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Living the Information Revolution:

Digital Online Culture, Identity & Schooling in the 21st Century

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Education

by

Kimberly Nicole Rosenfeld

2013

LIVING THE INFORMATION REVOLUTION

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ABSTRACT OF THE DISSERTATION

Living the Information Revolution:

Digital Online Culture, Identity & Schooling in the 21st Century

by

Kimberly Nicole Rosenfeld

Doctor of Philosophy in Education

University of California, Los Angeles, 2013

Professor Douglas Kellner, Chair

There is a great debate among scholars on the virtues of digital online culture, yet as people spend more time in cyberspace, little attention is being paid to understanding the forces at play within these contexts as well as their impact on identities. Education is critical to protect and equip the citizenry in this new environment; however, perspectives have not shifted to include meaningful theorizing in how to live the information revolution.

This dissertation draws on the work of scholars across the disciplines of cultural studies, education, communication, and philosophy to provide a cultural, ideological critique of identity construction in the context of virtualization and to draw some conclusions for schooling in light of the analysis. Subsequently, each chapter represents a different facet of the real-virtual and human-machine lines to help deconstruct the ontological distinction between these realms of being. This is accomplished by using a

multiperspectival approach employing the theoretical frameworks of constructivist psychology, critical theory, symbolic interactionism, and sociocultural identity theory.

Organized in five chapters, the first initially identifies technological agents of change that have generated shifts in personal identity. The second critically engages the work of Sherry Turkle, a pioneer researcher of digital online culture. The third chapter historicizes identity formation and the cultural transformations that have occurred since the Internet's inception. The fourth unravels neoliberal and high-tech capitalist forms of manufactured consciousness followed by mapping today's new forms of resistance. The fifth and concluding chapter demonstrates how education is implicated in the current hegemonic movement and the role it could play to guide the citizenry through this area of complex interactions.

This dissertation highlights the personal and cultural changes occurring as a result of increasing reliance on online environments. Additionally, it proposes a new perspective on education's role in this evolution and advocates for schooling to take a stance in the face of the current digital, globalized world. This work is intended to benefit educators, social scientists, critical theorists and scholars currently struggling to identify the individual and societal changes underway as it proposes meaningful and original strategies to address contemporary challenges to schooling's normative ideal.

LIVING THE INFORMATION REVOLUTION

The dissertation of Kimberly Nicole Rosenfeld is approved.

Carlos A. Torres

Leah A. Lievrouw

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University of California, Los Angeles

2013

DEDICATION PAGE

I dedicate this dissertation to my husband Eric and son Alexander. I owe more credit to Eric than I can adequately outline for helping me to maintain perspective, hold fast, and carry on, and for that, I am forever thankful. Through his encouragement, intellectual curiosity and our reciprocal dialogue, I came to know him as a collaborator and tremendous life partner. I am looking forward to many more life adventures with him.

I also dedicate this dissertation to my son Alexander, who accompanied me through my proposal defense and comprehensive exams and was subsequently born shortly after I advanced to candidacy. As I write this, he is two years old, and has shown me just how rich life can be. The new and magical dimension he brought to my world not only serves as my inspiration but also reminds me why I work so hard for a better future. These two men make it all so very worth it and for this, and a myriad of other reasons, that I dedicate this dissertation to them.

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BIBLIOGRAPHICAL SKETCH

Kimberly Rosenfeld, Professor of Communication Studies, is a communication and cultural studies scholar who completed her undergraduate (B.A.) and graduate (M.A.) work in Communication Studies with special emphases in intercultural, interpersonal and organizational interactions. Since 1999, Kimberly has been a faculty member at Cerritos College in Los Angeles, California where she has served as chair of the Communication Studies Department and the Sabbatical Leave Committee. She has also been an active member on several campus leadership teams.

Kimberly's scholarly work began with her master's research, a quantitative analysis of inter-group relationship development over time in interracial, face-to-face, peer-to-peer interactions where interpersonal and intercultural relationship development theories were tested. Her work was published in the International Journal of Intercultural Relations under the title "Intergroup Communication Over Time," and presented at the International Communication Association (ICA) conference in Albuquerque, New Mexico (1995) where it received the Top Ranked Paper award.

Technology influenced Kimberly's work early in her career as she taught at a science and technology magnet high school where she infused it into her English curriculum. Later at Cerritos College, two projects, the U.S. Department of Education's PT3 grant and Georgetown University's Visual Knowledge Project set the stage for her interest in the use of digital devices in the classroom. These experiences were the impetus for thinking about the ideological and philosophical impact of digital online culture.

As an educator, Kimberly's praxis around the theories she studied was implemented in her classroom where her strong communication skills were employed to foster intellectual dialogues with her students and colleagues. Her commitment to teaching was recognized in 2003 when the student body awarded her with "Excellence to Dedication and Service to the Associated Students of Cerritos College."

Kimberly's communication expertise has also been used in service of faculty development and enrichment as an educational consultant and faculty mentor. Subsequently, she has trained and mentored faculty across disciplines, specialties, and institutions through various projects such as the Carnegie Basic Skills Project, Learning Communities, and Cerritos College's teacher training program (Teacher TRAC).

Kimberly's major area of inquiry is currently in the interdisciplinary field of cultural studies which resulted in an article titled "Terminator to Avatar: A Postmodern Shift," published in the journal Jump Cut: A Review of Contemporary Media (2010) as well as presentations at the Comparative and International Education Society (CIES) and UCLA's Café conference of the Paulo Freire Institute. She has also presented her work at several national and international conferences including the National Communication Association (NCA), the International Communication Association (ICA) and the International Society for the Scholarship of Teaching and Learning (ISOTL).

Kimberly's scholarly and professional life shaped her intellectual path. As she experienced first hand, the emergence of the information age, her research focused on issues of identity formation. This societal revolution has helped her formulate a research agenda at the intersection of identity and education in the context of digital online culture.

CHAPTER ONE

Virtualization and Digital Online Culture

Contemporary citizens live in complicated times where fundamental understandings of reality are being expanded and challenged. A growing number of people no longer reside in just physical reality but live, play and work in artificial reality, augmented reality, simulated reality, and virtual reality. Each of these realities increasingly impacts their identities as they cross over from specialized functions (i.e., military training and scientific research) into everyday use. Multiple realities are so pervasive that we see them across different contexts such as at our local mall in the form of advertisements, on our smartphones in the form of applications, and at home in our video games.

This dissertation maps some of the sociological and psychological changes to our lives as a result of computer technology. This work's aim is to initiate a conversation about how schooling should understand, respond to and help individuals live out the information revolution. To achieve these goals, I will deconstruct two distinctions fundamental to my writing during a time where their delineations are dwindling. The first distinction is between real life (RL) and virtual life (VL) and the second is between humans and machines.

Within the context of this dissertation, computer technology includes artificial intelligence, human-machine hybrids, computer devices, and various stages of simulation. When I reference technology, I also mean the material and immaterial aspects of both virtualization and digital online culture that play an active role in constructing users' identities. This includes the physical objects that serve as portals to virtualization including

smartphones, the software that runs them, and the software that is runs on them such as

applications and games. The immaterial refers to the social and culture practices around

the use of these objects including but is not limited to changes to our social norms around

language, disclosure, privacy, access to and use of information, social networking, and

activism.

