot eventually tell a computer? Nothing."[138] Wizenbaum, on the other hand, considered the idea of handing over things such as human judgment to machines a "monstrous obscenity."[139] The pair spent most of their respective professional careers criticizing one another's work, but McCarthy's vision for the future of AI and the role of Silicon Valley in

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[136] Naomi Klein, *No is Not Enough: Resisting Trump's Shock Politics and Winning the World We Need* (Chicago: Haymarket Press, 2017), 117.
[137] Carolyn E. Tajani, "From the Valley of Heart's Delight to the Silicon Valley: A Study of Stanford University's Role in the Transformation," Stanford University, Department of Computer Science, 1996.
[138] See Joseph Wizenbaum, *Computer Power and Human Reason: From Judgment to Calculation* (New York: W.H. Freeman and Company, 1976): 226-227.
[139] Ibid.

shaping society won the day. Several months before his death in 2008, Wizenbaum publicly

debated Reid Hoffman, co-founder of LinkedIn, the professional networking site, on the merits

of technologically mediated social relations. Wizenbaum warned:

> Nonsense is being spouted. Dangerous nonsenses…You've already said twice, 'it's
> happening and it will continue'—as if technological progress has become autonomous.
> As if it weren't created by human beings…The audience is just sitting here, and no one is
> afraid, or reacting. Things are just happening. [140]

Wizenbaum's warning about the philosophical and ethical implications of the unfettered embrace

of technology largely fell on deaf ears, and symbolically, he died alone in his Berlin apartment

later that year. The debate surrounding the development of artificial intelligence in the 1960s and

1970s laid the groundwork for positioning Silicon Valley as the site of social incubation that it is

today. The Silicon Valley ideology is, as Cohen explains is:

> Described not as a belief but as an inevitable turn as society matures technologically. Yet
> there is, of course, a distinct Silicon Valley belief system. As we've seen, it advocates for
> a highly individualistic society led by the smartest people who deliver wonderful gadgets
> and platforms for obtaining goods, services, and information efficiently, freeing each of
> us to compete in the marketplace for our daily bread. [141]

A central figure of this contemporary Silicon Valley orthodoxy is indisputably, Bill Gates. By

rhetorically framing technology as part of the neutral march of progress, Gates has played a

central role in positioning Silicon Valley as the site of social innovation and progress against the

"monopolistic" and "bureaucratic" government.

Although Gates has been a central figure in the neoliberal restructuring of public schools

for several decades through his work bankrolling the school choice movement, in the past several

years we have observed a new cohort of technology elites that have publicly voiced their interest

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[140] Joseph Wizenbaum and Reid Hoffman, "Virtual Worlds—Fiction or Reality?" Davos Open Forum (January 26, 2008). https://www.youtube.com/watch?v=E198IynGbg0
[141] Cohen, *The Know-It-*Alls, 9.

in influencing public school policy. By capitalizing on the disinvestment in public schools, "educational technology" companies positon themselves as benevolent philanthropic organizations dedicated to the public good. This "new philanthropy" as Ball and Junemann argue is primarily focused on returns on investments and more "hands on" approaches to shaping public policy.[142] The Bill and Melinda Gates Foundation, where Gates now focuses most of his efforts, continues to advance the technological restructuring agenda of Silicon Valley that uses public schools as both testing laboratories for their latest gadgets and captive markets for the selling of hardware and software under the guise of philanthropy.[143]Their recent foray into supporting research in the area of biometric technology in order to isolate effective teaching strategies has startling implications for teacher education. These wearable gadgets attached to students' bodies are mean to "detect excitement, stress, fear, engagement, boredom, and relaxation through the skin."[144] This type of reductionism fits squarely in the paradigm of the culture of positivism as it reduces the human experience of learning to physiological twitches. One can imagine this sort of technology being used, for example, in EdTPA's teacher candidate portfolios. Why have education faculty observe candidates in the field as part of cultivating reflective practice when we can produce a printout of the electrical pulses across students' skin to determine if one is an "effective" teacher? Why bother to have school administrators or fellow faculty members observe one another's teaching to improve everyone's pedagogy when we can, more efficiently, send student biometric data daily to the office? Biometric technology is a clear example of the ideology of positivism and culture of technophilia working in tandem to achieve

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[142] Ball and Junemann, 49-50.

[143] See, Ed. Philip E. Kovacs, *The Gates Foundation and the Future of U.S. "Public" Schools* (New York: Routledge, 2011).

[144] Glenda Kwek, "Brains and Bracelets: Gates Funds Wrist Sensors for Students," *The Sydney Morning Herald* (June 14, 2010).

the misguided goals of efficiency and accountability and deeming it "innovative." Young children become test subjects for the Silicon Valley elite who care more about what's *possible*, rather than what is ethical.

Following in Gates' footsteps, Mark Zuckerberg, founder of Facebook, has recently positioned himself as a major influencer of public school policy, too. Five years after Zuckerberg's highly publicized failed attempt to "turn around" Newark, New Jersey's chronically failing public schools with his $100 million donation,[145] in which Zuckerberg, then Newark Mayor Cory Booker and former New Jersey Governor Chris Christie learned the difficulty of mass "turnaround" efforts,[146] Zuckerberg along with wife Priscilla Chan founded the Zuckerberg Chain Initiative (CZI), with education policy reform as one of their central priorities. In an open letter released in December 2017, Zuckerberg reflected on his philanthropic goals, which include using technology to find "scalable" solutions for improving public schools. He notes, "the magic of technology is that it can help social change scale faster."[147]

Jim Shelton currently serves as the President of CZI's education efforts.[148] Former Deputy Secretary of the U.S. Department of Education, Shelton has been involved with the educational technology company 2U, which partners with colleges and universities to create the digital infrastructure to move courses online.[149] Working in partnership with organizations like Summit Schools—the open source charter school—The College Board, and Khan Academy, CZI is aiming to restructure public education at both the national and international levels. A key strategy is the restructuring of public school curricula to reflect the value system of, and create

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[145] For a detailed account of Mark Zuckerberg's involvement in Newark schools see Dale Russakof, *The Prize: Who's in Charge of America's Schools?* (New York: Houghton Mifflin Harcourt Publishing, 2015).

[146] NPR, "Assessing the $100 Million Upheaval of Newark's Public Schools" (September 21, 2015).

[147] Mark Zuckerberg, "Lessons in Philanthropy 2017" (December 13, 2017). https://www.facebook.com/notes/mark-zuckerberg/lessons-in-philanthropy-2017/10155543109576634/

[148] Chan Zuckerberg Initiative, "Who We Are" https://chanzuckerberg.com/about.

[149] 2U, "About," https://2u.com/

future workers for, technology companies. This initiative resulted in investments aimed at increasing the presence of technology in schools and influencing curriculum decisions in American public education, as well as internationally.

For example, according to a 2015 report issued by the World Economic Forum, information and communications literacy (ICT) is considered a "foundational literacy."[150] The notion that the concept of "literacy" is being restructured to include "digital literacy" is emblematic of the influence of Silicon Valley on public school policies. Another example is the proliferation of coding classes and "coding camps" across the United States. Chicago Public Schools, for example, announced plans to include computer programming as part of their high school graduation requirements, "giving all students a foundation in the discipline."[151] Apple recently created a coding curriculum called "Everyone Can Code," which they argue is perfect for teaching young children to code on their iPad and Mac computers. On Apple's website, they argue "[c]oding is essential to help students thrive in a future driven by technology…we believe coding isn't extracurricular—it's part of the core curriculum."[152] While the Silicon Valley "edu-preneur" rhetorical strategy is to critique the "monopoly" of government-regulated public schools, here we have evidence of Apple exerting control over public school curriculum while packaging and selling the hardware and software on which the curriculum is delivered.

This then becomes widely accepted under the dominant logic that the purpose of schools is to prepare students for their place in the workforce. According the Bureau of Labor Statistics projections, by 2024, there will be 4.4 million jobs in the computer and information technology

[150] World Economic Forum "New Vision for Education: Unlocking the Potential of Technology," (2015): 3.
[151] John Keilman, "Coding Education Rare in K-12 Schools But Starting to Catch On," *The Chicago Tribune* (January 2, 2016). http://www.chicagotribune.com/news/ct-coding-high-school-met-20160101-story.html.
[152] Apple, "Reading. Writing. Arithmetic. Coding.,"*Apple Education* https://www.apple.com/education/teaching-code/.

sector, making it the fastest growing sector of the American economy.[153] This is meant to justify

the technological restructuring of what it means to be educated by multi-billion dollar

corporations looking for future generations of workers. As though teaching children to code and

feel comfortable around computers is not enough—they will need to be constantly retrained as

new technologies emerge. As Google CEO Sundar Pichai argues, while one-time training used to

be sufficient, "[w]ith technology changing rapidly and new job areas emerging and transforming

constantly, that's no longer the case. We need to focus on making lightweight, continuous

education widely available."[154] Here, Picahi is conflating "education" with "job training," which

has become a central feature of the neoliberal, technological restructuring of public schools.

What is important to keep in mind, however, is that planned obsolescence is built into

technological innovation. Changes in technology intentionally outpace the speed at which they

can be adopted and implemented. This inevitable lag in the adoption of new technologies in

schools ensures a perpetual "digital divide" of the tech industry's own making. Such

maneuvering then allows for such companies to continually justify themselves as making up for

a technology gap in schools, while collapsing the concept of education with job training. [155]

The technological restructuring of public education is ongoing, in real time. Changes in

technology continue at a rapid pace while the Silicon Valley elite, working in tandem with a

network of non-profit and for-profit foundations, as well as with democratically elected officials

to justify their implementation in public schools. By influencing educational policy, shaping

curriculum, and getting schools addicted to software and hardware that will need to be updated in

perpetuity, the Silicon Valley elite are shaping public education in their own image—and going

[153] United States Department of Labor, "Computer and Information Technology Occupations," *Occupational Outlook Handbook* https://www.bls.gov/ooh/computer-and-information-technology/home.htm
[154] Steven Musil, "Google CEO: Tech Education Should Be More Than Just Coding," (January 18, 2018) http://www.educationviews.org/google-ceo-tech-education-should-be-more-than-just-coding/
[155] I discuss the "digital divide" in greater detail in Chapter 3.

largely unquestioned. Combating the technological restructuring of public schools will require widespread engagement concerning the political, ethical, economic, and philosophical implications of technophilia. As Laura Noren explains, "[w]e need to at least teach people that there's a dark side to the idea that you should move fast and break things."[156]

Although educational technology companies tout themselves as the forefront of innovation in education, a deeper analysis reveals that in embracing a culture of technophilia, we have not moved beyond far beyond the Aerial Geography lesson featured in 1927 *New York Times* article. The technological restructuring of public schools does not move public education beyond the Taylorism of the early twentieth century. The purpose of education is still widely understood as preparing students for the workforce; the work place of today simply has more screens. Efforts from companies like Apple to include coding into the core curriculum does little to change the Essentialist approach to schooling other than perhaps expanding the "3Rs" to include "'riting code."

Innovation is closely connected to one of the primary assumptions undergirding modern liberalism. Members of the governance elite, increasingly populated by Silicon Valley's "know-it-alls," to use Cohen's language,[157] operate under shared notions of individualism, the nature of human "progress," and the relationship between humans and their natural world. For those like Gates and Zuckerberg, technology has the ability to help humans overcome the messy realities of the analog world. If public schools kneel at the altar of technology, then the EdTech icons are their idols. In Chapter 3, I turn to examine educational policies in greater detail, providing a critical policy analysis of key technology policies over the last several decades.

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[156] See Natasha Singer, "On Campus, Computer Science Departments Find a Blind Spot: Ethics," *The New York Times* (February, 13, 2018), B4.
[157] See Cohen, *The Know-It-Alls*, 10.

CHAPTER THREE

EXAMINING TECHNOPHILIA: A CRITICAL POLICY ANALYSIS

"There have been many waves of desperate hope that maybe technology will save us."[158]

Having provided an overview of what I argue is a landscape of technophilia in public

education in the first chapter and outlining the role of positivism, discourse, and the Silicon

Valley governance elite in the technological restructuring of education in the second chapter, I

turn now to a critical policy analysis of technology education policy.

Fueled by a culture of technophilia, the infusion of technology into all aspects of

schooling has increased significantly over the last several decades. Initiatives at the federal level

have been a strong indicator that technology should be a key priority for schools as they prepare

students for the 21st century global economy, and a technology-driven approach has been

adopted by schools across the country.[159] Despite a lack of evidence that technology directly

improves students "achievement," schools continue to expend significant portions of their

dwindling resources toward purchasing and maintaining technology.[160] The main beneficiaries of

the purchasing of "educational" technology are the multi-billion dollar corporations that obtain

contracts with public schools eager to prove they are making every attempt to embrace

innovation—not students or teachers. Vestiges of the culture of positivism, as discussed in

Chapter 2, further influence education scholars and practitioners to seek "what works," as if

education is a problem that requires a technical solution, not a lifelong human endeavor.

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[158] Reed Hastings quoted in Joanne Jacobs, "Disrupting the Education Monopoly," *EducationNext* 15, no. 1 (Winter 2015). http://educationnext.org/disrupting-the-education-monopoly-reed-hastings-interview/.

[159] See, for example, Atlanta Public Schools, Fiscal Year Official Budget, "Strategic Priorities," (2018), 28. https://www.atlantapublicschools.us/cms/lib/GA01000924/Centricity/Domain/4983/Combined%20Budget%20Book.pdf.

[160] Achievement is, of course, still problematically conflated with test scores. Even on this metric, there is little evidence that technology alone improves student test scores.

"Educational" technology companies boast the promise of hyper-individualized instruction that does the work of "differentiation" *for* teachers, thereby increasing the efficiency of content delivery.[161] This not only reinforces the neoliberal understanding of knowledge as a commodity, but undermines the intellectual and professional autonomy of teachers while supporting corporate interests. Additionally, most software and internet-based applications that are designed to be appealing for school settings promote the surveillance and control of students, as well as the gamification of learning. Despite the long term effects of relying on extrinsic motivation to encourage student inquiry, most of the software used for education purposes relies on fictitious awards such as "digital badges" that manipulate students into increasing their "time on task."[162] As discussed later in this chapter, emerging research suggests that ongoing exposure to these programs, similar to video games, results in addictive behavior, illustrating that critically examining the rising levels of screen exposure ought to be a primary concern for educators. Lastly, I turn to the problem of the "digital divide" in order to illustrate its role in supporting technophilic approaches to schooling and education policy. I argue that despite the hegemonic discourse surrounding access to technology and the framing of access to technology by the new techno-governance elite as a social justice issue, the digital divide is a manufactured crisis that exploits our most vulnerable students, their communities, and their schools.

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[161] Differentiation, or the practice of tailoring lessons to suit individual students' "proficiency levels" (with the goal of helping them meet a standardized outcome) has become extremely fashionable in recent years. See, for example, Kelly A. Hedrick, "Differentiation: A Strategic Response to Student Needs," *Education Digest* 78, no. 4 (December 2012): 31-36; and Jessica A. West and Craig K. West, "Integrating Differentiation in English Education Methods Courses: Learning from the Perceptions and Experiences of Teacher Candidates," *Teacher Educator* 51, no. 2 (2016): 115-135.

[162] For a clear and concise critique of the use of extrinsic rewards in education see Alfie Kohn, "Five Reasons to Stop Saying 'Good Job,'" in Alfie Kohn, *What Does It Mean to be Well Educated? And More Essays on Standards, Grading, and Other Follies* (Boston: Beacon Press, 2004): 106-113.

Critical Policy Studies: An Overview

The emergence of "policy sciences" as an area of study is generally traced back to the post World War II era as social scientists eagerly attempted to respond to economic and political effects of the war. Particularly, *The Policy Sciences* by Daniel Lerner and Harold Lasswell is regarded as establishing the framework "for the social sciences' orientation to public policy in the welfare state."[163] Wayne Parsons noted that this time was characterized by a specific understanding of the role of public policy as "to manage the 'public' and its problems so as to deal with those aspects of social and economic life which markets were no longer capable of solving."[164] Herbert Simon, Charles Lindbolm, and David Easton made other contributions to public policy throughout the 1950s and 1960s.[165] For example, Lindbolm stressed that social change is incremental, involves trial and error, and should not be concerned with theory. Additionally, Easton developed a model of the political system that was divided into the "intra-societal" and "extra-societal" environments in order to develop a "systems approach" that would allow social scientists to "analyse the process of policy making and the outputs of policy in a broader context."[166] Despite the varying theories, this era of public policy was aligned with Enlightenment rationality, and Laswell and his colleagues are regarded as positivistic in their approach to public policy.

Since this time, particularly since the 1970s, reactionary theories to these rationalist conceptions of policy have been developed. Most notably have been the critical theorists "who

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[163] Maarten Simons, Mark Olssen, and Michael Peters, "Re-reading Education Policies," in *Re-Reading Education Policies: A Handbook Studying the Policy Agenda of the 21st Century*, Maarten Simons, Mark Olssen, and Michael Peters, eds. (Rotterdam: Sense Publishers, 2009), 2.

[164] Wayne Parsons, *Public Policy: An Introduction to the Theory and Practice of Policy Analysis* (Cheltenham: Edward Elgar, 1995), 6.

[165] Ibid.

[166] Simons et al, "Re-reading Education Policies," 4.

support the idea that policy analysis should be driven by a strong commitment to social change and equality."[167] Rather than being concerned only by the efficiency of a policy to serve a particular public need *for* the public, the critical theorists believe that "decision making should be an open process, where knowledge claims are open to critique and promote empowerment of citizens."[168] A helpful distinction between rationalist and critical approaches to public policy was noted by Parsons as the "distinction between analysis *of* policy and analysis *for* policy."[169] Rather than examine a policy for its effectiveness at producing a desired outcome and implementing incremental adjustments, critical policy studies analyzes how issues of power, politics, and economics are related to policy development and its effects on individuals. Bob Lingard explains this distinction:

> Research that has the most direct and immediate effect on policy is that commissioned by policy-makers for a purpose and framed by a problem-solving disposition. This is research *for* policy. Interest groups often sponsor this type of research as well. However, the more academic exercise, research *of* policy, fits within a critical framework and seeks to deconstruct the problem as constructed by policy and to deconstruct many of the 'taken for granteds' of the contemporary world.[170]

As it relates to education specifically, Maarten Simons explains that critical policy studies has been "mainly rooted in the research tradition interested in power, politics, and social regulation in and around schools and particularly confronting the crisis of the welfare state and the public role of education."[171] As Jamie Peck and Nik Theodore note, critical policy studies "draws upon an increasingly interconnected body of work, from across the heterodox social sciences, which is

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[167] Ibid., 8.
[168] Ibid.
[169] Ibid., 3.
[170] Bob Lingard, "The Impact of Research on Education Policy in an Era of Evidence-Based Policy," *Critical Sutides in Education* vol. 54, no. 2 (June 2013), 127.
[171] Maarten Simons, "Education Policy From the Perspective of Governmentality," in *International Handbook of Interpretation in Educational Research* Eds. Paul Smeyers, David Bridges, Nicholas C. Burbules, and Morwenna Griffiths (New York: Springer, 2015): 1117.

variously committed to postpositivist and socially contextualized analyses of policy making processes."[172] Research in critical policy studies in education must also confront what Andrew Skourdoumbis has termed "policy storylines."[173] Policy storylines in this sense refers to the embedded narratives and assumptions built into education policy that tell a story about the dominant values of schooling, and the role of schools in society. I will draw on this concept to interrogate the broader education discourses that frame technology as necessary and inherently beneficial to education. Federal initiatives, local practices such as technology expenditures, school-business "partnerships," and discursive strategies all work together to elevate the status of technology in educational policy and practice. As Douglas Kellner argues, "[a] critical theory of education has a normative and even utopian dimension, attempting to theorize how education and life could construct alternatives to what is."[174] In this spirit, by examining key federal technology policy initiatives of the last several decades, I argue a culture of technophilia has become codified in educational policy and call for a critical reassessment of the relationship between public education and technology.

State Sponsored Technophilia: Key Examples of Federal Technology Initiatives

A focus on technological "progress" has been a matter of official concern for the United States for most of the modern era. As J. D. Kenneth Boutin explains, "[i]ts importance grew in concert with the emergence of the United States as a major economic and politico-military power

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[172] Jamie Peck and Nik Theodore, *Fast Policy: Experimental Statecraft at the Thresholds of Neoliberalism* (Minneapolis: University of Minnesota Press, 2015), 5.
[173] See Andrew Skourdoumbis, "Teacher Quality, Teacher Effectiveness, and the Diminishing Returns of Current Education Policy Expressions," *Journal of Critical Education Policy Studies* 15, no. 1 (March 2017): 42-59, 43.
[174] Douglas Kellner, "Toward a Critical Theory of Education," *Democracy & Nature: The International Journal of Inclusive Democracy* 9, no. 2 (March 2003), 53.

in the late nineteenth century and through the twentieth century."[175] The concern of supporting

technological growth permeated all public sectors, with education being no exception. Though

the influx of technology in schools has intensified greatly in the past decade, particularly with the

advent of increasingly portable devices and more widespread access to broadband Internet

services, we can trace the beginning of the era of technology policy in schools to *A Nation at

Risk.* Following *A Nation at Risk*, educational technology policy became a key component of

education reform initiatives. In this section, I trace a series of educational technology policy

reports following *A Nation at Risk* in order to demonstrate the creeping technophilia that has

characterized education policy in recent decades.