It is also important to keep in mind that technology is not all good nor all bad, so as

this topic is explored, I make an effort to consider the positive as well as the negative. Along

with the magical utopia of freedom, democracy, and unfettered learning the virtual

presents, there is a materiality to it that is not so idealistic. There is physicality to the

virtual that relies on the physical bandwidth, pipelines, wires, towers, servers, and the

myriad of sophisticated objects with their unique affordances. There is also a human factor

with its social class, race, gender, and hegemony that accompany the armada of service

providers, designers, creators, and marketers who are tangible parts of this fantastic world

and are often implicit actors in our virtual experiences. Both sides to this materiality are

fueled by a neoliberal undercurrent that is implicated in many of the ideological battles

playing out in both real and virtual life. I use the term neoliberalism here in reference to

political practices in support of open markets, free trade, privatization, deregulation,

decrease of state intervention while increasing the role of the private sector in modern

society (Torres, 2009). As I outline neoliberalism's influences, I will engage ideas about the

political and social ethics of such practices as they pertain to upholding the ideals of social

justice.

In order to be clear about the terminology used to describe these multiple realities

and to outline my own conceptualizations, I begin this chapter by defining the terms I will

use to broaden the discussion on the virtual, identity formation, identity change and specifically virtualization. This will be done through first historicizing the concept of the virtual then moving on to clarify virtual reality, augmented reality, simulation, virtual culture and digital online culture. This is followed by a brief summary of some important voices on identity, virtualization, and culture. The chapter closes with my own perspective on virtualization and digital online culture as well as previews subsequent chapters.

Before proceeding, I would like to situate the historical, technological, and political perspectives from which I write. As a U.S. educator and graduate student in Los Angeles, California, writing this in the second decade of the twenty-first century, I am critically aware that my experiences are grounded in the overdeveloped, high tech, western world. I am also aware that I am from a generation at the cusp of the digital revolution. Although I did not grow up digital, I was introduced to cyberspace as a young adult in my early twenties through largely neoliberal education programs designed to position the United States as a global leader in the information age. I recognize this is not the same for everyone, yet whether readers are living in virtualized environments or not, all will be touched in some way by the realities I outline here.

I would also like to recognize that unlike many past inventions such as the automobile, computer technology is still changing shapes. Although the automobile had different iterations, it settled into a rather predictable product early on whereas computer technology of the digital age is in constant flux. We have moved from personal computing to cloud based computing employing tools that are also dramatically redefining the way we use the medium ranging from the mouse to gesture control. In light of this reality, the best I can do is to capture the essence of this phenomenon at a given moment in time. This is not

to suggest that scholars should refrain from writing or theorizing about the subject but rather readers should understand that this is a snapshot in time designed to aid in understand the impact of this revolution. Therefore, the issues discussed in this document may be similar or very different in the near future.

Cyberspace and the Virtual

The first signs of a developing vocabulary to describe the "virtual" was born out of a term coined in science fiction and credited to William Gibson's 1984 novel *Neuromancer* (Turkle, 1997; Jones, 1997) in which he defines cyberspace to be:

Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts…A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity…Cyberspace is infinite but starts with each person who chooses to step into it; and I speak now of he who in the first place dreamed it into life.
(Gibson, 2004/1984, p. 271)

Neuromancer was published at the start of the "information revolution" a time when the computer was being ushered into the general public's consciousness. During the same time, the Macintosh computer, dubbed the "people's computer," was introduced, just one year after the release of Microsoft's Windows software. We also saw continuous improvement to the ARPANET (the precursor to the Internet), which was still limited to specialized communities such as scientists, selected departments within Universities, and the U.S. military. These technological gains were beginning to seep into the larger cultural landscape and Gibson was one of the first to articulate the next step.

Almost thirty years later, the concept of cyberspace no longer lives within the imagination of science fiction writers and readers nor is it limited to specialized communities, rather it is increasingly becoming a fundamental part of our everyday lives. Every time we log on to a bank account, check email, order a book through Amazon or

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share moments on Facebook, we are entering cyberspace. Gibson's most salient points are cyberspace's "unthinkable complexity" and "infinite" dimension. Before exploring these terms, I want to mention an important element missing from Gibson's definition.

There is a side to cyberspace that goes hand in hand with stepping into the "consensual hallucination." This includes the equipment we use to login and navigate, the infrastructure that enables us to join and the software, including the graphic user interface that so often mediates the entire experience. These tools are expertly designed to be in sync with how we think, how we train our bodies to navigate them (e.g., the mouse, drop down menus) and how they ultimately influence our experiences (Norman, 1988; Gibson, 1986/1979). Working in conjunction with our visual and psychological cyberspace environments, they too impact who we are becoming.

Gibson's notion of complexity is evident in cyberspace's exponential expansion. Take a moment to consider multiuser domains. In the 1980s, these were text based cyber environments (e.g., MOOS and MUDS, both refer to a form of Multi User Domains) where participants interacted using avatars constructed via text. Now envision today's multiuser domains such as *Second Life*, and *World of Warcraft* where interactions are visually complex, real time mash ups of multiple domains. This point is particularly interesting because today's users are able to absorb these increasingly complex systems without a steep learning curve. The expanding area of design tailored to user intuition discussed in chapter three provides insight into this reality.

For Gibson, cyberspace is infinite in that its nature is analogous to space exploration where the canvas appears to be never ending. Users quickly learn that it is almost impossible to fully explore the depth and breadth of information and communities

available. Especially noteworthy is that in a world defined and made predictable by

boundaries, users seem to accept cyberspace as a new frontier: a modern day open prairie

of the Wild West. In fact, they pour their hopes into this new environment the same way

the pioneers were looking to the prairies as a representation of their hopes for a better life.

Thus, cyberspace, also known as the Internet and the World Wide Web, is an environment

defined by the nature of its essence, a pure communication world devoid of clear

boundaries. It is also the vehicle by which we enter a state of psychological immersion.

Psychological immersion happens when we are intellectually and emotionally transported

to another environment that often exists in cyberspace but is not limited to it. A video game

player can be fully immersed into an online multiplayer game or can be immersed in an

offline game played against the computer. In both cases, the gamer is psychologically

immersed while still being present in a real life environment.

In their original conceptualizations, cyberspace and virtual reality were different in

their intent. Cyberspace was designed as a network of communication, whereas virtual

reality was designed to provide users with a multi-sensory psychological and physical

experience. However, technological improvement and expansion have created a bridge

between the two where the terms conflate and are often used to refer to the same

phenomena, yet virtual reality is quite different from cyberspace.

As Howard Rheingold describes it in his book *Virtual Reality*, "Virtual Reality (VR) is

also a simulator, but instead of looking at a flat, two-dimensional screen and operating a

joystick, the person who experiences VR is surrounded by a three dimensional computer-

generated representation, and is able to move around in the virtual world and see it from

different angels, to reach into it, grab it, and reshape it" (1991, p. 17). For Rob Shields, as

outlined in his book *The Virtual, "*The virtual tricks the mind and body into feeling transported elsewhere…virtual worlds make present what is both absent and imaginary" (2003, p. 11). The 1994 film *Disclosure* provides a window into how, at the time, technologists were projecting the evolution of cyberspace to include virtual reality through physical body attachments that enable one to project the self into a cyberworld. Today, such attachments still exist and are used in career-technical education and video gaming (Wingfield, 2013; VanHampton, 2012). However, the term "virtual" is commonly used to describe half immersive experiences where there is an amount of interactivity such as with a mouse or game controller combined with a visual experience that includes user navigated three-dimensional spaces such as in video games, virtual tours found on real estate and museum websites, as well as in Google earth.

The term "virtual" was also used in computer jargon to refer to situations that were substitutes for something else. Mark Poster the University of California Irvine professor of Media Studies and History uses the following example to illustrate this point, "virtual memory means the use of a section of a hard disk to act as something else, in this case, random access memory" (2006, p. 538). For Poster, virtual reality "is a more dangerous concept because it suggests that reality may be multiple or take many forms" (p. 538). In other words Poster notes, "modifying the word 'reality' to introduce another type of reality, puts into question the general assumption that there is only one reality" (M Poster, personal communication, January 30, 2011). Something postmodern theorists have acknowledged for years[1].

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[1] See works by Derrida; Foucault; Lyotard, Baudrillard, Jameson and Best & Kellner

It should be noted that the term "virtual" has been appropriated and repurposed according to the new media context in which it is being used, so one cannot assume a singular meaning. Subsequently, these definitions fall into four categories: *Professional virtual reality* implies sensatory experiences with the use of dedicated hardware enabling users to feel and manipulate a virtual environment such as in the original professional military flight simulators. *Consumer virtual reality* is a partial sensatory experience (i.e., just audio, visual or tactile in the form of a headset and vibrating controller) as experienced through virtual tours and video games. *Psychological virtual reality* is a cyber experience devoid of sensatory components such as MOOS and MUDS, virtual banking and online shopping. *Technological virtual reality* refers to the mechanics of a computer such as random access memory or cloud computing that uses an application to provide access to data stored on a distant server. I use a definition of the virtual in line with both consumer and psychological virtual reality. Virtual reality is referred to as a cyber experience that often, but not always, includes partial sensatory level immersion. Unless specified, it is no longer limited to an immersive experience achieved by requiring hardware to be attached to the body.

Virtual reality differs from augmented reality (AR) in that augmented reality is a term used for augmenting the real world with digital information. "AR involves a live video feed, and it can be controlled by gestures; it sometimes uses facial recognition; and is often in three dimensions" (Britten, 2011). Retailers are now using augmented reality to allow customers to virtually try on clothes, and fashion shows are being augmented with a mix of real life models and AR models who share the catwalk (Britten, 2011). Additionally, smartphone and tablet computer applications allow users to overlay what they see in real

time with digital photos, video or text. For example, the company Aurasma makes software

that visually augments the physical world by inserting 3D objects into everyday settings

such as combining an architectural building with a live feed from a smartphone camera

(Mills, 2011). Thus, augmented reality simultaneously blends physical reality with a form

of mobile and instantaneous virtual reality.

In the early 1990s when the World Wide Web's accessibility was expanding to

laypeople, people used to find themselves in these virtual environments alone. As we

clicked and searched through rather static pages of text and occasionally images, we had

our own private time in that virtual space, unless we had a friend or family member sitting

next to us watching the screen as we "surfed" the web together. Today, this is no longer the

case. Once we log in, others join us as we enter into a parallel culture with its own

population, rules, and relationships. Subsequently, virtual culture can be viewed as a public

sphere where social, political, economic and cultural interactions take place (Jones, 1997),

only these actions are mediated through an electronic medium. Another area where we

take a step deeper into this parallel culture is the jump from simulation to virtualization

and the movement from virtual culture to digital online culture.

The Process of Virtualization, Simulation, and Digital Online Culture

Virtualization occurs within cyberspace, without necessarily having a reference to

the real, resulting in a state of being defined by the user so that the physical rules of the

"real" do not apply. For example, a player of the video game series *Elder Scrolls* can create a

nonhuman avatar and accrue special powers not possible in the real world. Virtualization is

different from simulation in that simulation attempts to duplicate the real world. For Rob

Shields, virtual worlds are simulation in that they "usually start out as reproducing actual

worlds, real bodies and situations, but, like simulations, they end up taking on a life of their own. Somewhere along the way they begin to diverge, either when it is realized that no map can be so complete that it represents an actual landscape fully, or when they become prized as more perfect than messy materiality" (2003, p. 4). Likewise, Baudrillard theorized, "simulation is no longer that of territory, a referential being or a substance. It is the generation by models of a real without origin or reality: A hyper-real. The territory no longer precedes the map, nor survives it. Henceforth, it is the map that precedes the territory" (2002, p. 169). The main commonality between virtualization and the real is the human mind and simulation is a half-way point. Simulation is consistently in reference to the real in that it mimics the real and real life; whereas, virtualization is dependent on the human mind to define it. Thus, virtualization more easily crosses over into what postmodern theorists like Baudrillard have dubbed hyper-reality: a reality not only replaced by simulacra or an idealized representation of the real but also by a combination of the real and its simulation.

Virtualization occurs when we find relationships and communities in cyberspace that stand on their own with or without a reference to the real. They do not need validation through a face-to-face meeting or a visit to a physical location. This is not to suggest these experiences are mutually exclusive from real life. Our perspectives, experiences and interactions in the virtual, arguably, cross into our real life identities, a point explored further in chapter three. The idea that virtualization is so engrossing that it has the power to influence our views of the real is best explained perhaps through Sherry Turkle's 1995 book *Life on the Screen: Identity in the Age of the Internet,* where she outlines three signs that virtual reality is beginning to skew our experiences of the real. First, denatured and

artificial experiences seem real. Second, the virtual can seem more compelling than the real. Finally, virtual experiences become so captivating that we believe that within them we have achieved more than we actually have. To briefly summarize, virtualization occurs when we begin to occupy spaces that only exist in cyberspace and cross into hyper-reality where we create relationships in these spaces and accept or even prefer the virtual to the real. It is within the process of virtualization that digital online culture is created.

 In my view, digital online culture is similar to virtual culture in that it contains its own population, rules and relationships. Analogous to a tribe, this population adopts new societal norms in relation to real life and virtual life behaviors. Like virtual culture, it is also a public sphere where social, political, economic and cultural interactions take place. I see digital online culture encompasses virtual culture but also the culture surrounding how we behave in real life while using digital tools either physical (smartphone, laptop, etc.) or not (software, applications, widgets, etc.). This includes the population of people whose new norm for interpersonal communication is to glance down at a smartphone in mid conversation or who is likely to text or micro blog during an opera, although this behavior is considered rude in real life culture, it is an accepted norm in digital online culture. Another example can be found in the attitudes toward privacy within this context, as I discuss in chapter two, Sherry Turkle reveals some fairly radical attitude and behavioral shifts around the notion of privacy where those operating in digital online culture see privacy violation as a natural part of digital life.

 Virtualization, however, is not benign. Outside of the logic of the hacker culture and creative commons (i.e., the open source movement), which espouses free, collaborative, open access to information including the Web as well as software programs (Wark, 2004;

Stallman, 2002), virtual spaces are increasingly mirroring real life's intricacies. As in real

life, in virtualization, there are both hegemonic and counter-hegemonic forces battling for

power over user identity and more importantly the movement of information. This is

illustrated through the fact that corporations and politicians are increasingly using virtual

spaces to fight their battles. As NYU marketing professor Scott Galloway observed in a

recent NPR interview with Steve Henn, "If someone chooses to follow you [on Twitter] you

own them—and that is you own the relationship and have license to communicate with

them" (Henn, 2010). Since the rules of real life do not apply in the virtual, we now have to

renegotiate issues of privacy, censorship, social justice, freedom and boundaries.