Inspired by concerns surrounding global economic competition, *A Nation at Risk* outlined

the ways in which American public schools were failing to remain relevant in an increasingly

globalized, technological world. The "Five New Basics" recommended by the report to be

included in high school graduation requirements were English, mathematics, social sciences, and

computer science.[176] Furthermore, the report notes "computers and computer-controlled

equipment are penetrating every aspect of our lives—homes, factories, and offices…one estimate

indicates that by the turn of the century millions of jobs will involve laser technology and

robotics."[177] The positioning of technology as a necessary component of educational relevancy in

the global economic marketplace became a hallmark of this new era of technology policy.

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[175] J. D. Kenneth Boutin, *American Technology Policy: Evolving Strategic Policies After the Cold War* (Washington, D.C.: Potomac Books, 2012), 24.
[176] The National Commission of Excellence in Education, "A Nation at Risk: The Imperative for Educational Reform," 1983.
[177] "A Nation at Risk," 1983.

Indeed, the percentage of schools with one or more computers rose from 18 percent to 95 percent between 1981 and 1987.[178]

Nearly a decade prior in 1972, the United States Congress created the Office of Technology Assessment (OTA) with the purpose of conducting technological assessments "designed to inform congressional deliberations and debates about issues that involved science and technology dimensions but without recommending specific policy actions."[179] Created by the Technology Assessment Act of 1972,[180] the bipartisan and bicameral agency was the first addition to the legislative branch since the creation of the Government Accountability Office in 1921.[181] Though the OTA was dissolved in 1995, it was responsible for releasing several reports regarding educational technology.

Following a request to conduct research on the influence of technology in schools by the House Committee on Education and Labor, in 1988 the Office of Technology Assessment released the report *Power On! New Tools for Teaching and Learning*.[182] Echoing the concerns of *A Nation at Risk*, the 1988 report notes that "[t]he infusion of computers and development of advanced interactive technologies coincide with troubling news about American schools and have been hailed by many as an important catalyst for reform."[183] Just as in *A Nation at Risk* technology here is positioned as a driving force toward positive change in schools, revealing an emerging attitude of technophilia in education policy. The report claims, "[e]ducational

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[178] U.S. Congress, Office of Technology Assessment, *Power On! New Tools for Teaching and Learning* (Washington, DC: U.S. Government Printing Office, 1988), 6.

[179] Peter D. Blair, "Congress's [sic] Own Think Tank: Learning From the Legacy of the Office of Technology Assessment (1972-95)," *Science and Public Policy* 41, no. 4 (August 2014), 449.

[180] See Public Law 92-484.

[181] Blair, 450.

[182] U.S. Congress, Office of Technology Assessment, *Power On! New Tools for Teaching and Learning* (Washington, DC: U.S. Government Printing Office, 1988).

[183] *Power On!*, 3-4.

technologies can be powerful tools for change; not as ends in themselves, but as vehicles to extend the teaching and learning processes."[184]

Despite such lofty promises for the potential for educational technology to dramatically increase the quality of schools, *Power On!* goes on to note, with regard to educational outcomes for students, "the results build an incomplete and somewhat impressionistic picture."[185] The instances where educational technology are most useful for classroom instruction, according to the report, is drill and practice exercises, relieving the physical burden of handwriting, individualized as well as cooperative learning, and simulating experience outside of the classroom.

Although the report remains somewhat ambivalent about the promises of technology to improve student performance, *Power On!* suggests building public-private partnerships to advance the research and development of educational technology. The report begins to explore the relationship between private software companies and public schools as the potential markets for hardware and software products. In the sections "Technology Push" and "Market Pull" the report suggests that a symbiotic relationship between State and Federal governments with software companies would be necessary to support technological innovation in public schools.[186] Here, the federal and state governments "push" technology by allocating resources for additional computers so that schools are "pulled" to the market for the software necessary to equip the hardware with educational technology. For example, the report suggests, "the Federal Government could support the purchase of hardware in sufficient quantity to improve software

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[184] Ibid., 5.
[185] Ibid., 12.
[186] Ibid.: 145-146.

developers' chances of recouping their investments."[187] Despite initial claims that the Office of

Technology Assessment would not be involved in recommending specific policy decisions, this

is belied by *Power On!* in the section titled "Summary of Policy Directions" that includes

recommendations for building public-private partnerships with software companies to increase

innovation in educational technology. This initiative allowed technology companies to market

directly to public schools.

Several years later in 1992, the OTA released the report, *Testing in American Schools:*

Asking the Right Questions. The report celebrates the technological advancements of the 1950s

that improved the efficiency of the testing process, citing the invention of the automatic scoring

machine, developed by the Iowa Testing Program, which "enabled tests to be processed in large

volume and at a reasonable cost."[188] According to the report, the machines "gave an efficiency

edge to tests that could be scored by machine and enabled school systems to implement testing

programs on a scale that had previously been unthinkable. An enormous jump in testing

ensued."[189] Standardized testing is the mechanism by which public schools are held accountable

to government agencies demonstrating the key role that "advancements" in technology have

played in the accountability movement. As the report itself indicates, "[h]olding schools and

teachers 'accountable' has increasingly become synonymous with standardized testing."[190]

Therefore, it is at this time that educational technology becomes coupled with accountability

regimes, and becomes a central conduit through which accountability is made possible.

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[187] Ibid.,145-146.
[188] U.S. Congress, Office of Technology Assessment, *Testing in American Schools: Asking the Right Questions* (Washington, DC: U.S. Government Printing Office, 1992), 129.
[189] Ibid.
[190] Ibid., 4.

Soon after, developing the country's technological infrastructure became a priority for the Clinton administration. Building the National Information Infrastructure (NII), now simply called the Internet, was "premised on the belief that it will promote the development of commercially viable services, improve the competitive advantage of the United States, and serve the public interest."[191] Unsurprisingly, focusing on technology reform in public education was a central concern. Building on the groundwork laid in the previous decade on establishing public-private partnerships to advance the technological infrastructure in schools, a report developed in 1995 by McKinsey & Company for the National Information Infrastructure Advisory Council (NIIAC) titled "Connecting K-12 Schools to the Information Superhighway" marked a shift in tone as connecting schools to the still mysterious Internet became a central concern.[192] The report furthers the narrative that schools should serve as preliminary job training sites by noting the economic benefits of "investing" in technology in schools. For example, the document indicates that:

> Providing students with access to networked computers helps prepare them for the economy and society they will face in the 21st century. Basic competence in the use of computers and electronic networks is becoming a fundamental requirement for employment in the better jobs in the U.S. economy.[193]

This report is also significant because it introduced a new range of technological vocabulary that up until this point, was not in widespread use in educational policy. A glossary at the end of the document defines new terms such as "digital," "e-mail," and "online."[194] Then Vice President Al

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[191] Glenn J. McLoughlin, "The National Information Infrastructure: The Federal Role," *Journal of Academic Librarianship* (September 1995), 390.

[192] The involvement of McKinsey & Co. is also significant, as the consulting firm has proven to be one of the most influential agencies of the last century. For a detailed account of the role of McKinsey & Co. in shaping modern American capitalism see Duff McDonald, *The Firm: The Story of McKinsey and Its Secret Influence on American Business* (New York: Simon & Shuster, 2013).

[193] McKinsey & Co., U.S. Department of Education, "Connecting K-12 Schools to the Information Superhighway," 1995. https://files.eric.ed.gov/fulltext/ED393397.pdf.

[194] Ibid., 80-81.

Gore is widely credited with coining the phrase "information superhighway," or the very least, making the phrase familiar to the American public.[195] Two years before the McKinsey report, in September or 1993, Al Gore established the Information Infrastructure Taskforce (IITF) and soon after President Clinton created a National Information Infrastructure Advisory Council in order "to facilitate private sector input."[196] The Clinton administration continued to advance the narrative that technology was integral to improving school quality, supported the infiltration of the private sector into public education policy, and reified the "policy storyline" that schools serve the primary function of preparing students to take their place in the workforce.

This trend continued unabated into the 21st century. In 1996, the U.S. Department of Education released the report "Getting America's Students Ready for the 21st Century: Meeting the Technology Literacy Challenge. A Report to the Nation on Technology and Education." The report marks another key turning point in the rhetorical features of education policy; the emergence of the phrase "technological literacy." This shift indicates the influence of technology on basic aspects of the teaching and learning process. With technological literacy becoming as seemingly foundational as literacy itself, the primacy of enculturating students into the digital era that emerged at this time is apparent. Then Secretary of Education Richard Riley in an address to Congress, notes, "[c]omputers are the 'new basic' of American education, and the Internet is the blackboard of the future."[197] A District Superintendent is quoted in the policy:

> From my perspective, technology is to today's classroom what paper and pencil were to yesterday's classroom—an essential ingredient in our age of information. In fact

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[195] See Jane Bortnick Griffith and Marcia S. Smith, "The Information Superhighway and the National Information Infrastructure," *Journal of Academic Librarianship* 20, no. 2 (May 1994): 93-95.
[196] Ibid., 93.
[197] Richard Riley, (United States Department of Education), "Getting America's Students Ready for the 21st Century: The Technology Literacy Challenge, A Report to the Nation on Technology and Education," (Washington, DC: USDOE, 1996).

technology is the paper, pencils, encyclopedia, dictionary, thesaurus, textbook, and library all rolled into one.[198]

Furthermore, the report continues to advance the federal government's role in supporting the implementation of educational technology. According to the report, "[t]he federal role…is to provide the leadership momentum for reaching the educational technology goals through targeted funding and support for activities that will catalyze national action."[199]

While technology first became a concern for educational policy in *A Nation at Risk*, by 2001, technology had become a central focus for education reformers. The Bush administration picked up where the Clinton administration left off; under No Child Left Behind, the infusion of technology in curriculum and instruction, the diversion of funds to be used toward educational technology and the increase on professional development focused on preparing teachers to "effectively" utilize technology were all key components of the policy's agenda. According to No Child Left Behind, "[t]echnology can be used to enhance curricula and engage students in learning. In addition, the job market increasingly demands technology skills for new workers."[200] The central goal of the Educational Technology State Grants Program created under No Child Left Behind was to improve student achievement through educational technology by "requiring that at least 25 percent of funds received by districts be used for high-quality professional development in the integration of technology into instruction."[201] The emphasis on increasing the expenditure on educational technology was aimed at ensuring that all students were "technologically literate" by the end of the eighth grade. High-poverty schools became a central

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[198] Quoted in "Getting America's Students Ready for the 21st Century," 29.
[199] Ibid., 41.
[200] U.S. Department of Education, "Enhancing Education Through Technology," *No Child Left Behind: A Desktop Reference* (2002), 85.
[201] "No Child Left Behind," 85.

focus of the initiative due to the ratio of "students-to-instructional computers."[202] Consequently, under No Child Left Behind, the "digital divide" discourse first became codified into educational policy. The policy cites a 2000 report by the National Center for Education Statistics that revealed that the students-to-instructional computers ratio was 9-to1 in high-poverty schools compared with a ratio of 6-to-1 in low-poverty schools. Furthermore, only 60 percent of schools in high-poverty areas had computers with Internet access while 82 percent of schools in low-poverty areas had Internet access.[203] According to NCLB, the promise of technology is the potential for "digital tools themselves to change the learning environment and the teaching process, making it more flexible, more engaging, and more challenging for students."[204] Indeed, the Bush administration authorized $1 billion dollars for technology grants in 2002, and "sums that may be necessary for each of the 5 succeeding fiscal years."[205] Despite such exorbitant sums allocated for technology purposes—both for the purchasing of equipment and software as well as the ongoing training for teachers—large disparities remained in student access to technology. According to Katie McMillan Culp, Margaret Honey, and Ellen Maninach, "[b]y the beginning of the new millennium, despite the consistent emphasis placed on ensuring adequate access to technology for teachers and students, it was clear that establishing reliable universal access still was an issue."[206] Furthermore, as Culp, et al. explain, from 1995-2005 the United States had

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[202] Ibid.
[203] Ibid.
[204] Katie McMillan Culp, Margaret Honey, and Ellen Mandinach, "A Retrospective on Twenty Years of Education Technology Policy," *Journal of Educational Computing Research* 32, no. 3 (2005), 283.

[205] U.S. Department of Education, "Federal Education Funding Opportunities and Requirements," Title II, Part D-1, Enhanced Education Through Technology (Washington, DC: USDOE, October 2002). https://www2.ed.gov/admins/grants/find/edlite-sns.html.
[206] McMillan, Honey, and Mandinach, 291.

spent $40 billion dollars on "upgrading and maintaining the technical infrastructure of America's public schools and training its teachers to use that technology well."[207]

The ongoing investment in educational technology continued to skyrocket under the Obama administration. The authorization of the Every Student Succeeds Act (ESSA) provided $1.65 billion dollars for educational technology, and in 2015 an additional $200 million dollars were allocated for competitive technology grants.[208] According to the Consortium for School Networking, the funding would "give educators district technology leaders the ability to share and discover and implement proven practices to use digital tools to improve educational experiences."[209]

The latest update from the Office of Educational Technology shows no sign of slowing the push to "infuse" technology into every aspect of K-12 schooling. [210] Despite billions of dollars spent in the last several decades on educational technology and the subsequent training required for teachers, there is little evidence to suggest that there has been a positive result on student "performance." For example, Kyrene School District in Tempeh, Arizona invested $33 million dollars outfitting their schools with educational technology from 2005-2011, with no results in improved test scores. According to Matt Richtel, "schools are spending billions on technology, even as they cut budgets and lay off teachers, with little proof that this approach is improving basic teaching."[211] Even Tom Vander Ark, former executive director of education at

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[207] Katie McMillan Culp, Margaret Honey, and Ellen Mandinach, "A Retrospective of Twenty Years of Education Technology Policy," *Educational Computing Research* 32, no. 3 (2005), 299.

[208] Sean Cavanagh, "Obama Budget Would Restore Ed-Tech Money Flow to K-12 Districts," *EdWeek Market Brief* (February 2015).

[209] Ibid.

[210] See U.S. Department of Education, "Reimagining the Role of Technology in Education: 2017 National Education Technology Plan" (Washington, DC: USDOE January 2017) https://tech.ed.gov/files/2017/01/NETP17.pdf.

[211] Matt Richtel, "In Classroom of Future, Stagnant Scores," *The New York Times* (September 3, 2011). http://www.nytimes.com/2011/09/04/technology/technology-in-schools-faces-questions-on-value.html.

the Bill and Melinda Gates Foundation concedes, "[t]he data is pretty weak. It's very difficult when we're pressed to come up with convincing data."[212] In some cases, there are indications that money has been outright wasted on purchasing technology equipment for schools. For example, an audit in the Fort Worth school district revealed that $2.7 million dollars were spent on equipment and software that was never used at all.[213]

The massive expenditures on technology equipment has certainly contributed to the appearance that public schools are making concerted efforts to be "innovative" in the 21st century economy, but the paradigm of schooling has remained stagnant. Under a neoliberal logic, "educational" technology should be used to make the process of content delivery more "efficient." However, even under this logic there is little evidence to suggest that incorporating technology improves "performance." Certainly, there is no evidence that technology supports learning in the robust sense. This underscores the conflation of "learning" and "content delivery" in the technophilic paradigm. As Joanne Orlando notes, [d]espite at least 20 years of research in this field, researchers are still aiming to understand how technology contributes to reconceptualising the pedagogies of established, formal education."[214] To the contrary, many teachers indicate that they have noticed students' attention spans dwindle the more they are forced to divide their attention between screens and their teacher and classmates.[215] In an effort to find technical solutions to the "education problem," techophilia—the uncritical embrace of technology at every turn—has become codified in the national educational policy landscape. Districts are pressured to spend increasing percentages of their limited resources on technology

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[212] Ibid.

[213] See Yamil Berard, "Fort Worth District Audit Finds $2.7 Billion in Unneeded Technology," *Star-Telgram* (July 14, 2014). http://www.star-telegram.com/news/local/community/fort-worth/article3865141.html.

[214] Joanne Orlando, "Educational Technology: A Presupposition of Equality?," *Asia-Pacific Journal of Teacher Education* 42 no. 4 (November 2014): 347.

[215] Richtel, "Technology Changes How Students Learn."

in order to prove their relevancy. The U.S. Department of Education has even indicated that some schools have resorted to cutting back library positions in order to shift funds toward purchasing and maintaining "educational" technology. [216]

This comes as no surprise in the culture of technophilia that has emerged in the last several decades. By conflating technology with "innovation" and "progress," to be skeptical of the "educational" technology is akin to being opposed to progress itself. The neoliberal restructuring of public schools has shifted the understanding of knowledge toward a transferable commodity, making technology appealing as it promises to make this process more "efficient." Philosophical questions surrounding the purpose of schooling and the nature of knowledge are jettisoned in the interest of promoting "innovation." This then justifies the use of taxpayer money to purchase equipment and software from multi-billion dollar corporations with little evidence that these expenditures result in better learning experiences for students. Furthermore, the false promise that technology alone can improve school quality has supported the narrative of the "digital divide." By positioning technology as a panacea for "failing schools," and framing access to technology as a social justice issues, corporations are able to capitalize on public schools as they look for a technical solution to the "education problem."

In what follows, I turn to the narrative of the digital divide to illustrate the role it plays in the justification of the uncritical embrace of technology in schools. The digital divide, defined as the unequal access to technology among children of lower socioeconomic status, has greatly influenced the adoption of technology in schools. I argue instead that the digital divide is a manufactured problem, used to support the project of technophilia, benefitting corporate interests over those of students, teachers, and their communities.

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[216] U.S. Department of Education, "Reimagining the Role of Technology in Education," 1.

The False Promise of Equity: The Digital Divide

Social justice discourse pervades education reform. Both liberals *and* conservatives assert that their respective goals for education promote public welfare by creating citizens that are well-adjusted to global capitalism or assimilated to hegemonic values. As Kenneth Saltman notes:

> Liberals and conservatives…largely agree that more schooling translates to more opportunity for inclusion and that schooling creates workers for nation's economy so that the nation can compete successfully against other nations for markets and jobs in a capitalist economy.[217]

Regardless of how ill-conceived such conceptualizations of the public good are, liberals and conservatives alike genuinely believe that their education reform strategies are aligned with promoting a more equitable society. As such, the *discourse* of social justice has itself become a site of contention. For example, charter school advocates and other proponents of neoliberal education reform strategies often employ a discourse of social justice, despite the often antidemocratic outcomes of their policies. One central way in which advocates of educational technology leverage a discourse of social justice to advance the unfettered imposition of technology into schools and in the everyday lives of children is through the narrative of the "digital divide." The "digital divide" is generally understood as the unequal access to technology, both at school and at home, along racial and socioeconomic lines.

On the one hand, the problem of the digital divide has a tangible side. A recent report by the Pew Research Center found that about 5 million school-aged children do not have access to the Internet at home, resulting in what they termed a "homework gap."[218] The report noted that black and Hispanic families make up a disproportionate piece of those 5 million households.

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[217] Kenneth Saltman, *The Politics of Education: A Critical Introduction* (Boulder: Paradigm Publishers, 2014), xvi.

[218] John B. Horrigan, "The Numbers Behind the Broadband 'Homework Gap,'" *Pew Research Center* (April 2015). http://www.pewresearch.org/fact-tank/2015/04/20/the-numbers-behind-the-broadband-homework-gap/.

Furthermore, while devices such as "smart" phones and tablets, along with broadband service are practically ubiquitous in high-income households, the Pew Research Center found that only 17% of low-income households have broadband services, a "smart" phone and a computer at home.[219] Additionally, in 2016, 20 percent of adults with household incomes under $30,000 per year were "mobile phone only Internet users," meaning they own a "smart" phone, but do not have broadband services in their home.[220] Though access to technology for rural Americans has increased, those living in rural areas are 10% less likely to have any access to the Internet.[221] These statistics should be unsurprising. The cost of technology is often prohibitive for low-income families, and the Federal Communications Commission (FCC) has not kept pace with the infrastructure goals it outlined for itself in the Telecommunications Act of 1996 that would increase access to the Internet in rural areas.[222]

On the other hand, the digital divide can be understood as a *manufactured* crisis. Changes in technology will nearly always outpace their widespread adoption, especially their implementation in public schools. The disparities in access to the latest technologies is itself a symptom of technological "advancements," as well as the inequitable funding of public schools. The planned obsolescence of devices combined with their prohibitive costs ensures that access will nearly always be unequitable. Additionally, the digital divide is a manufactured problem insofar as it rhetorically positions technology as a solution to social inequalities and the problems

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[219] Monica Anderson, "Digital Divide Persists Even as Lower-Income Americans Make Gains in Tech Adoption," *Pew Research Center* (March 2017). http://www.pewresearch.org/fact-tank/2017/03/22/digital-divide-persists-even-as-lower-income-americans-make-gains-in-tech-adoption/.
[220] Ibid.
[221] Andrew Perrin, "Digital Gap Between Rural and Nonrural America Persists," *Pew Research Center* (May 2017). http://www.pewresearch.org/fact-tank/2017/05/19/digital-gap-between-rural-and-nonrural-america-persists/.
[222] Federal Communications Commission, "Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended," 2016. https://apps.fcc.gov/edocs_public/attachmatch/FCC-12-91A6.pdf.

facing public schools. The digital divide discourse operates under the assumption that technology itself will improve instructional quality and have social justice outcomes. In what follows, while I acknowledge that there is such a thing as the digital divide in a material sense, I argue that the discourse of the digital divide is part of the neoliberal technological restructuring of public schools that erroneously frames access to technology as a social justice frontier.

As early as 1999 the National Telecommunications and Information Administration (NTIA), an agency of the United States Department of Commerce, issued a report titled, "Falling Through the Net: Defining the Digital Divide: A Report on the Telecommunications and Information Technology Gap in America."[223] Drawing on Census data, the report found a disparity between the "information haves" and "information have-nots" along racial and socioeconomic lines. The unequal access to technology has persisted. A recent article in the *New York Times* titled "Bridging a Digital Divide That Leaves Schoolchildren Behind," featured a photo of the Ruiz siblings—three children living in McAllen, Texas—huddled near an Internet hotspot outside of their school attempting to download their homework assignments on their "smart" phones.[224] Presumably, if the Ruiz siblings cannot download their homework at home, it is possible that they often have to complete their homework on their cellphones. The photo is meant to illustrate the "homework gap" that is created by a lack of widespread access to broadband services for many low-income school-age children. Jessica Rosenworcel, a Democratic member of Lifeline,[225] a federal subsidy program under the FCC aimed at increasing

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[223] National Telecommunications and Information Administration, "Falling Through the Net: Defining the Digital Divide: A Report on the Telecommunications and Information Technology Gap in America," July 1999. https://www.ntia.doc.gov/legacy/ntiahome/fttn99/FTTN.pdf.

[224] Cecilia Kang, "Bridging a Digital Divide that Leaves SchoolChildren Behind," *The New York Times* (February, 2016). https://www.nytimes.com/2016/02/23/technology/fcc-internet-access-school.html.

[225] The Lifeline program was created in 1985 under the Reagan administration to help subsidize landline telephone service in low-income communities. The program was extended in 2008 to include subsidies for mobile phones. In 2015, F.C.C chief Tom Wheeler introduced a plan to extend the program further to help provide broadband services

access to broadband services in low-incomes homes claims that, "This is what I call the homework gap, and it is the cruelest part of the digital divide."[226] The cruelty for Rosenworcel and many others who advance technology as the panacea for failing schools, however, seems to lie in the lack of technology among students at home, not in the fact that we mandate the use of technology for student populations *who we know* to have limited or no access to the Internet and computers. According to Cecilia Kang, "seven in ten teachers now assign homework that requires web access. Yet one-third of kindergartners through 12th graders in the United States, from low-income and rural households, are unable to go online from home."[227] In this way, the so-called homework gap that comes as a result of the digital divide could be avoided altogether if teachers who serve students with unstable access to technology did not demand that they use it at home. Here, the digital divide becomes a manufactured crisis of many schools' own making.

 Adjusting expectations for homework that reflect the social and economic, and consequently technological, realities of student populations seems to be a simple, and economically sensible solution to the homework gap created by unequal access to technology. In other words, while I do not want to capitulate to economic logic, it costs nothing to simply assign homework that does not require technology. Such an approach would also be aligned with many of the commitments of critical pedagogy by promoting an understanding of the children who are being served by schools in low-income areas, and the reality of the lives they lead outside of school. However, schools across the country are taking a decidedly different approach to solve the digital divide. For example, some school districts have introduced school buses equipped with Wi-Fi to help students access the Internet to complete homework, including the Richmond

in low-income homes. See Rebecca Ruiz, "F.C.C. Chief Seeks Broadband Plan to Aid the Poor," *The New York Times* (May 2015). https://www.nytimes.com/2015/05/28/business/fcc-chief-seeks-broadband-plan-to-aid-the-poor.html?mtrref=www.google.com&gwh=4C4ABD7E531FC443095EC9B74530E371&gwt=pay.
[226] Ibid.
[227] Kang, "Bridging A Digital Divide."

County School System in Augusta, Georgia. Richmond County is currently piloting a Wi-Fi school bus program that is aimed at improving homework completion of students with limited or no access to computers and Internet at home. Kaden Jacobs, director of communications for the district notes, "Our goal is to offer all students in Richmond County equal access to broadband that is required for students to meet academic rigor and obtain 21ˢᵗ century skills."[228] As of the 2017-2018 school year, Richmond County has 3 school buses equipped with Wi-Fi so that students can complete homework assignments while traveling to and from school. The buses are even frequently parked in low income communities so that students may gather around the bus in the evenings in order to use the Wi-Fi to complete their assignments. Superintendent Angela Pringle remarked at a community meeting in April 2017, "if we're going to be a cyber-community, we cannot have a technological divide, the haves and have nots. There are children who go home without lights and without access to technology."[229]

Richmond County is not alone. School districts across the country are turning to installing Wi-Fi on their school buses to assist with access to technology, improve homework completion, and address behavior issues. The Vail School District in Vail, Arizona is another district embracing the initiative—they have had Wi-Fi on nearly all of their buses since 2010. Among the greatest advantages cited by district officials is the improved behavior on the bus rides.[230] A photo in the New York Times article promoting the program features a bus full of teenagers, faces illuminated by the glow of their laptops.

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[228] Selena Randhawa, "WiFi-equipped School Buses Help Students Get Online," *CNN* (October 2017). https://www.cnn.com/2017/10/31/tech/homework-gap/index.html.

[229] Angela Pringle quoted in "Wi-Fi on School Buses, New Trade Center to Improve Richmond County Schools," *New 12 WRDC* (April 24, 2017). http://www.wrdw.com/content/news/Wi-Fi-on-school-buses-new-trade-center-to-improve-Richmond-County-schools-420290823.html.

[230] See Sam Dillon, "Wi-Fi Turns Rowdy Bus Into Rolling Study Hall," *The New York Times* (February 11, 2010). http://www.nytimes.com/2010/02/12/education/12bus.html?mtrref=www.google.com&gwh=C2E7C22DFB8D5BA7B58A3BD58B74C106&gwt=pay.

Such is the logic of technophilia; always more, never less. The "homework gap" that is

created by a disparity in access to technology among low-income students is an opportunity to

critically examine how our assumptions surrounding the benefits of technology in schools at all

costs may actually produce unintended consequences that hurt children. Faced with the challenge

that assigning homework requiring technology is creating a homework gap, districts like

Richmond County and Vail County turn to *more technology* to alleviate the problem.

Furthermore, these examples underscore the cruelty that can result from educational policies

driven by technophilia. High-income students have the luxury of completing their online

assignments from their laptops and tablets in their homes equipped with broadband services,

while low-income students are forced to gather around a bus parked somewhere in their

community after dark to get a Wi-Fi signal. This is done, according to district officials cited

above, in the name of social justice—illustrating the false promise that equity is achieved

through technology alone. The digital divide discourse reconstitutes the notion of Marx's theory

of class struggle into purely technological terms, as in the way the NTIA report cited above

refers to the "information haves" and "have-nots." However, the digital divide is epiphenomenal

of economic inequality more broadly. Framing the issue in such a narrow way obscures the

underlying social and economic conditions that make the so-called digital divide possible.

Equipping school buses with Wi-Fi is not likely to solve the social, historical, and economic

inequalities that contribute to disparities in students' educational outcomes.

I do not mean to suggest that I am entirely unsympathetic to those seeking to provide

students in historically marginalized communities greater access to technologies that their more

affluent counterparts regularly enjoy. Rhetorical strategies that frame *any* reform (e.g. school

choice, STEM programs, school-business partnerships etc.) as a matter of social justice are

effective largely in part because they are *affective*.[231] Any time proponents of an agenda imply harm being done to children, it is more likely to draw sympathy—a strategy that has been leveraged by the school choice movement for decades. Instead, I argue schools must reexamine approaches to social justice education that uncritically embrace unfettered access to technology as a way to address inequalities in schools. As discussed in Chapter 1, the current state of technophilia in public education leads us to associate technology with hopeful, futuristic feelings of promise. In the ongoing quest to be "innovative" and find "what works," educators and policy makers frequently turn to technology for answers to the complex problems facing our communities and the schools that serve them. I do acknowledge the harmful and frustrating effects of limited access to technology in a time where nearly all aspects of our lives are managed digitally. However, I argue that the digital divide discourse serves more to support the predatory practices of EdTech companies and cover over the underlying social and economic conditions that produce unequal access to technologies than it does to improve the educational outcomes of students in our most marginalized communities. In this way, educational technology can be understood as an aspect more of the corporate school reform movement that exploits children, their communities, and their schools rather than a legitimate tool of social justice education.

Furthermore, evidence suggests that increased exposure to technology actually weakens attention span, and supports the "gamification" of learning that undermines the teaching and learning process by reducing it to a form of shallow entertainment. Ironically, research now suggests that increasing exposure to technology among low-income children negatively effects

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[231] Sara Ahmed has written extensively on the role of affect in influencing politics and individuals. See Sara Ahmed, *The Cultural Politics of Emotion* (New York: Routledge, 2014).

their "ability to understand nonverbal emotional cues," and is correlated with higher rates of obesity.[232] The very thing the digital divide claims to address—unequal access to technology among low income children—is contributing to over-exposure to screens, resulting in addictive behaviors and other health effects.[233] By using technology to make learning more "entertaining," we are addicting children to devices that are having negative long term consequences on their minds and bodies. In what follows, I turn to the gamification of learning as another facet of technophilia in schools that deserves immediate attention.

The Gamification of Learning

"Who is prepared to take arms against a sea of amusements?"[234]

In the foreword to *Amusing Ourselves to Death: Public Discourse in the Age of Show Business* Neil Postman—writing in 1985, one year after George Orwell's prophesied 1984 had come and gone—observed that American intellectuals seemed to quietly sing their own praises that liberal democracy had withstood the threat of an Orwellian dystopia. Postman argues, however, that is was not Orwell's world of Big Brother that Americans most needed to fear but the one of Aldous Huxley's *Brave New World*. Postman notes, "in Huxley's vision, no Big Brother is required to deprive people of their autonomy, maturity, and history…people will come to love their oppression, to adore technologies that undo their capacities to think."[235] As Huxley

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[232] Naomi Schaefer Riley, "America's Real Digital Divide," *The New York Times* (February 11, 2018). https://www.nytimes.com/2018/02/11/opinion/america-digital-divide.html?mtrref=www.google.com&gwh=5F71ADDEDE076ABB3996F54A60DBB7B6&gwt=pay&assetType=opinion.

[233] See Edward L. Swing, Douglas A. Gentile, Craig A. Anderson, and David A. Walsh, "Television and Video Game Exposure and the Development of Attention Problems," *American Academy of Pediatrics* (July 2010): 214-221.

[234] Neil Postman, *Amusing Ourselves to Death: Public Discourse in the Age of Show Business* (New York: Penguin Books, 2005), 156.

[235] Ibid., xix.

himself noted in *Brave New World Revisited*, defenders of democracy "failed to take into account man's almost infinite appetite for distractions."[236]

Certainly, "advancements" in technology have afforded many people in the Western world opportunities for distractions that eerily resemble the world Huxley imagined. "Binge-watching," now defined by Merriam-Webster as the act of watching "many or all episodes of (a TV series) in rapid succession"[237] has been made possible through Internet-based platforms such as Netflix, and has become a widespread cultural phenomenon of distraction and escapism. Another form of distraction is the gamification of everyday life. Erving Goffman understands games, in the analog world, as an integral and formative aspect of human interaction. Games, for Goffman, rely on spontaneous involvement among a group of people. Through games, individuals can construct rules, meaning, and even work together toward shared goals.[238] He notes that games, for the players involves:

> A single visual and cognitive focus of attention; a mutual and preferential openness to verbal communication; a heightened mutual relevance of acts; an eye-to-eye ecological huddle that maximizes each participants' opportunity to perceive the other participants' monitoring of him.[239]

In other words, games, for Goffman, are inherently social and involve the negotiating of meaning between people. Games contain systems of meaning that individuals must understand and navigate together. According to Bart Simon, even when an individual is playing a game alone they are "interacting with the sets of cultural representations, expectations, norms…embedded in the rules, process, and narrative of the game and the context of play."[240]As many archaeologists

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[236] Aldous Huxley, *Brave New World Revisited* (New York: Harper & Row Publishers, 1958), 35.
[237] "Binge-watch," Merriam-Wesbter.com. Accessed January, 3 https://www.merriam-webster.com/dictionary/binge-watch
[238] See Erving Goffman, "Fun in Games," in *Encounters: Two Studies in the Sociology of Interaction* (Indianapolis: Bobbs-Merrill, 1961): 17-84.
[239] Ibid.,18.
[240] Bart Simon, "Never Playing Alone: The Social Contextures of Digital Gaming" *Loading* vol. 1, no. 1 (2007), 10 .

note, play in general, and games specifically, have been a part of constructive, social human lives for thousands of years.[241] The modern technological era, however, has allowed for not only new forms of digitized games, but the *gamification* of aspects of human life that were not previously understood as "playful." According the Jennifer Whitson, "gamification is play applied to non-play spaces,"[242] and new technologies have allowed for many different areas of our lives to become subject to gamification. Internet based applications such as *Mint*, or wearable technology like the Fitbit, as discussed in Chapter 1, turn aspects of everyday life like financial planning or even simply walking into games. For example, the Fitbit keeps track of how many steps a person takes in a day, turning movement into an ongoing competition with ones' self. *Mint* awards users with digital badges for achieving financial goals. Just like video games, the gamified versions of daily human activities can be highly addicting. Many Fitbit users report that they have become addicted, in their view, to achieving their "step" goals. [243] Furthermore, as discussed in Chapter 1, there have already been examples of this type of gamification being forced onto teachers, such as through the Go365 program in West Virginia that tracked teachers' biometric data to be used to determine their health insurance premiums.

Additionally, video games have recently captured the growing attention of researchers in the field of psychology and medicine with regard to their connection to addiction disorders.[244] Some studies have even called for "gaming disorder" to be added to the Diagnostic and

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[241] See, for example, Barbara Voorhies, "Games Ancient People Played," *Archaeology* 65, no. 3 (May/June 2012).

[242] Jennifer R. Whitson, "Gaming the Quantified Self," *Surveillance & Society* 11, no. 1 (2013), 166.

[243] See, for example, Mark W. Smith, "A Fitbit Fanatic's Cry For Help: I'm Addicted to Steps," *The Washington Post* (May 11, 2015). https://www.washingtonpost.com/news/to-your-health/wp/2015/05/11/a-fitbit-fanatics-cry-for-help/?utm_term=.3bafdab240ef.

[244] See, for example, Charlotte Thoresen Wittek, Stale Pallesen, Rune Aune Mentonzi, Daniel Hanss, Mark D. Griffiths, and Helge Molde, "Prevalence and Predictors of Video Game Addiction: A Study Based on a National Representative Sample of Gamers," *International Journal of Mental Health Addiction* vol. 14, no. 1 (October 2016): 672-686; and James L. Sanders and Robert J. Williams, "Reliability and Validity of the Behavioral Addiction Measure for Video Gaming," *Cyberpsychology, Behavior, and Social Networking* vol. 19, no. 1 (January 2016): 43-48.

Statistical Manual (DSM).[245] Philip Tam, President of the Network for Internet Investigation

and Research has noted:

> It is a cliché to state that computing, the Internet and gaming are now ubiquitous elements
> of daily life for most if not all people, particularly the young. The power and reach of the
> WWW most probably far exceeds any technology in humanity's short but eventful
> history…In many ways, Internet Overuse/Addiction is the ultimate post-modern affliction
> for the 21st century.[246]

A recent *Washington Post* article covered this troubling side of the world of video games. One

New York family struggled with their son for several years with video game addiction before

finally resorting to sending their teenage son away to a summer long "wilderness therapy

program" in a desperate attempt help him overcome his screen addiction.[247] As Caitlin Gibson

notes, "[t]hese games are deliberately designed, with the help of psychology consultants, to make

players want to keep playing, and they are available on every platform—gaming consoles,

computers, smartphones."[248] A study as early as 1998 found that video games can raise the level

of dopamine in the brain by 100 percent, comparable to the dopamine rise triggered by sexual

intercourse.[249] While rehearsing the literature on the social and psychological impact of video

games is beyond the scope of this dissertation, and while examples such as video game addiction

are extreme, they serve to underscore the logical conclusion of technology as a form of

distraction, as well as present serious implications for incorporating this technology in schools.

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[245] See, for example, Anthony M. Bean, Rune K. L. Nielsen, Antonius J. van Rooiji, and Christopher J. Ferguson, "Video Game Addiction: The Push to Pathologize Video Games," *Professional Psychology: Research and Practice* 48, no. 5 (October 2017): 378-389.

[246] See Mez Breeze, "A Quiet Killer: Why Video Games Are So Addictive," *The Next Web* (January 2013).

[247] Caitlin Gibson, "The Next Level: Video Games Are More Addictive Than Ever. This is What Happens When Kids Can't Turn Them Off," *The Washington Post* (December 7th, 2016). http://www.washingtonpost.com/sf/style/2016/12/07/video-games-are-more-addictive-than-ever-this-is-what-happens-when-kids-cant-turn-them-off/.

[248] Ibid.

[249] M.J. Koepp, R.N. Gunn, A.D. Lawrence, V.J. Cunningham, A. Dagher, T. Jones, D.J. Brooks, C.J. Bench, and P.M. Grasby, "Evidence For Striatal Dopamine Release During a Video Game," *Nature* vol. 213, no. 1 (1998): 453-455.

Cases such as the one cited above aside, the technological landscape outside of schools—for those who can afford it—is often one filled with forms of entertainment that are potentially highly addictive, and frequently detrimentally distracting. This should raise concern when the "entertaining" (i.e. addictive) quality of gaming is seen as having "educational" benefits. As Jordan Shapiro argues, "it is not surprising that educators, policy makers, investors, and developers are trying to build games for schools…the real reason game-based learning is so popular is not only because video games are extremely effective teaching tools; they are also inexpensive to build and distribute."[250] This is what makes the development and sale of "educational" games to schools so attractive; companies have a captive audience to addict to games that have no proven educational quality—but at least they are entertaining.

Digital technologies have changed both users' experiences of games, as well as allowed for the gamification of aspects of human life, including education. As Greg Toppo notes, "[a]fter decades of ambivalence, suspicion, and sometimes outright hostility, educators are beginning to discover the charms of digital games and simulations, in the process of rewriting centuries-old rules of learning, motivation and success."[251] In what follows, I offer a critique of the gamification of learning through a recent pedagogical strategy called game-based learning (GBL). By drawing connections to GBL and broader neoliberal trends of the commodification of knowledge, issues of surveillance, and corporate school reform, I argue that GBL is another facet of technophilia in education that warrants a critical reexamination among education scholars and practitioners.

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[250] Jordan Shapiro, "How Video Games in the Classroom Will Make Students Smarter," *Forbes* (March 30, 2015). https://www.forbes.com/sites/jordanshapiro/2015/03/30/how-video-games-in-the-classroom-will-make-students-smarter/#3b85b15f6d12.

[251] Greg Toppo, *The Game Believes in You: How Digital Play Can Make Our Kids Smarter* (New York: St. Martin's Press, 2015), 3.

While GBL has been a topic of interest among researchers since the 1980s,[252] the landscape of and possibilities for GBL in the 21st century have changed dramatically. GBL can take several forms. One form, Internet-based applications or "apps," have become increasingly popular in the 21st century classroom. *Kahoot!* is one such app that markets itself as a "free game-based learning platform for teachers of awesome, classroom superheroes and all learners."[253] *Kahoot!* allows teachers to create multiple choice quizzes to be displayed on a large screen that students can then interact with on their personal devices. It also allows teachers to create "challenges" for students to complete at home.[254]

The introduction of game-based learning as a result of the proliferation of educational technology has had observable effects on students' expectations for the teaching and learning process. The commodification of learning is reified as teachers are expected to enhance the "customer satisfaction" of students by making everything more entertaining. With regard to this trend, one high school teacher laments, "I'm an entertainer. I have to do a song and dance to capture their attention…What's going to happen when they don't have constant entertainment?"[255] Postman understood this trend as negatively altering possibilities for deep inquiry by emphasizing entertainment over the type of meaningful engagement that is essential to learning. According to Postman, teachers are "increasing visual stimulation of their lessons; are reducing the amount of exposition their students must cope with; are relying less on reading and writing assignments; and are reluctantly concluding that the principal means by which

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[252] See M.P. Jacob Habgood and Shaaron E. Ainsworth, "Motivating Children to Learn Effectively: Exploring the Value of Intrinsic Integration in Educational Games," *Journal of the Learning Sciences* 20, no. 1 (2001): 169-206.
[253] *Kahoot!* "What is Kahoot?" https://kahoot.com/what-is-kahoot/.
[254] Another form of GLB, though less commonly used, is when teachers use Commercial Off-The-Shelf (COTS) games for learning purposes.
[255] Richtel, "Technology Changing How Students Learn."

student interest may be engaged is entertainment."[256] Here, I do not mean to suggest that learning

should not be fun and engaging. Instead, my point is to critique recent trends in education that

reduce teaching and learning to *mere* entertainment that reinforces commercialized

conceptualizations of education without regard for the effects of edu-tainment on children. In the

paradigm of neoliberal techno-rationality, the gamification of learning becomes a nefarious form

of coercion; technology is used to make largely irrelevant curricula seem more entertaining to

increase student "performance." As John Dewey aptly noted:

> The gap is so great that the required subject-matter, the methods of learning and of
> behaving are foreign to the existing capacities of the young. They are beyond the reach of
> the experience the young learners already possess. Consequently, they must be imposed;
> even though the good teachers will *use devices of art to cover up the imposition so as to
> relieve it of obviously brutal features*.[257]

In other words, the gamification of learning through technology becomes a mechanism of control

that utilizes the addictive nature of digital games in order to coerce students into increasing their

"time on task."As Anders Albrechtslund and Lynsey Dubbeld argue, framing technologies as

"playful" can dramatically alter general acceptance of them—even controversial technologies.[258]

For example, the popular classroom application ClassDojo takes what would otherwise be

considered a controversial system of surveillance and control and turns it into a quaint classroom

game. Such approaches to "classroom management" divert attention away from structural

problems that lead to student disengagement and reduces them to matters of personal

improvement, leading to schools becoming, as Ben Williamson argues, sites of "psychological

experimentation as well as technical innovation."[259] Low income children of color, contrary to

[256] Postman, *Amusing Ourselves to Death*, 148-149.