At the same time Gibson published Neuromancer (2004/1984), we began to see an

emerging intellectual conversation about ideology and cyberspace. Philosopher Jennifer

Slack (1984) points out the tendency for scholars to direct attention toward the

examination of political, economic, and technological determinants of the information

revolution, which virtualization is now a part, while directing very little attention toward

the examination of the information revolution at the ideological level (1984, p. 247).

Additionally, she notes that society engages in an ongoing ideological struggle over how the

information revolution is to be articulated: How should we understand it? How should we

live it? And how should it live within us? Over 25 years later, few education scholars,

although this number is increasing, have critically engaged and theorized how society (e.g.,

schooling) should understand, respond to, and live this information revolution. One of my

goals in writing this dissertation is to begin addressing this shortfall.

On the other hand, many people look to virtual spaces to help them fight social

injustice, to extend democracy, and to remedy social ills. The reality is the seductive nature

of the virtual can be a tool of manipulation and control and at the same time a tool of liberation, empowerment, and rebellion. This dialectic results in struggles being fought on a daily basis over control. This is evidenced by the open source *vs.* proprietary software movement, the battle over privacy, and the controversy over data mining by government agencies to name just a few. Facebook, for example, is on one hand, an online tool that helps express individualism yet on the other hand, a tool highly prescriptive and open to corporate data mining (Helft, 2010). Thus, Freire's ideas can be applied to social networking in that Facebook is a virtual program used en masse where people are seduced into a collective exercise for personal satisfaction and improvement via the appeal to individualism (see Freire, 2000/1968). However, their participation helps to feed capitalist agendas in the form of advertising and the process of knowledge discovery in databases also known as KDD, a point I interrogate further in chapter four.

Another, more optimistic, reality is the role today's technology plays in facilitating global collaboration. In the 1960s media scholar Marshall McLuhan argued automation (i.e., computers, the Internet, virtualization) "ends the dichotomies between culture and technology, between art and commerce and between work and leisure" (1994/1964, p. 346). One example of the way technology and virtualization are resolving such divisions can be found in Rice University professor Richard Baraniuk's *Ted Talk* presentation, "Open Source Learning" (2006) where he uses the music industry's rip, burn, mix and create culture to describe one of the next evolutions in information dissemination. For Baraniuk, the concept of the textbook is becoming passé in light of virtualization. Subsequently, he calls for a reinvention in the way we think about writing and editing textbooks, using them and teaching from them. From kindergarten to universities, a vision is shared for a

knowledge ecosystem where teachers, instructors and professors can become writers as well as editors of their own textbooks, openly sharing them, and constantly innovating on them. This collaborative relationship resonates with the Freirean concept of the teacher-student relationship where each learns from the other in a reciprocal cycle. Baraniuk's vision would be accomplished within the creative commons framework where quality control is monitored via peer review illustrating another of McLuhan's points that automation is "a way of thinking as much as it is a way of doing" (1994/1964, p. 349). This is just one example of the multiple facets of society that are collaborating, thinking and doing business differently as a result of McLuhan's notion of automation as it applies to the 21st century.

Richard Baraniuk's (2006) knowledge ecosystem also represents the deterritorialized world of Arjun Appadurai's –scapes (1996), an online community of practice where authors from around the globe can contribute to the creation of textbooks. Appadurai explains the new global cultural economy cannot be taken in the traditional sense of nation-state boundaries with static populations, isolated technologies, mutually exclusive financial systems, insular information sources, and territory specific worldviews. This cultural flow is "a complex, overlapping disjunctive order, which cannot any longer be understood in terms of existing center-periphery models" (1996, p. 6). Instead, these mechanisms of encounters are landscapes extending beyond local boundaries, and when applied to Baranuik's idea of knowledge construction and dissemination, reveal a method by which individual agency and global collaboration can more easily play a role in one's identity formation.

Appadurai's theory corroborates McLuhan's central nervous system analogy in which he argues that one of the principle aspects of the "electric age" is that it establishes a global network that is much like our central nervous system. For "our central nervous system constitutes a single unified field of experience," and as biologists so aptly point out, "the brain is the interacting place where all kinds of impressions and experiences can be exchanged and translated, enabling us to react to the world as a whole" (1994/1964, p. 348). Today, cyberspace is the interaction place where experiences are being globally exchanged. The reality is that identity transformations are bound to occur as individuals use technological artifacts to function in their real and cyber lives as well as connect to each other and the world. Elements of these changes are mediated through the use of new media tools where individuals intuitively develop skills in identity management and exploration. Lives are being virtualized on a scale that is restructuring everyday reality as we know it where the global virtual self and the actual self co-habitat. This constant flow of information and perceptions has an impact on all of us, and particularly, it impacts real life identities.

Identity Flow

As Charles Taylor notes, "In order to have a sense of who we are, we have to have a notion of how we have become, and of where we are going" (1989, p. 47). Since the time of the world's most notable ancient Greek philosophers, researchers have theorized about identity. In the 19th century, such theorizing spanned with work of memorable researchers (see Freud, 1989/1923; Piaget, 1986/1954; Erikson, 1980; Vygotskiĭ, 1978; Tajfel, 1974) who espouse a variety of theories crossing multiple disciplines: psychology, child development, sociology, education and communications. The psychology based identity

research is some of the most widely cited and well know. It falls into one of two frameworks: Freudian theory, which emphasizes the impact of early experiences on identity and behavior theory, which emphasizes the control of behavior through reward and punishment with constructivism as its newest form.

Constructivist psychology presents a more recent approach arguing that humans actively interpret the world around them and construct meaning rather than see it. Constructivists believe that we are active creators in our own reality and often create self-fulfilling prophecies based on the choices we make when responding to a situation (Katz, 1981, p. xiv). Identity frameworks have also expanded to the realm of technology and human interaction. MIT computer scientist and education scholar Seymour Papert, a student of the famous developmental psychologist Jean Piaget who among other accomplishments fathered the idea of constructivist learning theory, expanded the notion of constructivism into a learning theory called constructionism where he argues the best for a student to learn is for that student to construct something tangible in the real world (Harel & Papert, 1991).

In my view, the act of becoming virtualized plays a role in how we construct our identities. Through our creation of digital selves within our unique digital spaces, we compose something tangible yet still virtual and through this construction, we build who we are and create who we would like to be. Although society has changed as a result of virtualization, these theories of identity construction are still valid within this new paradigm. Nevertheless, virtual environments today are altered from the real in the sense that they provide partial sensory experiences whether it is sight (nonverbal), touch, sound, smell, or taste due to the limitations of the hardware and software used which invariably

affects the virtual experiences that are part of identity construct. Thus, the way these virtual environments and experiences influence our identities is not as holistic as the way real life environments and experiences influence identities. It is also that one's social interactions in the virtual are different from real interactions. I would like to recognize that technology is working to overcome these limitations by directly accessing the mind through brain sensing wearable devices (Bilton, 2013). Once this is resolved, we will witness another level of variables affecting identities.