[257] John Dewey, *Experience & Education* (New York, Touchstone, 1997), 19.

[258] See Anders Albrechtslund and Lynsey Dubbeld, "The Plays and Arts of Surveillance: Studying Surveillance as Entertainment," *Surveillance and Society* 3, no 2 (2005): 216-221.

[259] Ben Williamson, "DeCoding ClassDojo: Pyscho-Policy, Social-Emotional Learning and Persuasive Educational Technologies," *Learning, Media, and Technology* vol. 42, no. 4 (2017): 447-458, 448.

much of the digital divide rhetoric, are most affected by these sorts of technological

interventions. Furthermore, low income parents have less access to information regarding the

negative impacts of unlimited screen time. A 2012 Pew Research study revealed that "39 percent

of parents with incomes less than $30,000 a year say they are 'very concerned' about this issue,

compared with about 6 in 10 parents in higher-earning households."[260] While there is limited

evidence to indicate that the introduction of GBL supports student learning—still

problematically measured by standardized test scores—ample evidence is emerging to suggest

that the proliferation of screen time among children and young adults is having lasting effects on

their minds and bodies.

A culture of technophilia advanced by federal policy initiatives pressures schools to

spend increasing portions of their budgets on educational technology, despite a dearth of

evidence that such expenditures improve the teaching and learning process. Those who stand to

benefit from the technological restructuring of public schools, namely "educational" technology

companies, have successfully leveraged the digital divide discourse to frame access to addictive

technologies as a social justice issue. The main beneficiaries of the technology policy since the

release of *A Nation at Risk* have not been students and teachers, but corporations that are able to

use public classrooms as innovation laboratories for technology that is packaged and sold to

schools as the technical solution to the problems facing "failing" schools and their communities.

This does little to positively impact educational "outcomes," however problematically conceived,

supporting the cyclical nature of the process of technophilia. Running the risk of being cast as an

outdated institution impervious to change and caught stubbornly in the past, schools have rushed

to embrace technology to prove their commitment to innovation. The intellectual and

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[260] Riley, "America's Real Digital Divide."

professional autonomy of teachers is compromised, as is the mental and physical well-being of

children who are placed for hours at a time in front of screens without regard to the long term

health effects. In Chapter 4, I turn to the tradition of critical pedagogy to argue for ways that

teachers might attempt to intervene into the cycle of technophilia.

CHAPTER FOUR

TOWARD HUMANIZATION: CRITICAL PEDAGOGY IN THE DIGITAL AGE

"If we take the risk out of education, there is a real chance that we take out education altogether."
-Gert Biesta[261]

Thus far, I have argued that the current climate of technophilia—both in schools and society—has supported the neoliberal, technological restructuring of the educational process. I have also provided a critical policy analysis of technology policy in education over the past several decades to underscore that a culture of technophilia has been codified in both national and local reform initiatives. In what follows, I turn to the tradition of critical pedagogy to argue that critical pedagogy is a necessary framework for confronting issues of power and privilege that are bound up with the ideology of technophilia.

As an ideological, cultural, economic, and epistemic project, the technological restructuring of public schools is deeply intertwined with systems of power and privilege. Techno-rational approaches to schooling not only limit alternative pedagogical approaches by making teaching reducible to "technique," in Jacques Ellul's sense—or in some cases, by substituting teachers altogether for machines—but also support a positivistic orientation toward knowledge by reducing teaching and learning to a delivery process. Controlling teachers, students, and schools through technology whether it be through behavior modification (i.e. "classroom management") applications, the imposition of technology in the interest of "innovation," or the exploitation of public schools as both captive markets and laboratories by "educational technology companies" all indicate that technology itself has become a hegemonic system of power and control. The culture of positivism pervading education frames "the human" as an element that needs to be controlled. Rather than understanding education as an innately and

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[261] Gert J.J. Biesta, *The Beautiful Risk of Education* (New York: Paradigm Publishers, 2013), 1.

uniquely human endeavor, neoliberal rationality views technology as a way to overcome human action in order to increase efficiency, accountability, and control.

The challenge, then, for those working in the tradition of critical pedagogy in our age of technophilia is uniquely formidable. For example, while Paulo Freire argues that the humanity of both "the oppressors" and "the oppressed" has become *degraded* through the suffocating practices of formal schooling, neoliberal rationality, and colonizing ideologies, 21st century techno-rationality views "humanness" as something to be overcome entirely. Learning Management Systems (LMS) that reduce teaching and learning to posting and surveillance, "engagement pedometers" that monitor student excitement in order to isolate "best practices," and the replacement of teacher labor with software programs are all attempts to minimize human intervention in the teaching and learning process.[262] In the dominant techno-rational paradigm, human subjectivity in exercising value judgments, and the inherent inefficiency of organic inquiry can—and should be—eliminated. In the example of online course delivery, corporeal presence is itself an inconvenience that needs to be overcome; the wandering, day-dreaming mind is the obstacle that biometric engagement bracelets minimize.

While technology is increasingly a central conduit through which neoliberal reformers control for human subjectivity in education, it is not the only way techno-rationality is executed. Any form of standardization such as the Common Core State Standards, or even the use of rubrics, is a step toward minimizing the inherent variability resulting from human activity and decision-making. As standardization and control are the ideologies under-pinning techno-rationality, it stands to reason that any and every mechanism—both in K-12 and colleges of education—that is used to standardize and control for human variability will be eventually

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[262] See Stephanie Simon, "Biosensors to Monitor Students' Attentiveness," *The Chicago Tribune* (June 12, 2012).

"improved" (i.e. made more standardized) through technology. For example, as Barbara Madeloni and Julie Gorlewski note, "[m]uch of the work of educating new teachers involves providing the theoretical, practical, and personal support to embrace the ongoing *uncertainty* of teaching."[263] EdTPA, now being utilized in 768 teacher education programs across 40 states, aims to standardize that which is inherently irreducible to prescriptive, bite-sized actions.[264] Madeloni and Gorlewski note, "edTPA devalues the uncertainty of teaching; it requires a performance of teaching as definitive—a performance that becomes central to the student teaching experience."[265] As Kenneth Saltman explains, "edTPA employs technology to regulate, measure, and control teaching by targeting the bodies of teachers with surveillance."[266]

While edTPA already incorporates technology to "enhance" the standardization of teacher certification by requiring teacher candidates to film themselves in the classroom as part of their portfolios, it is not difficult to imagine the ways edTPA might "improve" standardization in the future through already existing technology.[267] Teacher candidates might be required to wear a camera that transmits footage from their teaching demonstration in real time to a remote monitor who corrects their instruction in real time. Portfolio evaluators might be replaced with machines. Student biometric data could be recorded and included in an edTPA portfolio to measure candidate effectiveness. The value in these types of dystopian thought experiments is to underscore that the logical conclusion of techno-rationality is to minimize, and eventually eliminate, human subjectivity from the teaching and learning process through technology.

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[263] Barbara Madeloni and Julie Gorlewski, "Wrong Answer to the Wrong Question: Why We Need Critical Teacher Education, Not Standardization" 27, no. 4 (Summer 2013), 17. Emphasis added.
[264] See edTPA, "Participation Map" http://edtpa.aacte.org/state-policy.
[265] Madeloni and Gorlewski, "Wrong Answer," 17-18.
[266] Kenneth J. Saltman, *Scripted Bodies: Corporate Power, Smart Technologies, and the Undoing of Public Education* (New York, Routledge, 2017), 77.
[267] Eve Tuck and Julie Gorlewski, "Racist Ordering, Settler Colonialism, and edTPA: A Participatory Policy Analysis," *Educational Policy* 30, no. 1 (2016): 197-217.

If education ever had an enemy, it might have been ignorance. However, the modern enemy for the neoliberal, techno-rational schooling system is that which makes us human. Increasingly, educational scholars and practitioners turn to technology to neutralize human activity in order to increase the efficiency and control of teaching and learning. This technophilia is fueled by a culture of positivism that frames the elimination of human activities as appealing and "innovative," while justifying the use of public classrooms as laboratories for multibillion-dollar corporations to pilot their latest gadgets. As Henry Giroux explains:

> Corporate school reform is not simply obsessed with measurements that degrade any viable understanding of the connection between schooling and educating critically engaged citizens. The reform movement is also determined to underfund and disinvest resources for public schooling so that public education can be completely divorced from any democratic notion of governance, teaching, and learning.[268]

Corporate school reform in the age of technophilia, however, goes beyond disentangling education from democracy and civic engagement; it seeks to also disentangle education from any human intervention at all. These can be understood as phases of the same neoliberal project; the first being the decoupling of education from the public sphere, the second being the decoupling of education from individual subjectivity. As such, the technological restructuring of education and the project of critical pedagogy lie in direct opposition to one another. Neoliberal techno-rationality eliminates the human elements of the educational process in order to maximize efficiency in service to capital, while critical pedagogy aims to confront totalizing systems of oppression through radical humanization. In other words, in the age of educational technophilia, critical pedagogues are tasked with realizing the goal of humanization in a paradigm that casts

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[268] Henry A. Giroux, "When Schools Become Dead Zones of the Imagination: A Critical Pedagogy Manifesto," *High School Journal* 99, no. 4 (Summer 2016): 351-352.

human subjectivity as an impediment to progress and innovation. By identifying technology as part of a hegemonic system of power that not only oppresses people, but positions people themselves as an obstacle to overcome, I argue that critical pedagogy must take up technology as a serious threat to the process of liberatory humanization. As such, I argue that this requires direct confrontation of technological impositions into teaching and learning. Rather than understanding technology as a neutral tool that can be used to support critical educational endeavors, critical pedagogy must come to see "educational" technology as lying in direct opposition to the project of humanization.[269] To recognize the goal of technology as the elimination of the "beautiful risk" of education, to use Gert Biesta's language, is to recognize technology as a threat to all that makes education a uniquely human endeavor.

Technology as a System of Power

> "But lo! Men have become the tools of their tools."
> -Henry David Thoreau, *Walden*

As Peter McLaren explains, "[c]ritical pedagogy is a way of thinking about, negotiating, and transforming the relationship among classroom teaching, the production of knowledge, the institutional structures of the schools, and the material relations of the wider community, society, and nation-state."[270] Theorizing oppressive systems of power in the education system surrounding issues of race, gender, ethnocentric curriculum, and social class have all been vital to developing a robust framework for critical pedagogy. Drawing on the Frankfurt School tradition of critical theory, Latin American philosophies of resistance, and the cultural critiques

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[269] Throughout this chapter, when I use the word technology, I am referring specifically to the technologies being imposed on public education. Because I believe that the success of the project of technophilia is in part due to its discursive control, I will no longer use the phrase "educational technology." I will discuss possibilities for exploring counter-lexicons as an entry point for resistance in greater detail in Chapter 5.

[270] Peter McLaren, "Revolutionary Pedagogy in Post-Revolutionary Times: Rethinking the Political Economy of Critical Education," *Educational Theory* 48, no. 4 (Fall 1998): 441-442.

of both feminist theory as well as Marxist and neo-Marxist traditions, the central project of critical pedagogy is to identify and confront systems of power to reconstruct society in a vision of social justice. Though as early as twenty years ago, McLaren feared that critical pedagogy had already become a neutralized concept, reduced to superficial pedagogic strategies divorced from radical political engagement. It is worth quoting McLaren at length:

> The conceptual net known as critical pedagogy has been cast so wide and at times so cavalierly that it has come to be associated with anything dragged up out of the troubled and infested waters of educational practice, from classroom furniture organized in a 'dialogue friendly' circle to 'feel-good' curricula designed to increase students' self-image. Its multicultural education equivalent can be linked to a politics of diversity that includes 'respecting difference' through the celebration of 'ethnic' holidays and themes such as 'Black history month' and 'Cinco de Mayo.' If the term 'critical pedagogy' is refracted onto the current educational debates, we have to judge it as having been largely domesticated in a manner that many of its early exponents, such as Brazil's Paulo Freire, so strongly feared.[271]

Specifically, he argues that critical pedagogy has become distracted from the project of confronting imperial, global economic restructuring by allowing "identity politics" to divide marginalized groups, preventing them from unifying under their collective economic oppression.[272] By arguing that critical pedagogy must move away from merely reading texts or promoting fair dialogue toward a radial political ethics "lived in the streets," McLaren challenges critical pedagogues to revisit their revolutionary roots. Most importantly, he argues, "critical pedagogy needs to establish a project of emancipation that *moves beyond simply wringing concessions from existing capitalist structures and institutions.*"[273]

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[271] Ibid., 448.

[272] While I am somewhat sympathetic to this position, rehearsing the polemics surrounding which sorts of oppression are epi-phenomenal of others lies outside the scope of this dissertation I do, however, find that this debate results in the same sort of in-fighting that it seeks to eliminate. For a critique of Peter McLaren's position on the role of identity politics in confronting global economic restructuring see Patti Lather, "Critical Pedagogy and Its Complicities: A Praxis of Stuck Places," *Educational Theory* vol. 48, no. 1 (Fall 1998): 487-497.

[273] Ibid., 450. Emphasis added.

This final observation is a necessary entry point for locating technology as a site of contestation for critical pedagogy in our contemporary age of neoliberal technophilia. By understanding technology as not only a system of power itself, but a system of power that neutralizes other sites of contestation—for example by removing marginalized identities from the classroom space in the case of online instruction—critical pedagogues can develop a more robust framework for critical pedagogy that identifies technology as a mechanism through which ideological control becomes reified. A critical component of this project is the rejection of the narrative that technology is a neutral tool that can be utilized for liberatory movements. Indeed, as argued by Andrew Feenberg in his Critical Theory of Technology (CTT), "technologies are not separate from society but are adapted to specific social and political systems."[274] Although technology is often framed as apolitical or value-neutral, the machines we create are not independent of human influence or values. Technology is always created *for* something (e.g. to make a process more efficient, to make a profit, or to advance our understanding of our natural world). Although identifying and confronting systems of power lies at the core of the project of critical pedagogy, technology frequently goes overlooked as an unavoidable aspect of modern life, or as integral to human progress.

Furthermore, technology companies have been successful at leveraging a discourse of social justice to justify the need for more technology. Framing access to screens and the Internet in this way, as in the case of the "digital divide" discourse, hijacks educational policy and practice by allowing corporations to decide what is best for the public good. This technological takeover of the social justice project permeates both K-12 and higher education. The most recent edition of *The Chronicle of Philanthropy*, owned by *The Chronicle of Higher Education* features

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[274] Andrew Feenberg, *Critical Theory of Technology* (Oxford: Oxford University Press, 2009), 49.

a piece titled "When Internet Access Is a 'Fundamental Human Right.'"[275] The piece discusses

the work of the Detroit Community Technology Project's attempt to achieve a more

comprehensive digital infrastructure that would connect more Detroit residents to the Internet.

Diana Nucera, the project's director argues, "[i]t's a social justice issue…We believe that

communication is a fundamental human right."[276] Certainly, I don't mean to suggest a lack of

Internet access does not put individuals and their communities at a significant disadvantage in a

time where everything from paying bills to finding a job require an Internet connection.

However, the notion that technology is a "human right" in the same way that access to

healthcare, education, clean drinking water, or safety are, and that technology itself can lift

people out of despondent economic conditions created by cycles of uneven urban development

and a lack of a social safety net is at best irresponsible and at worst a perversion of social justice

that serves corporate interests. Furthermore, this is a stark example of the sort of humanitarian, as

opposed to humanizing work that Freire warns against.[277] Doing *for*, rather than *with*, those we

purport to be helping reinforces the objectification of others. It is an empirical question—one

that goes unasked—if, for example, Detroit residents see the lack of digital infrastructure as the

most salient social problem in their daily lives. Having the answer to that question may reframe

the nature of the problem and viable solutions, though it may not align with the discourse

advanced by corporate elites that frames access to technology as a vehicle of social mobility.

For critical pedagogues, identifying and confronting the ways in which technology has

become framed by technology companies—and accepted by many educators and educational

policy makers—as a frontier of social justice that diverts attention away from the root causes of

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[275] Nicole Wallace, "When Internet Access is a 'Fundamental Human Right,'" *The Chronicle of Philanthropy* (February 2018): 5-6.
[276] Ibid.
[277] Freire, *Pedagogy of the Oppressed*, 54.

social inequality is integral to challenging the culture of technophilia. If, as critical pedagogues contend, teaching is an inherently political act, then we must conceive of *all* aspects of the teaching and learning process as imbued with political meaning. This means identifying the political implications bound up with the culture of technophilia.

Casting deeply political processes as neutral or apolitical has been a key tactic for both neoliberal and neoconservative education reformers. For example, by reducing knowledge to standardized bits that can be "delivered" and then measured, the political constructivist nature of knowledge is hidden under the guise of neutrality. As Saltman explains, [t]he moment the goal of education becomes 'achievement,' the crucial ongoing conversation about the purposes and value of schooling stops, as does the struggle over whose knowledge and values and ways of seeing should be taught and learned."[278] As Michael Apple notes, "[i]t is naïve to think of school curriculum as neutral knowledge. Rather, what counts as legitimate knowledge is the result of complex power relations and struggles among identifiable class, race, gender, and religious groups."[279] However, corporate school reformers have had great success in framing knowledge as a neutral commodity that can be measured through student "achievement" to compare the quality of schools. Historical, racial, and socioeconomic issues of power and privilege become obfuscated in this paradigm of neutrality. For critical pedagogues, on McLaren's view, simply presenting students with different "points of view" is not enough to confront this issue; the construction of knowledge itself as a system of power must be questioned.

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[278] Kenneth Saltman, "The Rise of Venture Philanthropy and the Ongoing Neoliberal Assault on Public Education: The Eli and Edythe Broad Foundation," in ed. William Watkins, *The Assault on Public Education: Confronting the Politics of Corporate School Reform* (New York: Teachers College Press, 2012), 67.
[279] Michael Apple, *Official Knowledge: Democratic Education in a Conservative Age* 2nd ed. (New York: Routledge, 2000), 44.

Similarly, conceptualizing technology as merely a neutral tool masks all of technology's deeply political implications. Replacing teachers with machines undermines educators' professional and intellectual autonomy, treats knowledge as a neutral, transferrable commodity, and limits possibilities for questioning the status quo; it is the logical conclusion of "teacher-proofing" through mechanisms such as scripted instruction. As Jenelle Reeves notes, scripted curricula are utilized specifically "to reduce teacher interference with (and presumed weakening of) the prescribe curriculum and its delivery."[280] Again, in the paradigm of neoliberal techno-rationality, humanness is framed as something to overcome, positioning it in direct conflict with the aims of critical pedagogy. Furthermore, framing technology as a neutral tool covers over the fact that "educational technology" is a multi-billion dollar industry that capitalizes on doing business with public schools. Getting young children familiar with, and in some cases addicted to technology as discussed in Chapter 3, is done in service for grooming the future workforce and creating lifelong consumers of technology products. Furthermore, turning to technology as a solution to a human problem is itself political. As Feenberg explains, "the choice of a technical rather than a political or moral solution to a social problem is politically and morally significant."[281] For example, by identifying the "problem" with public schools as a lack of innovation—rather than a lack of equitable funding, a dearth of culturally responsive curricula, or a homogenous teaching force that is increasingly unrepresentative of our student population—educational reformers can jettison the historical, economic, racial, and political forces that impact school quality and promote technological "innovation" as the key to school success. Viewing technology as a tool that can be adopted for a radical educational project is, to use

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[280] Jenelle Reeves, "Teacher Learning by Script,' *Language Teaching Research* 14, no. 3 (2010): 241-252.
[281] Andrew Feenberg, "Critical Theory of Technology: An Overview," *Tailoring Biotechnologies* vol. 1, no. 1 (Winter 2005): 49.

McLaren's language, a misguided attempt to "wring concessions" from a system (i.e. techno-rationality) that sees human intervention as something to be overcome.

The notion that technology is a merely a tool, and that its normative value emerges only from *how it is used* is pervasive, even among some of technology's most outspoken critics. For example, Sherry Turkle, who has written extensively on the negative impacts of the digital age on human relations suggests there is hope for reclaiming power by simply using technology in more productive ways. She notes:

> We can plan for a future in which the design of our tools and our social surroundings encourages us to be our best. As consumers of digital media, our goal should be to partner with an industry that commits to our using their products, of course, but also to our health and emotional well-being.[282]

Here, Turkle seems to assume that the flow of influence is unidirectional; humans design tools, and can redesign them differently according to their needs and desires. Furthermore, she suggests that we can be *both* consumers and architects of media. To use Thoreau's language, Turkle underestimates the ways in which we have become tools of our tools. As Neil Postman explains, "[w]hat we need to consider about the computer has nothing to do with its efficiency as a teaching tool. We need to know in what ways it is altering our conception of learning, and how…it undermines the old idea of school."[283]

In Chapter 2, I discussed the role technology, in tandem with the culture of positivism and the influence of the new technology sector elite have already begun the technological restructuring of public education. By shifting the understanding of the nature of knowledge to a neutral, deliverable commodity, undermining the professional and intellectual autonomy of teachers by increasingly replacing them with machines, and including coding in the "core"

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[282] Sherry Turkle, *Reclaiming Conversation: The Power of Talk in a Digital Age* (New York: Penguin Books, 2016), 44.
[283] Neil Postman, *Technopoly: The Surrender of Culture to Technology* (New York: Vintage Books, 1993), 19.

curriculum, technology has already redefined nearly all aspects of schooling. Furthermore, the ideology of technophilia frames teachers and students as obstacles to be overcome through technology in the service of standardization, accountability, and control. Any attempts by those working in the tradition of critical pedagogy to utilize technology as a tool for liberatory purposes cannot be sufficient for achieving the revolutionary aims outlined by the forebears of the tradition.

The notion that technology can support democratic social movements is widely accepted and infrequently challenged. While there are examples of technology like social media platforms being utilized for political organizing such as the role technology played in protests against the Dakota Access Pipeline, Arab Spring, and even Occupy Wall Street the limitation of technology as a liberatory tool lies in the logical conclusion of techno-rationality: the elimination of what makes us human.[284] While there is evidence that social media can play a role in the initial organizing of social movements, there are also indications that its impact is fleeting, because social movements require sustained, bodily presence, and a degree of risk. As Emily Dreyfuss notes with regard to protests surrounding the Dakota Access Pipleline, "[i]f social media enabled the Standing Rock Sioux to amplify their protest, its speed and ceaseless flow also allowed the world to forget about them."[285] In other words, on platforms like Facebook and Twitter that are predicated on what is "trending," social movements themselves become passing trends. Criticism regarding the superficiality of online "activism" has even garnered this phenomenon its own

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[284] See, for example Heather Brown, Emily Guskin, and Amy Mitchell, "The Role of Social Media in the Arab Uprisings" *Pew Research Center* (November 28, 2012); and Chena Ngak, "Occupy Wall Street Uses Social Media to Spread Nationwide," *CBS News* (October 13, 2011).

[285] Emily Dreyfuss, "Social Media Made the World Care About Standing Rock—And Helped It Forget," *Wired* (January 24, 2017). https://www.wired.com/2017/01/social-media-made-world-care-standing-rock-helped-forget/.

word—slacktivism.[286] Nolan Cabrera, Cheryl Matias, and Roberto Montoya define "slacktivism" as "an online form of self-aggrandizing, politically ineffective activism."[287] Henrik Serup Christensen has referred to online slacktivism as "political activities that have no impact on real-life political outcomes, but only serve to increase the feel-good factor of the participants."[288] Social media does to an extent promote a diversity of subaltern voices that may otherwise have not had a platform, elevating the possibilities for Gramsci's notion of the "organic intellectual." Gramsci notes, "[a]ll men are intellectuals, one could therefore say: but not all men have in society the function of intellectuals."[289] Social media platforms do allow for those not backed by institutions to engage in political discourse to a degree, however a user's influence is still greatly tempered by the ability of the individual to leverage the capital of social media, such as hashtags, in order to gain an "audience." In this way, social media still organize around the principles of capital and is proprietary, therefore greatly limiting its ability to support radical liberatory projects. While gaining awareness of social issues through online platforms may be an acceptable starting point for cultivating praxis, or "action and reflection upon the world in order to change it," it is doubtful that re-posting news articles with their accompanying hashtags or Tweeting is sufficient to reach the critical transitivity advanced by critical pedagogues.[290] Slavoj Zizek, helpfully refers to this type of online activity as "interpassivity." He notes, "you think you

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[286] See, for example, Amanda A. Jones, "Challenging 'Slacktivism:' Activism on Social Media is Not Enough," *Huffington Post* (October 31, 2016). https://www.huffingtonpost.com/entry/challenging-slacktivism-activism-on-social-media_us_5817c2dbe4b09b190529c8ae.

[287] Nolan L. Cabrera, Cheryl E. Matias, and Roberto Montoya, "Activism or Slacktivism? The Potential and Pitfalls of Social Media in Contemporary Student Activism," *Journal of Diversity in Higher Education* vol. 10, no. 4 (December 2017), 400.

[288] Henrik Serup Christensen, "Political Activities on the Internet: Slacktivism or Political Participation By Other Means?" *First Monday* 16, no. 2 (February 2011): 1-9, 1.

[289] Antonio Gramsci, *Selections From the Prison Notebooks of Antonio Gramsci* eds. & trans. Q. Hoare and G. N. Smith (New York: International, 1971), 115.

[290] hooks, *Teaching to Transgress*, 14.

are active, while your true position, as embodied in the fetish, is passive."[291] Jodi Dean echoes

Zizek's point and argues that, "we might think of this odd interpassivity as content that is linked

to other content but never fully connected. Linking or citing stands in for readings, which stands

in for engaging. At each juncture, there is a gap."[292] The insufficiency of social media to support

praxis underscores another incompatibility of technology and critical pedagogy and emphasizes

the need for critical pedagogues to be actively critical of the culture of technophilia. In what

follows, I turn to critical pedagogy's conceptualization of dialogue to further argue that

technology is not compatible with other central tenets of critical pedagogy and that critical

educators must reject taking accomodationist positions toward technology for liberatory ends.

Dialogue in the Digital Age

Dialogue is a foundational principle of critical pedagogy. While critical pedagogy is not a

monolithic tradition, there is little disagreement surrounding the role of dialogue in promoting

the realization of critical transitivity that supports radical action. As explained by Antonia

Darder, Marta Baltodano, and Rodolfo D. Torres:

> The principle of dialogue as best defined by Freire is one of the most significant aspects
> of critical pedagogy. It speaks to an emancipatory educational process that is above all
> committed to the empowerment of students through challenging the dominant educational
> discourse and illuminating the right and freedom of students to become subjects of their
> world. [293]

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[291] Slavoj Zizek, *The Plague of Fantasies* (London: Verso, 1997), 21.

[292] Jodi Dean, *Democracy and Other Neoliberal Fantasies: Communicative Capitalism and Left Politics* (Durham, NC: Duke University Press, 2009), 31.

[293] Antonia Darder, Marta Baltodano, and Rodolfo D. Torres, "Critical Pedagogy: An Introduction," in eds. Antonia Darder, Marta Baltodano, and Rodolfo D. Torres, *The Critical Pedagogy Reader* (New York: RoutledgeFarmer, 2003), 15.

For Freire, dialogue is necessary for students and teachers in reaching a deeper understanding of the oppressive forces that shape social relations, or *conscientization*.[294] Conscientization, defined as "the process by which students, as empowered subjects, achieve a deepening awareness of the social realities that shape their lives and discover their own capacities to re-create them," requires an ongoing process of human interaction and contestation.[295] Technology, through its infiltration into nearly every aspect of our daily lives is itself a system that shapes students' lives and limits, defines, or restructures the possibilities they imagine for affecting change on their surroundings. Because it has become the central medium of communication, technology has come to redefine how we negotiate meaning with one another. The more we use technology to engage with one another, the greater the challenge for critical pedagogues in fostering authentic dialogue. As bell hooks notes, "[t]o engage in dialogue is one of the simplest ways we can begin as teachers, scholars, and critical thinkers to cross boundaries, the barriers that may or may not be erected by race, gender, class, professional standing, and a host of other differences."[296] However, technologically mediated interactions undermine authentic dialogue through its dehumanizing effects. One indicator that such interactions result in the objectification of others is the proliferation of online bullying, particularly among young people. Online bullying can take many forms. The Cyberbullying Research Center defines cyberbullying as "willful and repeated harm inflicted through the use of computer, cell phones, and other electronic devices."[297] According to the research center, "cyberbullying is an easier way to bully because it doesn't involve face to face interaction." A recent study reveals that 70%

[294] Paulo Freire, Paulo Freire, *Pedagogy of Freedom: Ethics, Democracy, and Civic Courage* (New York: Rowman & Littlefield Publishers, 1998),

[295] Darder, Baltodano, and Torres, 15.

[296] bell hooks, *Teaching to Transgress: Education as the Practice of Freedom* (New York: Routledge, 1994), 130.

[297] Raychelle Cassada Lohmann, "Taking on Cyberbullying," *Psychology Today* November, 2010 https://www.psychologytoday.com/blog/teen-angst/201011/taking-cyberbullying.

of students report seeing instances of online bullying frequently. Additionally, 81% of young people believe that cyberbullying is easier to perpetrate than face to face bullying. Cyberbullying and Internet trolling are made possible due largely to the ways social media *dehumanize* our interactions. Turkle argues that in the absence of a "physical presence to exert a modulating force," these dehumanizing interactions are made easier. Interestingly, Freire notes that, [t]o deny the importance of subjectivity in the process of transforming the world and history is naïve and simplistic. It is to admit the impossible: a world without people."[298] A "world without people" might be currently unimaginable, but technology and social media certainly allow us to move in and out of dialogic spaces where the human element is muted. While cyberbullying might be an extreme example, it underscores the dehumanizing potential of online interactions and therefore warrants scrutiny for those working in the tradition of critical pedagogy. We must ask, in what ways do the increasing reliance on technology both in K-12 and higher education for communication impact possibilities for achieving authentic dialogue that can support the project of critical pedagogy? Additionally, how does increasing levels of screen time outside of school result in the normalization of dehumanizing interactions? By increasing the reliance on technologically mediated interactions between students and teachers in traditional K-12 classroom settings—where children could otherwise be engaging in dialogue—and the shift away from brick and mortar courses toward online instruction in the university, "dialogue" is reduced to asynchronous posting, eliminating the humanness of authentic dialogue and the co-construction of knowledge. Such practices are then justified by appeals to preparing children for the workforce, which increasingly relies on technologically mediated interactions. This accomodationist orientation to the purpose of schooling results in an increasing reliance on

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[298] Pedagogy of the Oppressed, 50.

technology for communication, even when it undermines the educational process. In the example

of online courses in the university, technology subsumes the process itself, reducing learning to

only technologically-mediated interactions. Not only do online instruction platforms fail to rise

to the level of dialogue that is so essential to the project of critical pedagogy, but online

instruction neutralizes the corporeal presence of gender, race, and sexuality, among other

identities that are integral to fostering dialogue that supports the process of critical inquiry.

As Drick Boyd explains:

> In the critical classroom, the student at times takes on the role of teacher and the teacher becomes a learner, inviting a sharing of power and mutual learning. While this approach can be carried out to an extent online, the LMS is set up to be the primary source of information in a course, and the teacher is assigned as the expert designer of the learning experience, thus limiting the constructivist nature of the mutuality of the learning process.[299]

Learning Management Systems rely on the assumption that knowledge is preordained and

neutral, and that the purpose of the instruction is to simply deliver the content. While students

may engage in asynchronous technologically mediated exchanges through LMS portals, the

elimination of human presence minimizes opportunities for students to contest hegemonic power

systems embedded into what constitutes "official knowledge." Knowledge, as Kristen Buras

explains "results from ongoing cultural struggle and is constructed and reconstructed through

complex social processes."[300] While the ideology of neoliberal techno-rationality frames online

instruction as more efficient, cost effective, and more accountable to oversight, it also reduces

the "complex social processes" to asynchronous, isolated exchanges. By eliminating corporeal

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[299] Drick Boyd, "What Would Paulo Freire Think of Blackboard: Critical Pedagogy in an Age of Online Learning," *International Journal of Critical Pedagogy* 7, no. 1 (January 2016):171-182, 175.
[300] Kristen L. Buras, *Rightist Multiculturalism: Core Lessons on Neoconservative Reform* (New York: Routledge, 2008), 59.

presence in the classroom, the voices, experiences, and physical presence of marginalized people are neutralized, reifying existing hegemonic power structures. For example, as bell hooks notes, "even though students enter the 'democratic' classroom believing they have the right to 'free speech' most students are not comfortable exercising their right to 'free speech.'"[301] In other words, even in a traditional face-to-face classroom, students from marginalized groups often find the classroom to reinforce hegemonic systems of power that erase their lived experiences. The problem that arises as a result of online instruction is "What happens when students don't enter the classroom at all?" hooks has argued that marginalized voices risk silencing in the classroom. She explains, with regard to class:

> Students are often silenced by means of their acceptance of class values that teach them to maintain order at all costs. When the obsession with maintaining order is coupled with 'losing face,' of not being thought well of by one's professor and peers, all possibility of constructive dialogue is undermined.[302]

While some students may find the protection of the relative anonymity that is afforded to them through online instruction platforms more comfortable, it does not necessarily make it more educational. For example, while students may find that "discussions" of race are easier when conducted on a message board, it does not foster humane engagement that promotes understanding. To the contrary, many students reveal that they often prefer using technology when discussing difficult subjects because it allows for greater control over their level of interaction; it makes them feel safer. As Turkle argues however, "human relationships are rich, messy, and demanding. When we clean them up with technology, *we move from conversation to the efficiencies of mere connection*."[303]

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[301] Ibid.

[302] bell hooks, "Confronting Class in the Classroom," in eds. Antonia Darder, Marta Baltodano, and Rodolfo D. Torres *The Critical Pedagogy Reader* (New York: RoutledgeFarmer, 2003), 143.

[303] Turkle, *Reclaiming Conversation*, 21. Emphasis original.

While technology can be understood as a way to control for the uncertainty inherent in human relations and interactions that undermines the development of human connections, technology is increasingly utilized in K-12 classrooms as a way to avoid the messiness of dialogue. Because students are now growing up relying on technology to help mitigate and ease the uncertainty of basic communication, teachers are encouraged to take an accomodationist approach to this problem by relying on technology to forge connections with their students. For example, a promotional video created by Google to promote their "G Suite for Education" program titled "Google Forms: A Student-Teacher Connection" depicts a high school science teacher that uses Google Forms—an Internet-based program that allows a student and teacher to type inside a document simultaneously and view one another's work—to foster relationships with her students.[304] The video is meant to be affective; it introduces us to several high school students who confess having trouble relating to their teachers. One student confesses, "It's hard for students to connect with adults, we don't feel comfortable." Another student remarks, that before using Google Forms to communicate about his issues in class with his teacher, "I just didn't like talking to teachers, they were big and scary." Lastly, a young woman says, "Teenagers, they use technology a lot…like cellphones, and texting. We definitely lack the face to face communication." The teacher is depicted as sincere in wanting to find a way to connect with her students, and explains that after attending a technology conference, she now uses Google Forms to develop relationships with her students. She says, "I needed to find a way that they can communicate to me and I felt that if I could connect to them on a more personal level that they would feel comfortable coming to me both about their academics and things that were

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[304] Google, "Google Forms: A Student-Teacher Connection" https://edu.google.com/k-12-solutions/g-suite/?modal_active=none

going on outside of school."[305] The video effectively identifies an important problem: Many

students have trouble connecting to others, particularly teachers, through face-to-face

interactions. Students even identify their use of technology as something that hinders their

comfort with personal interactions. Unsurprisingly, for Google, the solution to this problem—

largely created by technology—is more technology, especially their own technology. Through

this example of the use of Google Forms, a *technical* solution is offered for a *human* problem.

While students may be conditioned to feel more at ease having difficult discussions through

technology, this does little to confront one of the causes of their discomfort—the increasingly

dehumanizing effects of technologically mediated interactions. For Friere, "to transform the

experience of educating into a matter of simple technique is to impoverish what is fundamentally

human in this experience: namely, its capacity to form the human person."[306] However,

technology frequently undermines authentic, human interaction. Indeed, the appeal of many new

technologies is that it minimizes human interaction. People have seemingly become less adept at

everyday human interactions—reports of social anxiety have skyrocketed among those who

report heavy screen usage, reflected in the students' testimonies in Google's promotional

video.[307]

　　bell hooks challenges critical pedagogues to go beyond traditional understandings of

critical pedagogy toward what she calls "engaged pedagogy."[308] For hooks, "students want us to

see them as whole human beings with complex lives and experiences rather than simply as

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[305] Ibid.

[306] Paulo Freire, *Pedagogy of Freedom: Ethics, Democracy, and Civic Courage* (New York: Rowman & Littlefield Publishers, 1998), 39.

[307] See Alexandra Ossola, "A New Kind of Social Anxiety in the Classroom," *The Atlantic* (January 14, 2015). https://www.theatlantic.com/education/archive/2015/01/the-socially-anxious-generation/384458/ ; Tamrya Pierce, "Social Anxiety and Technology: Face-to-Face Communication Versus Technological Communication Among Teens," *Computers in Human Behavior* 25, no. 1 (November 2009) :1367-1372.

[308] hooks, *Teaching to Transgress*, 15.

seekers after compartmentalized bits of knowledge."[309] Humanizing our students in this way

requires us to do the hard work of breaking down barriers—not embracing them. A central tenet

of critical pedagogy is meeting students "where they are." It is true that in many cases, meeting

students "where they are" means acknowledging that they have grown so accustomed to

technology that dialogue with others is deemed too risky. Dialogue in the digital age has been

reduced to highly controlled transactions. For critical pedagogues, the challenge is restoring the

"beautiful risk" of dialogue that fosters the humanization of others. Asynchronous posts—

however comfortable they may be—do not promote the authentic engagement required to forge

new understandings, but instead encourage participants to merely meet the requirements of

participation set forth by the instructor. Screens ultimately promote passivity, fractured attention,

and contribute to feelings of social isolation, things that undermine the sort of authentic

engagement demanded by critical pedagogy. Insofar as technology is bound up with the culture

of positivism, as argued by Giroux, it directly conflicts with the humanizing project of critical

pedagogy. Technology is utilized to control the messiness of human relations, to reduce

knowledge to a transferrable commodity, to neutralize dialogue through technologically

mediated interactions, and to fundamentally shift what it means to be human. Confronting

technology as an oppressive and totalizing system of power that is organized around the interests

of capital, not of social justice, is a central challenge for critical pedagogy in the digital age. To

attempt to utilize technology for liberatory purposes would be to, on McLaren's view, concede

too much. However, it seems even Freire did not foresee the potential for technology to become

part of an oppressive, totalizing system of power. He notes in *Pedagogy of Freedom*:

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[309] Ibid.

I've never been an ingenuous lover of technology; I do not deify it or demonize it. For that reason I've always felt at east in dealing with it. I've no doubt thought about the enormous potential for technology to motivate and challenge children and adolescents of the less-favored social classes.[310]

Despite Freire's sentiment that technology might support the most marginalized students in attaining educational opportunities, technology constructed around the interests of capital has converted education itself into an economic opportunity. In light of the ongoing success of the neoliberal, technological restructuring of public education, can schools still function as sites of resistance? What does praxis look like in the digital age? In what follows, I turn to this question to argue that while schools as sites of political and social contestation can be rehabilitated, it requires directly confronting the culture and ideology of technophilia in schools and society.

Can Schools Change Society?

Situating oneself in the tradition of critical pedagogy suggests an affirmative response to the question: Can schools change society? Concerned centrally with confronting the oppressive practices of schooling that perpetuate historical inequalities in order to remedy asymmetrical power relations, critical pedagogy is ultimately a hopeful tradition. However, in light of the complexity of the nature of the problem facing critical pedagogues in the digital age, the question concerning the liberatory potential of education in the era of neoliberal techno-rationality is a central concern of this dissertation and cannot go unaddressed.

Although critical pedagogy has strong ties to critical theory, there is not consensus on this question among all working in the tradition of critical theory. George Counts, in his seminal book *Dare the School Build a New Social Order?* proclaimed that public schools could

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[310] Ibid., 82.

dramatically improve society by shifting the goals of education toward more democratic aims.[311]

Indeed, as he maintained over a decade later, although education as an institution is controlled by

the ruling class, it is possible to conceive of an "educational program designed to strengthen

democracy."[312]

 As Michael Apple explains, however, the question of whether schools can change society

is more complicated than it may seem at face value.[313] Education as an institution is, of course,

part of society. As I note in Chapter 1, it may even be understood as a microcosm of society.

Therefore, schools frequently reproduce economic, racial, and gendered relations. Pierre

Bourdieu, for example, understood schools as one of central vehicles through which social

reproduction occurs.[314] Samuel Bowles and Herbert Gintis in their analysis of public schools

ultimately contend that the flow of influence does not start with schools and go outward into

society; instead, for Bowles and Gintis, the unequal economic conditions in the superstructure

creates the unequal conditions in public schools. [315] Recently, some cultural theorists have taken

even more cynical views on the nature of the situation. In *The Falling Rate of Learning and the*

Neoliberal Endgame David Blacker offers what Kevin Murray and Daniel Liston call an

"apocalyptic account of schooling in capitalist societies."[316] For Blacker, due to the "tendency of

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[311] George S. Counts, *Dare the School Build a New Social Order?* (Carbondale: Southern Illinois Press, 1932/1978).

[312] George S. Counts, "The End of a Myth About Education and Democracy," *Vital Speeches of the Day* (December 28, 1948), 249.

[313] Michael Apple, "Reframing the Question of Whether Education Can Change Society," *Educational Theory* vol. 65, no 3 (November 2015): 299- 315.

[314] See Pierre Bourdieu, *Distinction: The Social Judgement of Taste* (Cambridge, MA: Harvard University Press, 1984); Richard Teese, *Academic Success and Social Power: Examinations and Inequality*, 2nd ed. (Melbourne: Australian Scholarly Publishing, 2013).

[315] Samuel Bowles and Herbert Gintis, *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life* (New York: Basic Books, 1976). In this way, Bowles and Gintis are firmly situated in the tradition of Marxist analysis.