Over forty years ago, theorists began to recognize the identity shift occurring as a result of computers. Marshall McLuhan (2005) articulated the fact that new technologies shape our identities by providing us with a different perception of the world. Likewise, affordance theory highlights how objects project how they allow themselves to be used in a given context and therefore influence users' behaviors with the object (J. J. Gibson, 1977). In the context of digital online culture, design theorists have applied this theory to understand how design and environment affects an artifact's (material or virtual) properties. In essence, such artifacts are active agents in presenting themselves to users and thereby instructing how to use them. Thus, there is a psychological dimension to identity construction that is influenced by the tools we use, the practices those tools afford and the contexts we create using them. The concept of figured worlds, first introduced by Holland, Lachicotte, Skinner, and Cain (1998) in their book *Identity and Agency in Cultural Worlds*, suggests that the environments, real or imagined, we create for ourselves and our interactions within them impacts our identities. Given that each of these theoretical perspectives sheds insight into the numerous facets of identity construction, they will be employed as I unpack identity formation in the twenty-first century.

Today, perceptions are often manufactured through virtualization in the form of the utopian experiences, relationships, and self-presentations it offers. In McLuhan fashion, it is not humans who are driving this identity change. Rather, as Sherry Turkle predicted, the control is transferring to the technological invention (2009, 2012a). Juxtaposed with virtualization's portal to utopia is the material reality that experiences are manufactured. The manufacturing is orchestrated through the unseen, and often taken for granted aspect of the affordances of the very technological tools we use to enter cyberspace, the interface design that both enables and inhibits individual agency as well as the new media inventions that intentionally push or pull us into uncharted ways of behaving.

Ted Nelson (1987) talked about computers being personal in the sense that "if you get involved, it involves all of you; your heart and mind and way of doing things and your image of yourself: A whole way of life" (1987, p. 3). In the 1980s Byron Reeves and Cliff Nass, lead researchers on Stanford University researchers project entitled *Social Responses to Communication Technology*, noted computers are social actors and that "old brains, however, have not yet caught up with new media" (1996, p. 26) in the sense that although we know computers are not social or human, we nevertheless interact with them as social actors. As Zimmerman (2006) argues, the interface of a product is the mediator where one can find social, cultural, and economic forces at play. Thus, computers contain identity embedded within their database design, their user interface design and their functionality. This is also echoed throughout Turkle's work as well as Howard Rheingold who writes, "Virtual reality demonstrates that our social contract with our own tools has brought us to the point where we have to decide fairly soon what it is we as humans ought to become, because we are on the brink of having the power of creating any experience we desire"

(1991, p. 386). The reality is that our identities are being constructed for us and also by us through digital online culture.

Whether we are involved in the act of creating new media tools or others create them for us, the artifacts we use turn into a piece of our identity. To a large extent, they are emotional (Coutu, 2003; Reeves & Nass, 1996; Norman, 1988; Gibson, 1986/1979) because they are imprinted on us and are loaded with cultural and historical associations that hold a powerful appeal to our psyche. This point is further corroborated within the constructivist psychology framework that also argues our perceptions are affected by the tools we use. These devices are an extension of who we are, members of a global community who reside in the technoscape of information and identity flow where we slide in and out of realities at will. To ignore this new reality is to deny who people are today.

Identities are arguably produced through the practices we engage in and through practices we do not engage in. Relationships with technology fall on a continuum mediated to a large extent by age, class, gender, and other experience that work to shape how we perceive, interact with and process this technology. Our identities are shaped by both active and passive participation in communities of practice (Wenger, 1999). The web enables both types of participation. Thus, as long as we are in cyberspace we are changed by the experience whether we are active participants or passive voyeurs. According Katz (1981), "what people see and do will always be affected by choices they make, by their early interpretations, and their readiness to see—via the tools they bring to the situation" (p. xxi). Thus, the extent to which identity is impacted by digital online culture is linked to our own level of engagement with the digital revolution. For those who enter cyberspace,

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they are required to construct and present a sense of self. Some do this tangentially while others do so pervasively and finally some not at all.

As noted in Irving Goffman's influential book *The Presentation of Self in Everyday Life* (1959), when we are in the face to face presence of others, we give expressions such as verbal symbols or their substitutes to convey information and we also give off a wide range of cues that tell others about who we are. For Goffman, many of the crucial facts about a person lie beyond the time and place of interaction but are still concealed within it. Although not all digital interactions are visual, many of Goffman's points about the presentation of self can be extended to our digital online performances. We present an image of who we are or want to be to an online community that in turn either confirms or denies that identity. As McLuhan notes, we do not necessarily store and move corporeal substance in the electronic age, rather we store and move perception (1994/1964). Simulated environments are additional arenas where we are able to manufacture and disseminate perceptions.

The impact virtualization has on identity formation is supported by Anthony Gidden's observation that identity establishment is influenced by different beliefs and practices than in traditional societies. Those who are proponents of the digital generation's "explosion" (Tapscott, 1999; Prensky, 2006) argue that technology provides new ways of forming identity and hence new forms of personhood; and by offering communication with different aspects of the self, it enables young people to relate to the world and to others in more powerful ways (Buckingham, 2008). For instance, through online game playing people engage in social actions and create online identities that have the potential to influence their real life identities such as sharpened decision making abilities, learning by

doing and creating, and developing an understanding of physics by learning the laws of a

specific computer generated world such as whether you can jump over a canyon wearing

armor (S. Johnson, 2006). Other studies have found those who engage with digital on line

culture vis-a-vis the Internet tended to also be more tolerant and open-minded. This was

attributed to the general profile of Internet users but did not seem to increase the more one

used the Web (Robinson & Martin, 2009). Thus, where one falls on the technology

continuum shades who one is in relation to the information revolution including the values,

practices, and habits of mind it imparts.

The correlation between new media and behavior warrant a brief discussion on the

debated area of media effects. Media effects scholars argue that mass media consumption

in the form of TV programs or video games, for example, influences how recipients think

and act in the real world. New media researchers such as Turkle argue that the difference

between contemporary media's (i.e., video games) impact on identity and old media's (TV)

impact is that contemporary media is active and old media is passive. Turkle observes,

"television is something you watch. Video games are something you do, something you do

to your head, a world that you enter, and, to a certain extent, they are something you

become…Some of them [games] begin to constitute a socialization into the computer

culture" (2005, p. 67). Other researchers such as Kellner (2008) and Newman, et al. (2005)

argue that real world violence such as school shootings are a result of multiple societal

factors including the construction of "violent masculinity as a cultural norm" (Kellner,

2008, p. 24). They do not exonerate media culture from this equation but mention it is only

one of several potential factors causing real world behavior. The issue of media effects is an

unsettled one with many perspectives as to the link between old or new media and real

world violence and other psycho-social behaviors that are beyond the purview of this dissertation. However, I will briefly share my stance on this issue as it relates to identity formation.

In line with Kellner and Newman et al., I believe new media plays an important role in the numerous factors influencing behavior. Let us move beyond the violence in the media example to look at new media's impact on identity. Interactive media such as Web 2.0 are moving users beyond the active-passive dichotomy to voyeur-actor simultaneously placing users in subject-object positions. As users of social networking people become voyeurs of other people's lives, and in doing so, they become the fans of their "celebrity." Likewise, as actors in social networking sites, people become the spectacle: The "object" on display for others (Kellner, 2003a). They become their own paparazzi posting the minutia of their lives for all to scrutinize. These actions shape perceptions, values and actions and evidence our changing culture. Thus, participation in digital on line culture affects identity via changes to our society.

Varying perspectives exist that embrace the current value and future potential of technology to liberate and evolve identities, reject technology as begetting more problems than it solves or fall in between these two dichotomies. Thus an exploration of several contemporary technology theorists most of whom have written specifically about these challenges and their impact on identity is in order.