[316] Kevin Murray and Daniel P. Liston, "Schooling in Capitalism: Navigating the Bleak Pathways of Structural Fate," *Educational Theory* vol. 65, no. 3 (June 2015), 246.

the rate of profit to fall" (TRPF), the need for human labor will ultimately be eliminated, and schools as we know them will become obsolete. If indeed Blacker is correct regarding the trajectory of TRPF under global capitalism, schools would at the very least have to be reconceived aside from preparing students to take their place as laborers in the economy. Akin to Gramsci's "pessimism of the intellect, optimism of the will,"[317] Blacker suggests we take the approach of "compartmentalized fatalism," and strive anyway "even when it is perceived as hopeless."[318] David Harvey, however, has outlined what he argues are seventeen contradictions that suggest Blacker's analysis is too oversimplified and fatalistic.[319] Michael Apple, however, warns us against what he argues is a form of Marxist reductionism in order to complicate our critique of public schools and to carve out more spaces of resistance. As Apple notes, "[w]hile capitalism is implicated in so many of the crucial inequalities we face and certainly makes them even more difficult to overcome, it is not the root of all the truly *constitutive* dynamics and structures we face."[320] Schools play a large role in creating or reifying what counts as "legitimate" knowledge. Therefore, "schools are at the center of struggles over a politics of recognition with respect to race/ethnicity, class, gender, sexuality, ability, religion, and other important dynamics of power."[321] We can look to countless examples where political organizing and grassroots efforts in schools have been catalysts for social change. Rehearsing the rich history of the roles of schools in community organizing, however, lies outside the scope of this

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[317] See Antonio Gramsci, *Prison Notebooks*, ed. Quentin Hoare and Geoffrey Hoare Smith (New York: International Publishers, 1971).
[318] See David Blacker, *The Falling Rate of Learning and the Neoliberal Endgame* (Washington, DC: Zero Books, 2013).
[319] See David Harvey, *Seventeen Contradictions and the End of Capitalism* (New York: Oxford University Press, 2014).
[320] Michael Apple, "Reframing the Question of Whether Education Can Change Society," *Educational Theory* vol. 65, no 3 (November 2015), 304.
[321] Apple, "Reframing the Question," 307.

dissertation.[322] Situating myself in the tradition of critical pedagogy means I am committed to approaching the question, "Can schools change society?" with cautious optimism. Though, by drawing attention to the hegemonic culture of technophilia that undermines that which makes us human I believe we can begin to construct what Pauline Lipman calls counterhegemonies that imagine possible alternatives for the project of education.[323] Here, I argue that by identifying the ways in which technology threatens our human relations, critical pedagogy still serves as a viable framework for confronting the dehumanizing effects of the digital age.

Toward Humanization

The more technology continues to infiltrate all aspects of our life, including education, the more it becomes a taken-for-granted aspect of life in the modern era. With the successful collapsing of technology with concepts like "innovation" and "progress," to be critical of technology in the digital age is to be dismissed as a defender of the defunct status quo. After all, how can one resist the tide of change? Isn't technology here to stay?

For the critical pedagogue, however, the central aim of education is not to prepare students for the world that exists, but to imagine *with* students a world that *could* be—and then to create that world. That world may very well have, and in many ways should, have technology. However, when our orientation toward technology rises to the level of technophilia, technology becomes a totalizing force that reinforces asymmetrical power relations, neutralizes political action, and undermines the project of critical pedagogy that seeks to create a more socially just society. However, we should also avoid dualistic thinking. The question is not whether we ought

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[322] For an in-depth treatment of this history see Mark. R. Warren and Karen L. Mapp, *A Match on Dry Grass: Community Organizing as a Catalyst for School Reform* (Oxford: Oxford University Press, 2011).

[323] See Pauline Lipman, *High Stakes Education: Inequality, Globalization, and Urban School Reform* (New York: Routledge, 2004).

to have a world with technology, or without it. Freire refers to this type of thinking as "debilitating dualisms," because it limits our ability to imagine possible alternatives to our ontological conditions.[324] We must, however, confront the many ways in which technology reinscribes systems of power, while dehumanizing teachers and students in the process. Education as the practice of freedom is to confront that which limits our ability to become more fully human. Similar to race, class, gender, or ability, technology must be understood as an axis of power if critical pedagogy is to take seriously the role of technophilia in reinforcing systems of privilege and oppression. Although public school as an institution is itself a site where hegemonic systems of power are reinscribed, schools are also sites where power dynamics can be contested. For Freire:

> The educated individual is the adapted person, because she or he is better 'fit' for the world. Translated into practice, this concept is well suited to the purpose of the oppressors, whose tranquility rests on how well people fit the world the oppressors have created and how little they question it.[325]

The process of schooling individuals to serve their function in society, while making them amenable to and unquestioning of the unequal conditions of society, it dehumanizes them and robs them of life. Indeed, as Eric Fromm explains:

> While life is characterized by growth in a structured, functional manner, the necrophilous person loves all that does not grow, all that is mechanical. The necrophilous person is driven by the desire to transform the organic into the inorganic, to approach life mechanically, as if all living persons were things…Memory, rather than experience, having, rather than being, is what counts. The necrophilous person can relate to an object—a flower or a person—only is he possesses it; hence a threat to his possession is a threat to himself; if he loses possession he loses contact with the world…He loves control, and in the act of controlling he kills life.[326]

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[324] Paulo Freire, *Pedagogy of Freedom: Ethics, Democracy, and Civic Courage* (New York: Rowman & Littlefield Publishers, 1998), 88.

[325] Paulo Freire, *Pedagogy of the Oppressed* (New York: Bloomsbury, 2001), 76.
[326] Eric Fromm, *The Heart of Man: Its Genius for Good and Evil* (New York: Lantern Books**,** 1966), 41.

For Fromm, the technical control exerted over the bodies and minds of teachers and students through technology—to control the organic processes of the human experience through techno-rationality—undermines fundamental aspects of the human experience. Attempting to make education "more efficient" by introducing technology to expedite fundamental aspects of teaching and learning such as providing students with feedback relegates all that is not "content delivery" to the category of superfluous activity to be reduced. As Biesta explains, this reflects an "attempt to deny that education deals with living 'material,' that is, with human subjects, not with inanimate objects."[327] By questioning the "common sense" that improving education means making education more efficient by eliminating human subjective experience and judgement, teachers and students might begin to resist the reduction of their humanity to data points. Technology facilitates this reduction of students to data points by supporting the framing of knowledge as a neutral, deliverable commodity, eliminating possibilities for knowledge as a site of political and social co-construction. In this way, by neutralizing issues of power and privilege, technology supports both the neoconservative and neoliberal project of de-politicizing knowledge as a form of social control. This requires rejecting technology as a neutral tool that can be leveraged for radical purposes, especially the project of critical pedagogy. By identifying the collapse of concepts like "progress" and "innovation" with technology as a key process in the neoliberal, technological restructuring of public schools, critical educators can begin to reject a project that undermines their humanity and the humanity of their students. Too often,

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[327] Biesta, 2.

as Michael Apple notes, "[t]echnology is seen as an autonomous process. It is set apart and viewed as if it had a life of its own, independent of social intentions, power, and privilege."[328] By conceptualizing technology as a system of power, critical pedagogy can serve as a viable tool for confronting the dehumanizing effects of the digital age. Critical pedagogy is an *intervention.* As Giroux notes, such an intervention needs to be:

> grounded in a project that not only problematizes its own location, mechanisms of transmission, effects, but also functions as part of a larger project to contest various forms of domination and to help students think more critically about how existing social, political, and economic arrangements might be better suited to address the promise of a radical democracy as a participatory rather than messianic goal.[329]

The challenge is formidable as technology has become deeply interwoven into the fabric of neoliberal rationality that has come to subsume all aspects of society—especially public schools. Furthermore, as discussed in Chapter 2, the new Silicon Valley governance elite have been able to exercise great influence in educational policy. In this way, the public sphere increasingly becomes the "play thing" of a cohort of techie elites, an innovation incubation chamber, rather than the site of democratic action. In this paradigm of techno-rationality and technophilia, the question for tech-reformers is a matter of what is *possible*, rather than what is ethical or just. Though for critical pedagogues, as Donaldo Macedo reminds us, "we need to intervene not only pedagogically but ethically."[330] This requires risk. Confronting the technological restructuring of our schools and our lives that aims to undermine our humanity to serve the interests of capital demands a sustained commitment to critical pedagogy where asymmetrical power relations are identified and met with intervention. As Warren and Mapp note, "[e]ducators do not typically

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[328] Michael Apple, "Is the New Technology Part of the Solution or Part of the Problem in Education?" in eds. Antonia Darder, Marta Baltodano, and Rodolfo D. Torres *The Critical Pedagogy Reader* (New York: RoutledgeFarmer, 2003): 440-458.
[329] Henry A. Giroux, *On Critical Pedagogy* (New York: Bloomsbury, 2011), 76.
[330] Donaldo Macedo, "Introduction," in *Pedagogy of the Oppressed*, 20.

like to talk about power. Most feel disempowered themselves."[331] However, by identifying that

which undermines their own power, critical educators can work together with students to

imagine possible alternatives for living and being in the world. As Michael Apple explains:

> The rhetorical flourishes of the discourses of critical pedagogy need to come to grips with…changing materials and ideological conditions. Critical pedagogy cannot and will not occur in a vacuum. Unless we honestly face these profound rightest transformations and think tactically about them, we will have little effect either on the creation of a counterhegemonic commonsense or counterhegemonic alliance.[332]

In other words, critical pedagogues in the digital age must go beyond "wringing concessions"

from existing oppressive power structures and confront the culture of technophilia that views

humanness as an obstacle to be overcome. Therefore, in Chapter 5, I turn to possible entry points

for cultivating counterhegemonic movements that resist the culture of technophilia in public

education.

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[331] Mapp and Warren, *A Match on Dry Grass*, 28.
[332] Michael Apple, *Educating the "Right" Way: Markets, Standards, God, and Inequality* (New York: Routledge, 2006), 79.

CHAPTER FIVE

RESISITING TECHNOPHILIA

"Where would we be without the capacity to imagine a better world?"
-    Bill Ayers[333]

Thus far, I have discussed at length what I take to be the central issues facing public

schools that have emerged as a result of education's current problematic relationship to

technology. Educational policy that frames technology as the panacea for the problems facing

public schools, the uncritical acceptance of technology, the proliferation of screen time in the

lives of children, the dehumanizing effects of technologically-mediated interactions, the

predatory practices of powerful companies that exploit discourses of progress and innovation,

and the technological restructuring of education are all issues that I've raised throughout this

dissertation.

Admittedly, much of what I have said thus far may be misconstrued as merely a

Luddite's lament. Indeed, a central critique of those working in critical traditions is that we are

quick to point out what is broken, but fail to outline positive recommendations for what

otherwise might be. On the other hand, one of the problems I see with the logic of neoliberalism,

as I've argued throughout this dissertation, is that it seeks tidy solutions to complex, human

problems. These solutions are then meant to be standardized, brought to scale, and implemented

unilaterally without consideration of the experiences of people in their local contexts. Such an

approach to addressing issues in public education has historically created more problems than it

has solved.

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[333] Bill Ayers, "Foreword: Dystopia and Education" in Eds. Eric Sheffield and Jessica Heybach, *Dystopia and Education: Insights Into Theory, Praxis, and Policy in the Age of Utopia-Gone-Wrong* (Charlotte, North Carolina: Information Age Publishing, Inc., 2013): xi.

Furthermore, as I have argued across the previous chapters, technology—and specifically the culture of technophilia—is inextricably linked to the neoliberal restructuring of our schools and society. Technophilia, as part of the hegemonic system of neoliberal techno-rationality, is totalizing. To claim to have a fix for the current state of technophilia in public education would be akin to claiming to have an antidote for neoliberalism itself. This seems a rather tall order.

Additionally, a central strength of neoliberalism is its ability to absorb and neutralize resistance. A most striking example is the array of Occupy Wall Street merchandise now available for sale on platforms such as Zazzle and CafePress.[334] One can demonstrate their disdain for perverse levels of income inequality by purchasing a sweatshirt with the logo "I am the 99%." As Harmon Leon describes it, referring to the New York couple that trademarked the Occupy brand in 2011, "now the disenfranchised can become a franchise."[335] The appropriation of resistance by capital has been well documented, and this neutralization of resistance underscores the severity of the challenge faced by those confronting technophilia in schools and society.

Following the example of Eric Sheffield and Jessica Heybach who use the word "insights" in order to avoid proposing "canned solutions" to complex educational dilemmas, in this chapter I outline potential avenues for consideration for those who see technophilia as something to be resisted.[336] For critical pedagogues, particularly Paulo Freire, resistance *must* come from the ground up. There is no handbook for radical liberatory action; resistance is highly contextualized and does not stem from top-down, managerial approaches. To their detriment,

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[334] See Brad Tuttle, "'Occupy Wall Street' For Sale," *Time* October 23, 2011.

[335] Harmon Leon, "Occupy Wall Street: The Brand!," *Huffington Post* October 26, 2011.

[336] Eric Sheffield and Jessica Heybach, "Dystopia and Education?" in *Dystopia and Education: Insights Into Theory, Praxis, and Policy in the Age of Utopia-Gone-Wrong* Eds. Eric Sheffield and Jessica Heybach (Charlotte, North Carolina: Information Age Publishing, Inc., 2013): xxiv-xxv.

education scholars and practitioners have too often looked to outsiders for insight into finding the "best practices" or "what works." This "quest for certainty," to use John Dewey's language, is a symptom of the neoliberal rationality that causes many of the problems critical educators seek to overcome.[337] In other words, the answers to our most troubling problems—counter to what most of us have learned in school—are not "at the back of the book." They come from our ability to imagine better worlds, and from struggling together with comrades toward building a society more just for all. It is for these reasons why I will resist offering solutions to the problem of technophilia in education—in the neoliberal sense—but instead put forth several possibilities and entry points that I see for resisting the current paradigm of technophilia in public education.

First, I argue that before we look ahead toward imagining possible alternatives, we must turn to the past. By examining the history of the Luddite rebellion and the Luddite critique of the juggernaut of technology, we gain valuable insight into the trouble of technophilia in the modern age. I argue that by rehabilitating key elements of the Luddite tradition, and applying their critique to public education in the age of technophilia, we might carve out avenues for resistance.

Secondly, I argue that any viable project of resistance must develop counter-lexicons in order to confront hegemonic systems of power. A key strategy of the neoliberal restructuring of public education has been to control the language that we use to discuss basic aspects of teaching and learning. Language is a central site of the production and maintenance of power, particularly surrounding claims to truth and knowledge. Discursive control is a hallmark of technophilia, and the manipulation of educational discourse itself is in many ways deliberate and tactical. By conflating technology with concepts such as innovation and progress, it casts critics as defenders

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[337] John Dewey, *The Quest for Certainty* in *The Later Works of John Dewey, Volume 4, 1929-1953: 1929* Ed. Jo Ann Boydston (Carbdondale: Southern Illinois University Press, 2008).

of the status quo. Corporate school reformers have been leveraging discursive control to advance neoliberal policies for decades with such success that one is hard-pressed to hold any conversation about education without relying on words such as "accountability," "measurement," "standards," "efficiency," or "choice." For critical scholars, resisting the culture of technophilia in education requires not only resistance, but also a *language of resistance.* I argue that by conceiving of different ways of talking about teaching and learning—by developing counter-lexicons—we open up possibilities for wresting linguistic control away from neoliberal reformers.

Lastly, I explore the use of dystopia as a constructive paradigm for drawing connections with students to social problems in our digital age. Dystopias have long served the purpose of social critique, and recently some education scholars have begun turning to dystopia as a lens for examining issues in education and educational policy. [338] Educational theory, critical pedagogical theory in particular, is replete with discussions of *utopia*.[339] Freire, for example, spoke frequently of the importance of utopian thinking for informing critical intervention in the world. He explains:

> One of the most important tasks of critical educational practice is to make possible the conditions in which the learners, in their interaction with one another and with their teachers, engage in the experience of assuming themselves as social, historical, thinking,

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[338] See, for example, F. Tony Carusi, "Dyst(r)opia: A Tropological Argument for Dystopia and Education" in in *Dystopia and Education: Insights Into Theory, Praxis, and Policy in the Age of Utopia-Gone-Wrong* Eds. Eric Sheffield and Jessica Heybach (Charlotte, North Carolina: Information Age Publishing, Inc., 2013): 51-67 and Jessica A. Heybach and Eric C. Sheffield, "Dystopian Schools: Recovering Dewey's Radical Aesthetics in an Age of Utopia-Gone-Wrong," *Education and Culture* 30, no. 1 (Spring 2014): 79-94.

[339] See, for example, Rhiannon Firth, "Toward a Critical Utopian and Pedagogical Methodology," *The Review of Education, Pedagogy, and Cultural Studies* 35, no. 4 (2013): 256-276; John Freeman-Moir, "William Morris and John Dewey: Imagining Utopian Education," *Education & Culture* 28, no 1 (2012): 21-41; and Dan Sabia, "Democratic/Utopian Education," *Utopian Studies* 23, no. 2 (2012): 374-405.

communicating, transformative, creative persons; dreamers of possible utopias, capable of being angry because of a capacity to love.[340]

However, as Sheffield and Heybach discuss, some of the most harmful education policies of the last several decades have been organized around utopian thinking. For example, No Child Left Behind outlined utterly unreasonable utopic goals such as 100% proficiency in math and reading, with harsh penalties waged against schools that failed to meet the unrealistic expectations. This quickly resulted in dystopian consequences such as the creation of climates of increased surveillance and control.[341] By exploring the use of dystopias as an educational tool for making connections between imagined worlds and students' technological reality, while maintaining a commitment to utopian thinking, I argue that dystopias offer a powerful framework for critiquing technophilia.

By arguing for a rehabilitation of Luddism as a serious intellectual tradition in the modern age, calling for a development of counter-lexicons as a form of resistance, and exploring the use of dystopia as a lens for critiquing technophilia, I turn to imagining possible antidotes for the current state of technophilia in education to underscore that my critique is ultimately committed to optimism. A commitment to hope, and to the liberatory potential for praxis, lies at the heart of critical pedagogy. As Paulo Freire discusses in Chapter One of *Pedagogy of Freedom,* there is a distinction between hope and optimism and "false optimism" or "vain hope."[342] False optimism and vain hope occur in the absence of critical transitivity and praxis. It is not enough to be merely "hopeful" or "optimistic." To fulfill the demands of critical pedagogy, hope and optimism must be rooted in a deep understanding of the nature of social problems, and met with ongoing resistance in the face of oppressive regimes.

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[340] Paulo Freire, *Pedagogy of Freedom: Ethics, Democracy, and Civic Courage* (New York: Rowman and Littlefield Publishers, Inc., 1998), 45.
[341] Jessica A. Heybach and Eric C. Sheffield, "Dystopian Schools," 86.
[342] Paulo Freire, *Pedagogy of Freedom*, 26.

Learning From Luddism

> "Your real enemy—one you can neither fight nor reason with…it's not a 'who.' What you're up against is the Future."
>
> -Daddy Warbucks, on the automation of labor
> "Little Orphan Annie"

Several factors made the conditions ripe for revolution in the early nineteenth century British midlands. To start, an unusually cold summer of 1811 did considerable damage to the year's harvest. Indeed, as late as June, there was "ice of considerable thickness" reported on several riverbanks in Nottinghamshire.[343] Following the frigid summer came an unusually warm fall, which did little to help the damage wrought on the season's crops. To boot, much of the food supply was being siphoned off to feed British troops fighting in the Napoleonic Wars, resulting in unprecedented foot shortages and prices. [344] Additionally, as Kirkpatrick Sales notes, trade blockades established by Napoleon several years earlier severely reduced British exports to the Americas, particularly the textile trades which were the most export-dependent at the time. Cotton weavers felt the effects most acutely, as their wages dropped to as low as five shillings per week.[345] Finally, the cotton weavers, known as frame-work knitters were put out of work by the hundreds, replaced by weaving frames that could do the work of five men at a time. Hungry, economically depressed, and increasingly robbed of their livelihoods and dignity, a rebellion emerged. Under the fictitious General Ned Ludd, a group of workers led a region-wide revolt in Ludd's name, destroying machinery to express their deep opposition to mechanized labor. The Luddites would frequently enter shops and homes in the middle of the night—their faces often

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[343] See Andrew Charlesworth, *An Atlas of Rural Protests in Britain 1548-1900* (Philadelphia, University of Philadelphia Press, 1983).

[344] Ibid.

[345] Kirkpatrick Sale, *Rebels Against the Future: The Luddites and Their War on the Industrial Revolution* (Cambridge: MA, Perseus Publishing, 1995), 62.

disguised with masks—and violently destroy machinery and tools. As Steven E. Jones notes,

"Ned Ludd functioned more like a 'metonym,' an imported figure that the local Luddites, mostly

cotton weavers, used to unify their cause."[346] The Luddite movement was not restricted to

England, however. Workers in France and Belgium were known to throw their clogs, or "sabots"

into machines to destroy them, giving rise to the word "sabotage."[347]

     Information surrounding the revolts was highly sought after and well rewarded. Posters

appearing in Nottingham and Leeds in 1812 offered two hundred pounds to anyone with

information pertaining to the revolts.[348] Other notices deemed the Luddites "evil-minded

people," offering as much as one thousand pounds for turning in those who "wantonly destroyed

cloth."[349] The Luddites at the time were widely understood as malicious troublemakers who

opposed progress. However, a collection of state trials from 1783-1823 suggests that the climate

in England at the time was vehemently anti-labor. For example, a man named Joseph Hanson

was indicted in London in 1809 with a misdemeanor charge for "aiding and abetting the Weavers

of Manchester in a Conspiracy to raise their wages."[350] If such an indictment reflects the political

climate of the time, the lack of sympathy for the Luddite cause can be better understood.

     Aspects of the origin of the Luddites and Luddism as an intellectual tradition remain

somewhat shrouded in mystery. This has proven to be a central strength of the Luddite uprisings;

evidence suggests that the Luddite rebellion was not a singular, organized movement. Instead, it

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[346] Steven E. Jones, *Against Technology: From the Luddites to Neo-Luddites* (New York: Routledge, 2013), 29. Some say the name comes from a boy named Edward Ludd who destroyed machinery out of hatred for his employer. See See Jon Baggaley, "Reflection: The Luddite Revolt Continues" *Distance Education* 31, no. 3 (November 2010): 337-343.

[347] See Fred W. Thompson and Patrick Murfin, *The I.W.W.: Its First Seventy Years* (Chicago, 1976).

[348] Thomas Rew, John Jackson, and Thomas Naylor, "Frame-Breaking 200 Reward," (January 25, 1812), Broadsheets relating to the Luddite disturbances, Nottinghamshire Archives.

[349] Nottingham Corporation (1811), Broadsheets relating to the Luddite disturbances, Nottinghamshire Archives.

[350] Thomas Jones Howell, Esq., "A Complete Collection of State Trials and Proceedings for High Treason and Other Misdemeanors from the Year 1783 to the Present Time" (London: T.C. Hansard, Peterborough Court, 1823), 681.

is more likely that plans were hatched among separate groups of men in pubs, operating "on their own under the effective rubric of Luddism."[351] As Sale notes, Luddism is best understood as "an organic phenomenon, best taken as a series of events that only gradually—and sequentially—come to reveal its intrinsics."[352]

The Luddites came to be characterized as counterrevolutionaries of the Industrial Revolution, though as Thomas Pynchon points out, the machinery that was the object of the Luddite antagonisms had been around for nearly two centuries.[353]While the term Luddite has become a somewhat derogatory term aimed at dismissing anyone who questions or critiques technology, Luddism as an organic, intellectual tradition is not inherently anti-technology; instead, Luddites of the past and Neo-Luddites now call for a critical reassessment of modern technophilia, arguing that all technology is inherently political and often serves the interests of the powerful.[354] For example, E.P. Thompson noted that Luddites were not mere reactionaries; they were concerned about the political and economic implications of technology in use.[355] Put succinctly, "our technophiliac world is a consumerist world, and to question technology is to be a Luddite."[356] Therefore, concerns surrounding the connection between technology and exploitative capitalism have been made for several centuries. According to Jones, for Luddites

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[351] Ibid., 86. See also Carolyn Steedman, *An Everyday Life of the English Working Class: Work, Self, and Sociability in the Early Nineteenth Century* (New York: Cambridge University Press, 2013).

[352] Sale, *Rebels Against the Future,* 76.

[353] Thomas Pynchon, "Is it O.K. to Be a Luddite?" *The New York Times* (October 1984).

[354] Emerging in the 1960s, the term "technophilia" refers to the futuristic positive feelings evoked by technology. See Maria-Elena Osiceanu, "Psychological Implications of Modern Technologies: 'Technofobia' versus 'Technophilia,'" *Procedia-Social and Behavioral Sciences* 180, no. 1 (2015): 1137-1144, 1138.

[355] See E.P. Thompson, *The Making of the English Working Class* (New York: Vintage Books, 1963): 492-493.

[356] Darryl Coulthard and Susan Keller, "Technophilia, Neo-Luddism, eDependency and the Judgement of Thamus," *Journal of Information, Communication and Ethics in Society* 10, no. 4 (September 2012): 262-272, 267. See also Chellis Glendinning, "Notes Toward a Neo-Luddite Manifesto" *The Anarchist Library* (1990).

Western technology is "both the cause and effect of global capitalism."[357] However, it is important to note that the Luddite grievances were not limited to the machines. Luddism is a cultural and moral critique as much as it is an economic one. While the common understanding of the nature of the Luddite critique is that they were concerned centrally with the preservation of their livelihoods, their outrage was also moral and cultural. As Sale notes:

> [A]t the bottom of the workers' grievance was not just about the machinery—it *never* was just the machinery throughout all the years—but what the machinery stood for: the palpable, daily evidence of their having to succumb to forces beyond their control, beyond their power even to influence much, that were taking away their livelihoods and transforming their lives. [358]

The legacy of the Luddites offers a valuable framework for critiquing technophilia in the modern age. Many of the Luddites' objections to technology—the havoc that unfettered global industrialization sets on communities, the ecological impacts of industrial societies on the environment, and the devaluation of human craft, labor, and decision making—remain concerns today. Just as the goal of industrialization has been to control the natural world, so it has been with digitization to control the human spirit. Indeed, as Sale notes:

> Much there is to be learned from the experience of the Luddites, as distant and as different as their times are from ours. Just as the second Industrial Revolution itself has its roots quite specifically in the first—the machines change, but the machine*ness* does not.[359]

While until recently, it was only low-skill labor that had been threatened with replacement by automation, changes in technology now threaten the livelihood of those working in knowledge sector professions, and roles that were previously thought of as ones that could only be filled by

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[357] Jones, *Against Technology,* 24.
[358] Ibid., 68.
[359] Ibid., 261.

humans.[360] As I've explained throughout this dissertation, education has become one of the latest

frontiers for this type of automation. A puzzling aspect of the current state of technophilia in

education is the widespread embrace by educators of machines that, taken to their logical

conclusion, are meant to undermine and eventually replace teacher labor. What once was

identified as a direct threat to one's livelihood is now actively embraced as "innovation" and

"progress." Here, I believe a rehabilitation of the Luddite critique might serve as powerful

paradigm for understanding and confronting the current state of technophilia in public education.

The neoliberal restructuring of public education has had significant consequences on the

status of the teaching profession.[361] Strategies such as the replacing of traditionally certified

teachers with cheaper and less qualified staff such as Teach for America members, the closing of

"failing" schools that impacts not only teachers but entire communities, and the standardization

of curriculum that undermines the intellectual autonomy of educators have all been well

documented. [362] Such efforts have generally been met with some resistance, albeit not with the

force and numbers required to completely combat them. However, the technological takeover of

public education has been allowed to persist relatively unquestioned. Quite to the contrary,

education scholars and practitioners actively embrace the technological turn in public education

despite ongoing indications that technology is being created to directly undermine teacher labor.

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[360] See, for example, Stanley Aronowitz and William DiFazio, *The Jobless Future: Sci-Tech and the Dogma of Work* (Minneapolis: University of Minnesota Press, 1994).

[361] The status of teaching as a "profession," however, has been called into question on the grounds that teachers do not have professional autonomy. See Joseph W. Newman, *America's Teachers: An Introduction to Education* (Boston, MA: Allyn and Bacon, 2002), 128-33; and Michael G. Gunzenhauser, "An Occupation's Responsibility: The Role of Social Foundations in the Cultivation of Professionalism," *Critical Questions in Education* 4, no. 2 (2013): 192-194.

[362] See Eds. T. Jameson Brewer and Kathleen deMarrais ,*Teach for America Counter-Narratives: Alumni Speak Up and Speak Out* (New York: Peter Lang, 2015); Kristen L. Buras, *Charter Schools, Race, and Urban Space: Where the Market Meets Grassroots Resistance* (New York: Routledge, 2015); and Ed. Deron Boyles, *The Corporate Assault on Youth: Commercialism, Exploitation, and the End of Innocence* (New York: Peter Lang, 2008).

Researchers at Carnegie Mellon, for example, are working on technology that "could aid even those more sophisticated tasks through natural-language processing," making possible the automation of tasks such as grading essays and providing student feedback.[363] Technology such as a "computerized persona" that can participate in a classroom "discussion board" has already been piloted in the Pittsburgh school system, though are not "stable enough" to be offered elsewhere.[364] Such technology has already been used to lay off teachers in places like Eagle County, Colorado where three foreign language teachers were laid off and replaced by computer software. In 2011, the Idaho state legislature passed a law requiring all high-school graduates to complete two online courses, and requiring all students and teachers to have a laptop or tablet. Such a referendum would require "tens of millions of dollars" to be shifted away from other programs, including teacher and administration salaries to fund the technology.[365] Elsewhere, Todd Yohey, superintendent of the Oak Hills district in Cincinnati has attempted to alleviate teacher concerns over automated instruction by reassuring the district, "[o]ur hope is that our classroom teachers are also the online facilitators. That's our goal."[366] It is unclear whether teachers in Cincinnati find this appealing. While isolated pockets of resistance have gained some traction, widespread critique of machines in schools have yet to emerge.

Furthermore, those who might seem most amenable to critiquing machines in schools on the grounds that technology threatens to undermine teacher labor also remain generally uncritical of the technological takeover of public school classrooms. For example, Lois Weiner, who is among teachers' unions strongest defenders, has at times failed to connect the technological

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[363] Ian Quillen, "When Technology Tools Trump Teachers," *Education Week* 31, no. 37 (August 2012), 20.
[364] Ibid.
[365] Matt Richtel, "Teachers Resist High-Tech Push in Idaho Schools," *The New York Times* (January 3, 2012). http://www.nytimes.com/2012/01/04/technology/idaho-teachers-fight-a-reliance-on-computers.html.
[366] Quillen, "When Technology Tools Trump Teachers," 21.

restructuring of public education to the vitality of teaching as a profession. As Weiner argues, "[t]he struggles today do not result from changes in 'technology' or 'globalization,' which are phenomena advanced to mask the real culprit, capitalisms structural crisis and its neoliberal solutions."[367] Weiner is mistaken, however, to suggest that technology and globalization are not themselves epiphenomenal of the neoliberal project. Indeed, as Weiner notes elsewhere:

> While defending the right of teachers to choose the learning environment that they find most helpful and arguing for equity in access to the technology, I also suggested that we should imagine the progressive potential of online learning, to consider how the technology could be a powerful pedagogical tool if used for public good rather than profit. [368]

As I have discussed throughout Chapter 4, however, the goal of imposing technology in schools is to minimize the influence of teachers in "delivering" curriculum. The logical conclusion of "educational technology" in the paradigm of techno-rationality is the complete elimination of teacher labor. To suggest that machines that have been designed to undermine teacher labor and influence can be utilized as a tool for the public good seems to greatly underestimate the juggernaut of technology that the Luddites identified as an imminent threat to workers. Additionally, Randi Weingarten, best known as one of the staunchest defenders of teachers unions has slowly succumbed to the pressure from education reformers that cast unionized labor as an impediment to progress. As Trip Gabriel observed of Weingarten, "she has led her members—sometimes against internal resistance—to embrace innovations that were once unthinkable. She has acted out of fear that teachers' unions could end up on the wrong side of a historic and inevitable wave of change."[369] Keith Johnson, President of the Detroit Federation of

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[367] Lois Weiner, *The Future of Our Schools: Teachers Unions and Social Justice* (Chicago: IL, Haymarket Books, 2012), 166.

[368] Ibid., 183.

[369] See Trip Gabriel, "Despite Image, Union Leader Backs School Change," *The New York Times* (October 15, 2010). http://www.nytimes.com/2010/10/16/education/16teacher.html.

Teachers recently remarked, "if we don't embrace education reform, we'll get knocked through the wall."[370] This thinking seems to have been codified in the official position of the American Federation of Teachers. Indeed, a piece featured on AFT website called "Learning Technology: A Few Tips" explains:

> Educators can use technology in the classroom in many different ways. These can range from using smartboards to show simple PowerPoint slides of videos during a lesson and providing online support material such as teaching aids, to the spectacular massive open online courses (known as MOOCs) that universities are currently using to allow tens of thousands of students worldwide to follow the same studies through video lessons, self-testing and discussion forums. [371]

The notion that the AFT would embrace MOOCs that are designed to maximize profit though mass distribution while eliminating teacher labor is frankly, untenable. The fact that many of the strongest defenders of the teaching profession have embraced the technological takeover of public schools underscores the intensity of the culture of technophilia in education. This is why it is vital that the technophilic paradigm in education be shifted. The rehabilitation of Luddism as an intellectual tradition to resist is a powerful tool for challenging the technological restructuring of education. This, however, requires that education scholars, practitioners, and activists explicitly draw the connection between technology and the demise of the teaching profession as we know it.

The threat against the livelihoods of teachers, however, is not enough. The Luddites understood the unfettered expansion of machines as not only an economic problem, but a cultural and moral dilemma. This extends beyond the relative short-sightedness of job loss, an idea that many people accept in other fields. For example, jobs are destroyed by technology, but also they are often created. In many cases, job elimination can be seen as a positive thing. For example,

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[370] Ibid.
[371] Pedro De Bruyckere, Paul A. Kirschner, and Casper D. Hulshof, "Learning and Technology: A Few Tips" Technology in Education, Spring 2016 https://www.aft.org/ae/spring2016/debruyckere-kirschner-and-hulshof.

technology has the potential to dramatically reduce our reliance on fossil fuels by making

widespread sustainable energy sources a reality. A shift away from fossil fuels toward clean

energy through technology would result in the elimination of jobs, for example, in the coal

industry.[372] The elimination of jobs in the coal mining industry is overall beneficial. Coal mining

is dangerous; workers are vulnerable to chronic lung diseases and work related accidents.[373] Coal

mining is also an unsustainable energy source; moving toward renewable energy sources would

be better for the environment.[374] Certainly, coal miners and the communities that rely on the coal

industry should not be abandoned and left to fend for themselves—but the job elimination itself

can be seen as part of a positive and ethical transformation. The polemics of the alleged "war on

coal" is beyond the scope of this dissertation. Instead, my point is to underscore that job

elimination through technology has degrees of complexity and nuance; the elimination of

exploitative labor is itself a worthy goal.[375] This is why although the replacement of human labor

by machines is a helpful entry point for the critique of technology, it must extend beyond it.

Written shortly after the Luddite rebellions in 1818, Mary Shelley's *Frankenstein* depicts

an iconic example of technology run amok. As Jones notes, interpretations of *Frankenstein* as the

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[372] It is important to remember, however, that the coal industry's economic footprint is actually quite small, accounting for only about 76,572 jobs nationwide, including office workers and sales staff. To put this in perspective, the now nearly extinct travel agency industry employees nearly 100,000 workers. The carwash industry employees approximately 150,000 workers. See Christopher Ingraham, "The Entire Coal Industry Employs Fewer People Than Arby's," *The Washington Post* (March 31, 2017). https://www.washingtonpost.com/news/wonk/wp/2017/03/31/8-surprisingly-small-industries-that-employ-more-people-than-coal/?utm_term=.277907cd59bd.

[373] Center for Disease Control and Prevention, "Coal Mine Dust Exposures and Associated Health Outcomes: A Review of Information Published Since 1995," Department of Health and Human Services (April 2011): 1-56.

[374] See, for example, Dirk Arne Heyen, Lukas Hermwille, and Timon Wenert, "Out of the Comfort Zone! Governing the Exnovation of Unsustainable Technologies and Practices," *Ecological Perspectives for Science & Society* vol. 26 no. 4 (December 2017): 326-331.

[375] For a discussion regarding the benefits of replacing human labor see Murray Bookchin, *Post-Scarcity Anarchism* (Montreal: Black Rose Books, 1986).

first Luddite novel "frame Luddism from the start as a fearful, anti-technology philosophy."[376]

At the end, Shelley's monster tells the scientist, "You are my creator, but I am your master."[377]

The sentiment here is chillingly appropriate to describe the current landscape of technophilia in education. "We" have created machines like computers, "smart" boards, tablets, and biometric bracelets but most educators' daily lives are now completely organized around these machines. An era of franken-education has emerged.

While I argue that, drawing on the Luddite critique, education scholars, practitioners, and activists must explicitly draw the connection between technology and the elimination of teacher labor, I also believe there is room for another Luddite strategy in confronting technophilia in public schools—sabotage. A unified, widespread active resistance against the "foul imposition" of technology will be necessary, but we should not underestimate the potential for *individual* or small-scale acts of resistance.[378] Indeed, one of the reasons the Luddite rebellion was so difficult to combat was that it was not always unified; small groups carried out acts of sabotage acting on the principles of Luddism. Robin D.G. Kelley, for example, in his extensive documentation of black, working-class resistance explains that individual acts of sabotage in the workplace have been—if not always a deliberate strategy of political resistance—an emotional and spiritual outlet for those in the working class. Kelley highlights "how power operates, and how seemingly innocuous, individualistic acts of survival and resistance shape politics, workplace struggles, and

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[376] Jones, *Against Technology,* 106. Luddism is aligned with Marxist understandings of class conflict. Interestingly enough, Mary Shelley's husband Percy Shelley was a Luddite sympathizer who wrote several famous political ballad's including *The Mask of Anarchy*, which called for mass demonstrations against machinery that later were "appealing" to Marx and Engels.

[377] Mary Wollstonecraft Shelley, *Frankenstein* (New York: Millenium Publications, 1818).

[378] See Kirkpatrick, *Rebels Against the Future*, 82.

the social order generally."[379] Drawing on his own experience as a McDonald's employee, Kelley explains:

> Sometimes we (mis) used the available technology to our advantage. Back in our day, the shakes did not come ready mixed. We had to pour frozen shake mix from the shake machine into a paper cup, add flavored syrup, and place it on an electric blender for a couple of minutes. If it was not attached correctly, the mixer blade would cut the sides of the cup and cause a disaster. While these mishaps slowed us down and created a mess to clean up, anyone with an extra cup handy got a little shake out of it.[380]

Challenging the totalizing culture of technophilia in public education will require both collective and individual acts of resistance. Small, everyday acts of sabotage cannot be disregarded as a site of resistance. Teachers might deliberately leave communal carts of tablets or laptops unplugged overnight, turn a blind eye to a child who is engaging in behavior that is likely to damage a piece of equipment, or "accidentally" damage or destroy equipment themselves.

My mother, who works as a secretary in a large high school in charge of, among many other things, keeping track of student attendance records for over three thousand students, recently experienced a technological mishap that highlights the fragility of the digital infrastructure on which most schools rely. This past December, someone who was unauthorized to access student attendance records was able to access the school's database and erase all student attendance for the entire school year. All of the school records had been completely digitized, so there was no way to confirm any student's attendance information. This created a degree of chaos in the school for several weeks, as retrieving the proprietary information from the company that owns the online platform cost several *thousand* dollars. Unable to rectify the problem themselves, the school ultimately had to pay a fee to restore student records. This

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[379] Robin D.G. Kelley, *Race Rebels: Culture, Politics, and the Black Working Class* (New York: The Free Press, 1994), 9.
[380] Ibid., 2.

example is striking in at least two ways. First, it reveals that our technological infrastructure is far more precarious than we tend to believe, which means it is *always* susceptible to compromise—whether intentionally or not. Second, it reminds us that all of the online platforms used to store teacher and student data are proprietary. By utilizing online record keeping or moving courses to platforms like iCollege or Blackboard, we are willingly handing over data to for-profit entities.

Recent events such as the Equifax data breach of 2017 that compromised the personal information of over 145 million Americans[381], the alleged hacking of the Republican and Democratic National Committees by foreign entities during the last presidential election[382], and the well-documented success of Russian "trolls" in manipulating social media platforms like Facebook and Twitter to influence political discourse[383] all underscore the fragility of the digital infrastructures most people now rely on, on a daily basis. The point here is that while technology is indeed totalizing, technology and digital infrastructures are also exceedingly precarious. This seems a reasonable entry point for leveraging critique, as well as committing individual or small-scale acts of resistance.

As with many contemporary social problems, valuable insights can be obtained by turning to the past. By drawing on the Luddite tradition, I believe education scholars,

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[381] See, for example, Rob Lieber, "How to Protect Yourself After the Equifax Data Breach," *The New York Times* (October 16, 2017). Other companies such as Target and Home Depot experienced similar data breaches of customers' personal information in 2013 and 2014, respectively. See Sarah Halzack, "Home Depot Hit By a Cyber Breach," *The Washington Post* (September 8, 2014). https://www.washingtonpost.com/business/economy/home-depot-hit-by-cyber-breach/2014/09/08/7b614982-3799-11e4-9c9f-ebb47272e40e_story.html?utm_term=.b52af82003c5.

[382] See, for example, Josh Meyer, "Russia Hack of U.S. Politics Bigger Than Disclosed, Includes GOP" *NBC News* (October 2016) https://www.nbcnews.com/news/us-news/russia-hack-u-s-politics-bigger-disclosed-includes-gop-n661866

[383] See, for example, "Russian Trolls Created Facebook Events Seen By More Than 300,000 Users," *CNN* (January 26, 2018). http://money.cnn.com/2018/01/26/media/russia-trolls-facebook-events/index.html.

practitioners, and activists can carve out paths for resisting the totalizing culture of technophilia in public education.

Counter-lexicons

As I've argued throughout this dissertation, a central strategy of the neoliberal, technological restructuring of public education is the leveraging of discursive control to advance technical solutions to human problems. This is a hallmark of technophilia. Technophilia, as a world-view that sees all new technology as inherently positive and beneficial to human life, relies on language to reify a technophilic paradigm. The success of the discourse of technophilia is evident in the everyday language we use to describe changes in technology. Phrases such as "technological advancements" or "technological progress" are commonplace; particularly in education circles, we lack the vocabulary to discuss technology that doesn't already presume that technology is inevitable, and therefore desirable and beneficial—resulting in an orientation toward technology that reflects an attitude of a sort of digital fatalism. Critical approaches to technology interrogate the ways in which technology as a discourse has come to shape basic assumptions of the relationship between technology and society, forming a dialectical relationship between technological discourse and human relations. Indeed, as Eran Fisher highlights, "the discourse on technology is not simply a reflection of the centrality of technology in the operation of modern societies; instead, it plays a constitutive role in their operation, and enables precisely that centrality."[384] As discussed in Chapter 3, technophilic discourse is embedded in education policies of the last several decades, codifying technophilia in the everyday language used by scholars and practitioners to describe teaching and learning, and the role technology ought to play both in schools and society. Furthermore, as discussed in Chapter

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[384] Eran Fisher, "Contemporary Technology Discourse and the Legitimation of Capitalism," *European Journal of Social Theory* vol. 13, no. 2 (2010): 231.