Contemporary Technology Perspectives

Although MIT professor Sherry Turkle's work will be analyzed in the next chapter, I would like to juxtapose one of her most enduring books, *Life on the Screen: Identity in the age of the Internet* (1997), with those of other technology scholars to provide an overview

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of varying scholarly perspectives on the topic. Turkle argues that Frederic Jameson's vision

of postmodernism has arrived with a clear discontinuous break from the past. For Turkle,

one way this is evidenced is that the prevalence of technology is increasingly more easily

navigated on the surface level. The shift from understanding a computer at the

programming level to one's ability to point and click popularized the use of the computer. It

is of little surprise that the Macintosh computer paved the way for a new population of

people learning how to learn through tinkering, fragmented exploration and direct action.

For Turkle, it was the shift from seeing what is under the hood characterized as the depth

of understanding associated with modernity to just driving the car or surface level usage

associated with postmodernity.

In Turkle's view, the computer "offers us new opportunities as a medium that

embodies our ideas and expresses our diversity" (1997, p. 31). Some of the benefits to the

change she articulates include an easier and happier interaction with computers, a new

way of learning that functions in a non-linear fashion via exploration, and a postmodern

way of being where we are consistently navigating multiple realities at the expense of

depth but at the benefit of breadth. Additionally, she posits that computers are now being

programmed to evolve beyond human control via emergent artificial intelligence that will

result in a new relationship between humans and technology. Conventional knowledge

about notions of spirituality and God are called into question with Turkle's discussion of

the extent to which artificial intelligence and artificial life researchers have borrowed from

medicine, biology and psychology's behaviorism. She identifies the race among the

biological, medical and computer programmer communities for pushing innovation to the

point of questioning what it means to be human. Subsequently, Turkle leads readers to question the central components of identity, faith and what it means to be alive.

Although Turkle raises awareness and increases understanding through her historicized accounts, her observations at times fail to balance the technological benefits with their counterpoints. This leaves plenty of room for British researchers, Robins and Webster to add their strongly oppositional perspective.

Kevin Robins and Frank Webster's *Times of the Technoculture: From the information society to the virtual life* (1999), written just four years after Turkle's *Life on The Screen*, presents a technophobic view immediately discerned through the book's opening and lengthy discussion of Luddites and their assertion that Luddites are still needed to question the possibilities that technological change offers. They uplift Luddism as a "necessary force in the new global society" (p. 45). For Robins and Webster, efficiency based on technology is just another capitalist mechanism of control and domination. They warn readers to proceed with caution and to draw on our history with inventions to understand the potential implications of today's technological pervasiveness. Unlike Turkle, Robins and Webster argue for users to beware of modern technology's potential use as yet another tool for control and manipulation.

For all their pessimism, Robins and Webster make some valid points about technology's potential dangers. They raise questions about the relationship between technology, information, and power by arguing, "the mode of information enormously extends the reach of normalizing surveillance, constituting new modes of domination that have yet to be studied" (p. 94). They see society moving toward becoming anesthetized objects of technocrats. In contrast to Turkle, who sees identities as actively evolving

through virtual interactions, Robins and Webster see identities as being passively "programmed."

Robins and Webster do not believe society is in the midst of a discontinuous break from the past at all. Rather innovation is a continuation of processes begun at the dawn of the industrial revolution. In essence, the information age is about a reassertion and streamlining of control strategies from capitalist economic drives, and high-tech capitalists are still driven by neoliberal agendas. In their discussion of the information revolution's long history, they demonstrate the reality that technology is an extension of Marxist's critiques of power, exploitation, and domination.

They also interrogate arguments made by researchers like Turkle, and others, that the types of new identities that are being created in the midst of this technological rise. They especially chastise the artificial intelligence and cybernetics researchers who value instilling in people logic, rationalism, and quantification. For them, the indoctrination of these values comes at the expense of the intuitive, emotional aesthetic side of human experience privileging analytical thinking over holistic forms of understanding.

Although Robins and Webster present valid concerns about the potential downfalls and abuses associated with the technological age, they stop short of recommending or theorizing what could be done to counter the negative effect they so fervently warn against. This is even more accentuated by their view that the identities forged in this new era lack intuition, emotion and comprehensive thinking. Interestingly, these points are refuted by Turkle's observation that although the technological community began with a more logical approach, it has now shifted to a more intuitive one. Furthermore, Robins and Webster's pessimistic portrayal is imbalanced. They fail to acknowledge the power of human agency

and the relative autonomy of technology. A huge oversight is the fact that increasingly more people are using technology to resist the very ills Robins and Webster outline. Perhaps this is also because cyberspace represents a utopia of freedom and democracy in the population's psyche despite the fact that there is no longer a clear delineation between the real and the virtual.

Nevertheless, Robin and Webster's critique is needed at a time when a majority of Western societies are on a "technology high." The tendency is to valorize technology 's impact, which points to a need for critics who are willing to go against the grain and present a skeptical voice. However, their critique would have more credibility if it were to take a more balanced approach. Steven Best and Douglas Kellner's work provides this balance.

Best and Kellner's book *The Postmodern Adventure: Science, Technology, and Cultural Studies at the Third Millennium* (2001a) employs a multiperspectival approach to bridge the dichotomy between techophiliac and technophobic perspectives. They agree with the belief that technology represents a shift in identity; however, they extend the realm of this change beyond technophiliacs to include areas of warfare, ethics, globalization, transhumanism, and posthumanism. Likewise, they agree with Robins and Webster that there is a strong capitalist agenda behind technological innovations serving the interest of corporations and the military over humanity. For Best and Kellner, the two major forces of destabilization and novelty in the contemporary era are the Internet and globalization, which for them are interconnected.

Best and Kellner's multiple modes of mapping allow them to explain the cultural and capitalistic forces behind the many changes society is undergoing highlighting the ways

humans are coevolving with technology to create novel configurations of society. They portend a fundamental alteration of the human being into transhumanism (i.e., improved humans via melding body with electric "parts" and nano-particles) and posthumanism (i.e., becoming a new species). They warn of the Frankenstein Syndrome, the pursuit of knowledge at the cost of examining potential consequences. This is poignantly illustrated with detailed discussions of xenotransplants, cloning and cyborgs. They, however, overlook the fact that we cannot explore the ethics of posthumanism without examining the destabilizing consequences on human equilibrium. The notion of destabilization can be explained in the potential for new categories of humanity based on varying states of one's human-machine merger such as the natural hierarchies that will be created when the population is subdivided based on where they fall on the fully human-fully machine continuum.

Best and Kellner theorize our future to include human fusion with technology through what they have termed the fifth discontinuity. With the fifth discontinuity, humans no longer maintain a superior position in the world. As we move to an era of posthumanism, technology is becoming more human and the human species is becoming more technological. Best and Kellner extend Turkle's recognition that technology is causing us to re-examine what it means to be human. Whereas Turkle explores this in light of emerging artificial intelligence systems, Best and Kellner examine the implosion of biology and technology including cloning and enhanced human abilities made possible by nano-technology. Like Turkle, and diverging from Robins and Webster, they recognize the process of identity transformation will continue to evolve along with technology.