2, the concepts of innovation and progress have been rhetorically conflated with technology, serving to both reify a discourse of technophilia while benefitting the new techno-governance elite who profit from the exploitation of public education. This results in what Neil Selwyn calls a "discursive closure" that makes tech-speak highly resistant to critique.[385] As Louise Phillips and Marianne Jorgenson explain, "[t]he overall idea of discourse theory is that social phenomena are never finished or total. Meaning can never be ultimately fixed and this opens up the way for constant social struggles about definitions of society and identity, with resulting social effects."[386] As such, discourse serves as a site of social and political contestation; discourse is not fixed or stagnant, and is subject to reinterpretations and critique. Raymond Williams, for example, in his work of tracing historical changes of "keywords" argues that everyday vocabulary can be indicative of cultural changes.[387] With regard to understanding social issues, Williams notes that solutions "cannot even be focused unless we are conscious of the words as elements of the problems."[388] Therefore, resisting technophilia in public education requires a reassessment of the language we use to discuss teaching and learning that challenges taken for granted assumptions about the role of technology in schools. Developing a counter-lexicon is vital for critical educators to develop alternative paradigms for the purpose of education and the role of schools in society.

As Selwyn explains, "we find ourselves caught in a situation where the dominant discourses of education and technology work to primarily silence dissent and reduce most people

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[385] Neil Selwyn, "Minding Our Language: Why Education and Technology is Full of Bullshit…And What Might Be Done About It," *Learning, Media, and Technology* 41, no. 3 (April 2015): 439.

[386] Louise Phillips and Marianne W. Jorgenson, *Discourse Analysis as Theory and Method* (London: SAGE Publications, 2002), 24.

[387] See Raymond Williams, *Keywords: A Vocabulary of Culture and Society* (New York: Oxford University Press, 1974).

[388] Ibid., 16.

to shutting-up and putting-up."[389] Contesting the totalizing nature of the language of technophilia poses a formidable challenge to critical educators, but it must begin with the language we use to discuss technology on an everyday basis. For example, we can start by rejecting phrases that couple the word "educational," or any of its variants like "instructional," with "technology." This language reifies the assumption that machinery improves teaching and learning. Language such as "technology-enhanced learning" and "technology-based instructional practices" has been codified in both federal and local initiatives that pre-supposes the educational value of technology.[390] In addition to undermining teacher labor and professionalism by implying that technology is necessary to improve teaching, technophilic language threatens teachers' intellectual autonomy by removing the option for teachers to assess whether a given technology is relevant or beneficial for their pedagogic practice. Instead, the "integration" or "infusion" of technology is presented as an unquestionable good. Teachers might understand the unfettered embrace of technology not as an "integration," but as an *infiltration.* Indeed, the Luddites referred to machinery that threatened their livelihoods as a "foul *imposition.*" Another example would be to resist the discourse of innovation. "Innovation" has become a ubiquitous term for education scholars and practitioners. As Michael O'Bryan notes, "[t]he word has been overused to the point that national discussion has become circular, 'to be innovative, we have to encourage innovation.'"[391] However, education has a somewhat paradoxical relationship to the concept of innovation. Despite education's active and ongoing embrace of technological "innovations," critics of public education frequently cite education's inability to adapt to changing times. It cannot be that education is *both* an immutable institution impervious to change at the same time

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[389] Selwyn, 441.

[390] See, for example, Atlanta Public Schools, "Three Year Technology Plan," (2018-2018), 6.

[391] Michael O'Bryan, "The Most Important and Overused Word in America," *Wired*
https://www.wired.com/insights/2013/11/innovation-the-most-important-and-overused-word-in-america/.

as educators, practitioners, and policy makers advance the use of the latest technology at every turn. This is itself a rhetorical strategy on behalf of the new techno-governance elite that benefit from the captive market of public schools that needs to be challenged. Critical educators must identify corporations as the beneficiaries of innovation fever—not students, teachers, or their communities—in order to highlight that technology is connected to issues of power and privilege.

Challenging the language used to discuss the role of technology in education would help to underscore that technology is not a neutral, teleological aspect of "progress." Instead, the technological restructuring of education is deliberate, but has been effectively positioned by advocates of technology as a politically neutral process, devoid of actors. Technology, however, is being *imposed* onto schools and children; adjusting the language we use may help shift our understanding of technology away from conceptualizing it as a neutral tool, toward a system of power exerting itself over public schools and everyone in them. As Gert Biesta explains, "[t]he language of learning has made it far more difficult to engage with the questions of purpose, to the extent that in many instances this question has virtually disappeared from the discussion."[392] In other words, the techno-rationality of the hegemonic language of schooling vacates questions of ethics, philosophy, or the purpose of schooling by containing the discourse to questions of efficiency and control.

There are several examples critical educators can look to for locating language as a site of resistance. For example, using language as a site of political contestation has a rich history in other traditions such as Critical Race Theory. The use of counter-narratives to challenge hegemonic systems of oppression has been a key tool for critical race theorists for interrupting

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[392] Gert Biesta, "Interrupting the Politics of Learning," *Power and Education* 5, no. 1 (2013): 6.

racism and racist institutions. As Richard Delgado explains, counter-storytelling serves as a way

to challenge racist myths, or master narratives.[393] Counter-storytelling is used as "a tool for

analyzing and challenging the stories of those in power and whose story is a natural part of the

dominant discourse."[394] By centering the experiences of marginalized groups and telling

alternative narratives that confront hegemonic power structures, paths of resistance can be carved

out and explored. Mary Daly, a prominent theorist of second-wave feminism went as far as to

create her own dictionary to provide an alternative language in order to confront what she saw as

the patriarchal construction of the English language.[395] These are both helpful examples for

illustrating the counter-lexicon work that can be done in education to combat the culture of

technophilia. As Giroux explains:

> Educators and other cultural workers need a new political and pedagogical language for
> addressing the changing contexts and issues facing the world in which capital draws upon
> an unprecedented convergence of resources—cultural, political, economic, scientific,
> military, and technological—to exercise power and diverse forms of hegemony.[396]

Creating the new "political and pedagogical language" that Giroux calls for requires that

educators first identify education language that Harry Frankfurt classifies as "bullshit."

Frankfurt, in his short philosophical treatise *On Bullshit*, argues that a key feature of "bullshit" is

language that is "repeated quite mindlessly and without any regard for how things really are."[397]

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[393] Richard Delgado, "Storytelling for Oppositionists and Others: A Plea for Narrative," *Michigan Law Review* 87, no. 8 (August 1989): 2411-2441.

[394] Daniel G. Solorzano and Tara J. Yosso, "Critical Race and LatCrit Theory and Method: Counter-Storytelling," *International Journal of Qualitative Studies in Education* 14, no. 4 (November 2010): 475.

[395] See Mary Daly, *Webster's First New Wickedary of the English Language* (Boston: The Women's Press, 1987). Second wave feminism, or "radical feminism" is not without its problems, and has been rightly critiqued for erasing the experiences of women of color. Discussing the polemics of this issue lies outside the scope of this dissertation. For a critique of second wave feminism see Kimberle Crenshaw, "Mapping the Margins: Intersectionality, Identity Politics, and Violence Against Women of Color," *Stanford Law Review* 43, no. 6 (July 191): 1241-1299.

[396] Henry Giroux, "Critical Pedagogy and the Postmodern/Modern Divide: Towards a Pedagogy of Democratization" *Teacher Education Quarterly* (Winter 2004): 31-32.

[397] Harry G. Frankfurt, *On Bullshit* (Princeton: Princeton University Press, 2005), 30.

In the past several decades, the neoliberal, technological restructuring of public education has imposed hegemonic ways of speaking about education that have attracted little critique. The "discursive closure" created by education reformers and policy makers limits possibilities for articulating other ways of being by controlling the vocabulary used to talk about schools. The result is that neoliberal, technophilic vocabulary is mindlessly adopted and reified, fitting Frankfurt's definition of "bullshit." A necessary condition for critical educators in challenging the culture of neoliberal, technophilic language in schools is identifying "bullshit" so that they may develop alternative, meaningful ways of speaking and thinking about education. Discourses are dialectical. They are not merely imposed in a top-down fashion, but rather, are open to interpretation or resistance by individuals and groups. As Phillips and Jorgenson note, "[n]o discourse is a closed entity; it is, rather, constantly being transformed though contact with other discourses."[398] This idea is known as "discursive struggle" and implies that "[d]ifferent discourses—each of them particular ways on talking about and understanding the social world—are engaged in a constant struggle with one other to achieve hegemony, that is, to fix the meaning of language in their own way."[399] In other words, the neoliberal language that permeates educational discourse and practice *can be contested.* By identifying language that serves to reinforce hegemonic systems of power in schools, critical educators can begin the necessary work of developing vocabularies that reject the neoliberal, technological restructuring of public schools.

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[398] Louise Phillips and Marianne W. Jorgenson, *Discourse Analysis as Theory and Method* (London: SAGE Publications, 2002), 6.
[399] Ibid., 7.

Learning Through Dystopias

On January 22, 1984, during Super Bowl XVIII, Apple unveiled a commercial introducing the Macintosh computer. The commercial, titled "1984" depicts a dystopian world, very similar to the world of Oceania portrayed by George Orwell in his classic novel.[400] The advertisement opens on an industrial setting showing rows of people in matching grey uniforms marching in lines to view a large screen where a man is shouting orders, reminiscent of Orwell's "Big Brother." A woman then appears, with an Apple logo on her clothing, chased by officers. She bursts into the large room where Big Brother is addressing the crowd and throws a large hammer toward the screen, shattering it. A message then appears, "On January 24th, Apple Computer will introduce Macintosh. And you'll see why 1984 won't be like '1984.'"[401] Setting aside the legal complications that arose as a result of Apple's potential copyright infringement, this advertisement is striking in at least two ways. First, Apple is positioning technology, in this case the Macintosh computer, as a tool for fighting an imagined dystopian, totalitarian regime. The technology represents freedom. Secondly, in hindsight, the commercial is ironic as Apple products have since been utilized—particularly in schools—to do exactly the type of surveillance work that the commercial suggests technology can combat. However, the message portrayed in the commercial, that technology represents both a utopian alternative to oppressive forces, as well as a tool through which one can exercise personal freedom, is still pervasive today. The culture of technophilia relies heavily on the feelings of promise that technology evokes. While it was certainly not Apple's intention to do so, their "1984" commercial provides an appropriate

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[400] The similarities between Apple's commercial and Orwell's novel prompted a lawsuit against Apple by the owner of the rights to Orwell's "1984," which is likely why the commercial ran only once. See Steve Johnson, "What You Didn't Know About Apple's '1984' Super Bowl Ad," *Chicago Tribune* (February 2, 2017). https://www.huffingtonpost.com/entry/why-is-teacherbae-being-shamed-for-her-curvy-body_us_57d95cafe4b0fbd4b7bc8be6.

[401] Apple, "1984," (January 22, 1984). https://www.youtube.com/watch?v=axSnW-ygU5g.

entry point for critical scholars for exploring the use of dystopia as a framework for critiquing the culture of technophilia in schools and society. In what follows, I argue that another possibility for challenging the culture of technophilia is through the use of dystopias. As I mentioned earlier in this chapter, utopian thinking and theorizing are commonly employed by critical education scholars as a way to illustrate the potential for schools in society. Admittedly, much of critical pedagogy—which I discuss at length in Chapter 4—is rooted in utopian thinking that makes it vulnerable to critique, and even dismissal, by critics as an unattainable pipedream. However, utopia as a form has been utilized across a variety of disciplines as a tool for thinking about the best way to organize a society. Indeed, as Andrew Milner explains, "[u]topian 'ideal states' have been a significant part of the Western literary and philosophical imagination ever since antiquity," with Plato's *The Republic* serving as perhaps the earliest example of a utopian text.[402] The use of utopia as a way to theorize and imagine better alternatives of living and being in the world is exceedingly valuable. Having situated myself in the tradition of critical pedagogy, I am committed to utopian thinking as a way to inform strategies for improving education. Indeed, idealism has recently come under attack in political discourse, dismissed by some as lacking appropriately "practical" approaches to governing, to the detriment of progressive projects.[403] However, educational scholars have rightly pointed out that utopian thinking has had harmful consequences for schools. For example, As Jessica Heybach and Eric Sheffield argue:

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[402] Andrew Milner, "Changing the Climate: The Politics of Dystopia," *Continuum: Journal of Media & Cultural Studies* 23, no. 6 (December 2009): 827.

[403] Specifically, I am referring to attacks leveraged against progressives by centrist Democrats during the last Presidential election. See, for example, Paul Waldman, "Bernie Sanders' Idealism and Hillary Clinton's Pragmatism Clash in Debate," *The Washington Post* (January 18, 2016). https://www.washingtonpost.com/blogs/plum-line/wp/2016/01/18/bernie-sanderss-idealism-and-hillary-clintons-pragmatism-clash-in-debate/?utm_term=.c4cfdcea4523.

In reaching for an impossible Utopia (100% proficiency in reading and math, for example), we can do nothing other than smash our students, teachers, and administrators into smaller and smaller pieces: they lose their potential to grow; they lose their identities as living things; this utopian vision as perfection—rather than a messy 'human' one—quickly turns into Dystopia.[404]

While I agree with this critique of the consequences that emerge when policymakers make unrealistic demands of schools, I do not believe utopian thinking should be dismissed altogether as a theoretical framework. Instead, I argue that dystopias can be *as valuable* for educational theorizing as utopias, and that critical educators, both in K-12 and the university, can utilize dystopia as a framework and entry point for critiquing the culture of technophilia in education.

Utopian theorizing has been a useful for critical scholars as they imagine possible alternatives for organizing schools and society. Indeed, critical pedagogy as a theoretical and pedagogical tradition is rooted in a utopian thinking. However, as William Ayers explains, "[i]n many ways the most instructive, useful, and even prescient images are not those of the sunny utopians…but the cautionary tales of their darker dystopian cousins."[405] While it is tempting, particularly as critical educators tasked with imagining and creating a society that would more closely resemble a utopia, as opposed to a dystopia, I argue that the dystopia as a device may offer a unique opportunity for challenging the culture of technophilia. Dystopia as a form of social critique has notably gained interest in mediums aside from literature in the past several years, most notably in television series. Cultural critics have pointed to the rise in dystopian television programming as an indication that dystopia is resonating with audiences in a way that it had not in the past.[406] Many recent dystopian series explore worlds where *current* technology

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[404] Jessica A. Heybach and Eric C. Sheffield, "Dystopian Schools: Recovering Dewey's Radical Aesthetic in an Age of Utopa-Gone-Wrong," *Education and Culture* vol. 30, no 1 (2014), 86.

[405] Ayers, "Foreward," xii.

[406] See, for example, Evan Kindley, "The Future Ain't What It Used to Be," *The Nation* (March, 2018): 44-45.

is taken to its logical conclusions. Cultural theorists suggest that the recent exploration of

dystopian themes in television indicates a rise in public interest in surrounding the speed at

which technologies are changing. As Doug Hill argues, "[w]hether they move in milliseconds or

advance over decades…a technology is by definition moving too quickly if it is implemented

before we have thought through and prepared for its potential effects."[407] The "effects" that Hill

is concerned with are the moral and philosophical implications of rapidly changing technology.

Most, if not all, technologies currently in use in public schools fit this criteria. However, as it

pertains to education research, however, studies of technology are generally concerned with how

well a technology supports the efficiency at which content is "delivered," the efficacy of a

technology in measuring student "achievement," or—in the case of higher education—the degree

to which technology improves customer "satisfaction." I argue that K-12 teachers and teacher

educators may utilize dystopian literature and television programming as a framework for

critiquing technology in schools and society. Steven P. Jones, for example, advocates for

drawing on dystopian literature in colleges of education to explore themes surrounding

technology, and its relationship to capital and schools. As Hill explains, "[t]he grip of the free-

market ideology in the United States, where many of the leaders of technological advance are

located, has prevented significant action by Congress to regulate new technologies for decades,

an acquiescent policy that seems likely to continue."[408] Dystopias can provide a valuable entry

point for discussing these themes both with K-12 students and teacher educators. Indeed as

Heybach and Sheffield argue, this "dehumanizing, covert dystopian violence goes well beyond

urban schools in impoverished neighborhoods. Instead, it is increasingly universal, increasingly

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[407] Doug Hill, "On the Importance of the Imaginative Forward Glance," *Endeavor* 41, no. 4 (2017): 206.
[408] Ibid., 207.

centralized, and goes increasingly unquestioned."[409] The culture of technophilia is directly

related to the sort of utopian thinking that Sheffield and Heybach critique. The hegemonic

orientation toward technology casts technological "innovation" as a panacea; technology

generally evokes strong, optimistic feelings about the future. Because public education has been

so successfully painted as a hopelessly failing system by neoliberal reformers eager to capitalize

on school privatization, schools willingly embrace technologies that claim to hold the secret for

"what works." Explicitly exploring these themes with students as a way to challenge the culture

of technophilia is another entry point for leveraging critiques on the totalizing power of

technology in schools.

As Freire explains, "[t]here is a lot of fatalism around us. An immobilizing ideology of

fatalism, with its flighty postmodern pragmatism, which insists that we can do nothing to change

the march of socio-historical and cultural reality because that is how the world is anyway."[410] In

recent years, this sort of fatalism has come to include dominant attitudes toward technology that

regard the proliferation machines and screens in all aspects of human life as inevitable, and even

desirable. In education, this has resulted in policies and pedagogies that aim to adapt children to

a technological world, rather than carve out critical spaces where students and teachers together

can imagine what type of world they'd like to create. In other words, technophilia is itself a type

of digital fatalism. To resign ourselves to digital fatalism and to uncritically accept the current

pace at which technology has come to infiltrate nearly every aspect of our society, and therefore

our schools, is to abandon the project of critical pedagogy. Confronting technology, as part of a

hegemonic power structure that reinforces, as well as creates, systems of dominance and control

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[409] Jessica A. Heybach and Eric C. Sheffield, "Dystopian Schools: Recovering Dewey's Radical Aesthetic in an Age of Utopa-Gone-Wrong," *Education and Culture* vol. 30, no 1 (2014), 86.
[410] Friere, *Pedagogy of Freedom*, 26-27.

must be part of a robust project of critical pedagogy. I believe that a rehabilitation of the Luddite

tradition, developing counter-lexicons, and drawing on dystopias as an educational tool all

present possibilities for resisting the culture of technophilia. At the end of *The Myth of the*

Machine Lewis Mumford proclaims:

> Though no immediate and complete escape from the ongoing power system is
> possible, least of all through mass violence, the changes that will restore
> autonomy and initiative to the human person all like within the province of each
> individual soul, once it is roused. Nothing could be more damaging to the myth of
> the machine, and to the dehumanized social order it has brought into existence,
> than a steady withdrawal of interest, a slowing down of tempo, a stoppage of
> senseless routines and mindless acts…the long buried seeds of a richer human
> culture are now ready to strike root and grow…the gates of the technocratic
> prison will open automatically, despite their rusty ancient hinges, as soon as we
> choose to walk out. [411]

I would only amend Mumford's analysis slightly. The proverbial "gates of the technocratic

prison" will not open *automatically*, but through the praxis of critical agents creating a more

humane and equitable world.

Summary

The purpose of this dissertation has been to critique what I argue is one of the most

pressing issues facing public education: the technological restructuring of schools. By drawing

attention to the culture of technophilia that currently subsumes public education, I have called for

education scholars and practitioners to reassess the relationship between schools and technology

in order to fulfill the demands of a robust, democratic education program.

I have highlighted the ways in which technology is part of the neoliberal restructuring of

public education, and how it is in many ways, the conduit through which this reorganization is

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[411] Lewis Mumford, *The Myth of the Machine: Technics and Human Development* (New York: Mariner Books, 1971), 435.

made possible. By tracing the codification of technophilia in federal policy initiatives over the past several decades, I have shown that technology has become a totalizing aspect of education policy and practice that serves corporate interests while undermining the intellectual and professional autonomy of educators. Education policy makers, in tandem with the new technology sector elite, continue to allow public schools to serve as "innovation" incubation sites without regard for the effects of ongoing exposure to technology on the bodies and minds of children. Additionally, I have shown that critical pedagogy serves as a valuable framework for interrupting the dehumanizing effects of technophilia in schools. In placing the goal of humanization at the center of the tradition, critical pedagogy challenges the logic of neoliberal, techno-rationality that sees humanness as something to be controlled and overcome.

My intention has not been to argue against technology itself, but to critique the totalizing culture of technophilia that frames *all* technology as inherently beneficial to human life. Despite ongoing claims that education is trapped in a bygone era resistant to innovation, education practitioners, scholars, and policy makers have been enthusiastic about introducing technology into nearly every aspect of teaching and learning. I have shown that the ultimate beneficiaries of technology in schools are corporate interests who capitalize on schools as captive markets for both future consumers and workers. The neoliberal technological restructuring of public schools has been so successful due largely to the dearth of critique among scholars and educators. It has been my goal in this dissertation to draw attention to the problem of technophilia in schools in order to contribute to this field.

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149

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