The perspective I use for analyzing digital on line culture draws on each of these theorists as well as my own background in communication studies, cultural studies, and education. Building upon a cultural studies methodological approach involving the analysis of how artifacts of media culture affect people. I employ multicultural and multi-perspectival lenses to interrogate the categories of hegemonic and counter hegemonic forces. These influences are found through examining the production of media culture's artifacts within their political and historical contexts (Kellner, 2003b). Diagnostic critique is used to decode and interpret the meanings imbedded in artifacts. This also includes analyzing how "culture deploys power and is shaped and organized within diverse systems of representation, production, consumption and distribution" (Giroux, 2004, p. 59). Practitioners also reveal how hegemonic and counter-hegemonic ideologies are transposed to audiences via the politics of representation including race, class, gender, sexuality and religion revealing emergent and sustaining, dominant believes and behaviors. This serves as an important form of pedagogy helping to cultivate media literacy and develop critical thinking perspectives on media culture.

The ubiquitous nature of technology is contributing to the blurring of lines between what started as two distinct realities: real and virtual. Although it is still possible to enter cyberspace through a desktop computer, there are a multitude of fragmented ways to jump in and out of it throughout a given day. This is evidenced by our abilities to tweet, take a quick snapshot and in an instant and send it to a family member, navigate through a new neighborhood by checking a virtual map while walking down the street, and so on. The state I am describing is not entirely one or the other. It is dual and despite the fact that people in high-tech cultures still primarily exist and operate in the real, the real is

becoming peppered with the virtual. This peppering is going to become more important as the tools become more wearable, prevalent, and integrated into our day-to-day operations.

Subsequent chapters explore identity formation as it relates to ideology presented in cyberspace opening up new ways of thinking about society's responsibility in this evolution. Scholars have spent time mapping the political, economic, and technological determinants of the information revolution, which virtualization is now a part, providing a solid starting point for examining digital online culture at the ideological level in terms of what this means for the citizenry and how society should respond. One of the most prominent ways society can respond is through schooling. Since few education scholars have critically engaged and theorized how we should understand, respond to, and live this information revolution, a critical studies approach is needed to provide a cultural, ideological analysis of identity construction in the context of virtualization and to draw some conclusions for schooling in light of the analysis. The purpose of the subsequent chapters is to do just that. Each chapter represents a different facet of the real-virtual and human-machine lines to help deconstruct the ontological distinction between the two realms of being.

This Dissertation

In this dissertation, I begin by analyzing the work of new media scholar Sherry Turkle. She is an apt starting point due to her contemporary, unique and prolific writings on the subject of technology and personal identity. As a MIT professor and director of MIT's Initiative on Technology Studies, Turkle authored four books on the subject. Her unique access to cyberspace participants at their burgeoning stages provided her with the opportunity to intimately study and think about a world that was unknown to most of the

population. Her approach is also unique for the psychological perspective and ethnographic tools she brings to the analysis. Furthermore, it is interesting for the fact that she was writing within a neoliberal epoch that continues to work towards capturing the information revolution for hegemonic gains as opposed to personal liberation. Chapter two begins with a historical and political contextualization followed by a brief summary of each book to provide insight into some of the hegemonic and counter hegemonic forces at play at the time of their publication. Turkle's books are then analyzed for their contributions and omissions across themes of identity, authenticity, digital conformity, surveillance and self-censorship, race, class, gender and schooling.

The third chapter begins with a brief discussion of symbolic interactionism and its use for analyzing digital on line culture. Using numerous cultural artifacts, I take a closer look at technology as a vehicle of celebrity culture in order to articulate the prevailing thinking and practices behind the virtualization of identity. This begins the mapping of numerous cultural changes that shed insight into ideas about identity evolution from modern identity, to postmodern identity and currently, identity grounded in digital online culture.

The fourth chapter unravels a form of manufactured consciousness most of the population engages in when interacting in digital online environments. This includes analyzing issues of domination and control of user data, manipulation of identity where loss of privacy is trivialized and surveillance is the new norm. It closes by outlining several fringe yet emancipatory movements against these neoliberal acts.

The fifth chapter concludes with the role schooling should play to guide the citizenry through this area of profound and complicated changes. The chapter begins by examining

schooling's current innovations and struggles. I then analyze schooling's purpose in a

virtualized society. Specifically, I draw conclusions about the morphed population and their

philosophical and practical needs. This is followed by a discussion of how schooling can

best prepare for, and respond to, the RL-VL and human-machine mergers.

CHAPTER TWO

A CASE STUDY: SHERRY TURKLE AND THE PSYCHOLOGICAL ROLE OF COMPUTERS

Part of deconstructing the real-virtual and human-machine distinctions begins with a look at their impact on identity. Despite the pervasive use of computers and the World Wide Web, there is surprisingly very little sustained analysis and theorizing on the subject of identity, culture and virtualization. Although some scholars have looked at the social and personal implications of human interaction with new media (Buckingham, 2008; S. Johnson, 2006; Reeves & Nass, 1996; Norman, 1988; Nelson, 1987), few are examining the impact digital online culture is having on our identity in general and specifically, how we see ourselves and live out our lives. One of the few, most prolific and longstanding researchers in this area is Sherry Turkle, a leading scholar of human computer relations at the Massachusetts Institute of Technology (MIT). She is also the director of MIT's Initiative on Technology and Self (ITS), which investigates the social and psychological dimensions of technological change (Turkle, 2003). Her work is unique and recognized across a myriad of disciplines for both its subject matter and the psycho-analytical, sociological and ethnographic perspectives it employs making it a logical choice as a case study for this chapter. Given that the ITS' mission is to be "a center for research and reflection on the subjective side of technology and to raise public discourse on the social and psychological dimensions of technological change" (Turkle, 2003), it is no surprise that Turkle's work engages the cultural implications of the computer, early virtual environments, and the cultural practices they provoke. *Harvard Review* referred to Sherry Turkle as "one of the most distinguished scholars in the area of how technology influences human identity"

(Coutu, 2003, p. 1). Likewise, *Newsweek* identified her as one of the most important people to watch in cyberspace ("50 for the Future," 1995). Turkle's writings are also interesting for the perspective she brings to the real-virtual and human-machine divides. Her earlier writings represent an idealized virtual world full of possibilities for releasing human potential that is described to be separate from the real world. Her later writings demonstrate another kind of separation, where in light of her interpretation of technology's encroachment on the real, she advocates users actively retreat from the virtual back to the real. In both cases, Turkle's conclusions exemplify her belief in demarcations between the real and the virtual and humans and their machines. Another point to consider as I engage her writings is the level to which the prevailing neoliberal political agenda are evident in her observations, which is revealed as I historically and politically situate her writings.

A point made clear across Turkle's books is that like it or not technology and virtualization are not only here to stay but are also fundamentally changing human identity, culture and society. Of particular interest are the four books she authored that span over thirty years, as they analyze personal and cultural changes as they relate to first early computing then to virtualization. Beginning in 1984, she published *The Second Self: Computers and the Human Spirit,* one of the first analyses of computers as tools to think about the self. A decade later, 1995, one of her most well known books *Life on the Screen: Identity in the Age of the Internet* hits the bookstores. This book uses the then novel world of multi-user domains to document both user behaviors and the role virtual participation plays on their sense of self. Over a decade later, 2009, *Simulation and Its Discontents* comes out, where after a lengthy introduction by Turkle, she includes four in-depth essays written

by outside authors on simulation culture across a variety of scientific disciplines. Finally, her most recent book, *Alone Together*, published in 2011 is surprising for the strong stance it takes on technology's negative impact on identity.

This case study will first summarize and contextualize each book then present and analyze key themes relevant to identity, ideology, manufactured consciousness and education juxtaposed with Turkle's position on them. Contextualization is used to examine Turkle's books within their political, economical and sociological context as well as other cultural artifacts of the time such as films and books. Additionally, in the case of Sherry Turkle, I also include the noteworthy direction of several MIT research initiatives because MIT's culture invariably impacts her thinking.

The Second Self: A Burgeoning Human-Machine Relationship

Turkle's first book *The Second Self*, is an examination of how people are changing as a result of their involvement with technology. Using a theoretical framework drawing on developmental psychology, she looks at several groups of computer users: children, adolescents, video gamers, programmers and hackers to document how the computer is used as an evocative object to reflect on themselves, society, humanity and spirituality. She notes that computers affect how users think about concepts such as animate and inanimate; conscious and not conscious; life and death. Specifically, she finds the acts of computer programming, game playing and even hacking as gateways to entering into a relationship with the computer. Her central argument is that it is through these relationships that users begin to experience the computer as a second self: a mirror of identity.

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This book was one of the first of its time to uncover the computer's impact on users psychological and emotional development. As Turkle asserts, it provokes the reader to move beyond viewing the computer as a tool that does something for us to looking at the computer as a companion that does something to us. Although I appreciate her focus on its impact on personal identity and metaphysical questions, it would be helpful to see her situate this point within the larger socio-political context. Considering the collective identity and ideology of 1980's U.S. society would better help the reader to comprehend and evaluate some of her conclusions. Furthermore, Turkle does not explore the 1980s neoliberal corporate interests in getting individuals to join computer culture via mass consumerism. She mentions that purchasing a computer means entering a "new world of information to be gathered, assimilated and discussed" and "participation in this world is part of what people are buying" (p. 173), yet she stops short of analyzing the dark side to the relationship between corporations and computer culture despite the fact that the cyberpunk genre of the time was critiquing it at length. Thus, a huge oversight is her failure to discuss the ethical dilemmas and tensions around this hegemony.

At the time *The Second Self* was written in 1984, a time when computer technology was still at its beginning stage with the Internet limited to scientific, military and commercial research institutions. Although the Internet was still seven years away from its official debut to the masses, the emerging technology explosion was manifested in several advancements. The 1980s are the years of supercomputer machines such as Cray XMP, The Connection Machine and the initial introduction of the PC such as IBM's Commodore 64. The same period also sees the start of the open source movement with the creation of MIT graduate student Richard Stallman's Free Software Foundation (FSF). Consistent with this

part of MIT culture at the time, technology presents, for Turkle, all the hopes for a better tomorrow evident in her focus on computer programming as a means of empowerment and control. Another point to consider is that although she had her finger on the pulse of technological gains, she does not engage the fact that there were two opposite perspectives at the time both linked to MIT. The first was a hegemonic position, supportive of the United States' closed economic culture of the time, and the second was a counter-hegemonic perspective pushing for an open cyber-society.

Politically, society was consumed with the Reagan Administration's Star Wars defensive initiative justified in Reagan's 1983 speech, "It took one kind of military force to deter an attack when we had far more nuclear weapons than any other power; it takes another kind now that the Soviets, for example, have enough accurate and powerful nuclear weapons to destroy virtually all of our missiles on the ground" (1983). The arms race against the Soviet Union compelled the U.S. government to spent extraordinary amounts of money developing the most sophisticated technology possible in the form of a Strategic Defense Initiative (SDI) adding computer technology as a new kind of military force. The purpose was to position the U.S. as the most militarily sophisticated in the world, resulting in collective awareness around the need for technological advancement. In doing so, Reagan was able to continue the Cold War of the 1950s and its culture of fear was absorbed into the population's consciousness.

The 1980s were also a time of economic ups and downs. Trickle-down economics promised higher income for the population by cutting tax (Cannon, 2000). The outcome generated a high national deficit and opened the door to imported goods in the form of electronics and cars from Japan, starting a swing in consumer spending from U.S. made

products toward cheaper yet well made Asian ones (Cannon, 2000). Although

Reaganomics benefitted the service sector and specifically businesses related to defense

programs such as in California, it hurt states with high manufacturing jobs, dramatically

increasing unemployment. Ultimately, this decade moved the U.S. from a production to a

service economy. The technology sector was not yet a critical player in the U.S. economy;

however, opening the import door enabled the PC clones of the 1990s to offer much more

affordable prices opening up the market for middle class families to afford these machines.

Socially, people suffered under Reagan's $30 billion dollar cuts to several social programs

such as housing, job training and school lunches resulting in the rise in the number of

Americans living in poverty and homelessness (Cannon, 2000). Additionally, there was a

conservative atmosphere supportive of Reagan evidenced by the strength and power of

Jerry Falwell's Moral Majority organization. This is also seen in Reagan's frequent

references to the early American Puritan John Winthrop (Yager, 2006). It seemed Reagan

was after re-establishing the conservative values of the 1950s, which is ironic given the

ultra-futuristic society devoid of values presented in the cyberpunk genre of the same time

period.

Defense spending inevitably spilled into our colleges with MIT's research

historically being "heavily dependent on defense department funding" (Glenn, 1989).

During the 1980s, MIT was the top non-profit Department of Defense contractor in the

nation. Additionally, the Draper Institute, working on classified applied weapons research,

collaborated with MIT graduate students in joint research activities. This is further

corroborated by the fact that many of MIT's key administrators were "closely linked to the

Pentagon" (Glenn, 1989). Thus, on the political front there were great hopes for our

research institutions to help the U.S. maintain hegemony through military technological

advancements creating urgency to rally computer scientists behind this endeavor. It is

interesting to note that the fall of the Soviet Union in 1989 put a halt to Star Wars ending its

justification as a race against the Soviets.

What started as a competition against the Soviet Union resulted in the creation of

the Internet. As early as 1957 the USSR launched Sputnik, the first earth satellite, causing

the U.S. to form the Advanced Research Projects Agency (ARPA). Its mission was to work

with the Department of Defense to help them expedite collaboration among scientific

centers across the nation (Yurkanon, 2001). At the same time, Leonard Kleinrock

completes his doctoral dissertation at MIT on queuing theory in communication networks,

and soon becomes a UCLA professor involved in the first Internet connection (Computer

History Museum, 2006a). By 1969 four networking nodes had been created and Charley

Kline attempts the first inter-computer communication supervised at UCLA by Leonard

Kleinrock (Zakon, 2011). By the 1970s the Advanced Research Agency Network

(ARPANET) had been established for use on projects at universities and research

laboratories (Tomlinson, nd).

In the 1980s, the ARPANET was making great strides with the National Science

Foundation (NSF) advised via congressional hearings to make supercomputers available to

U.S. scientists. By 1984, the NSF issued a request for proposals to establish supercomputer

centers providing access to the entire U.S. research community, regardless of discipline and

location, and a new division of Advanced Scientific Computing is created with a $200

million budget over five years (Computer History Museum, 2006b). This resulted in a

readjustment from a restricted and defensive node system into an open and growing

rhizomatic organism. While MIT was involved in this endeavor, Turkle was not at the time studying the impact of network interactions. However, science fiction writers and filmmakers' were already exploring the subject. Their suspicions played out in contemporary fiction referred to earlier called cyberpunk.

In entertainment, cyberpunk culture was on the rise. The genre reflects a very different perspective of technology from the neoliberal establishment's optimistic push for expansion into the fabric of U.S. culture and commerce. It articulated a growing uncertainty about technology, and as described by Douglas Kellner, cyberpunk culture "embraces technology which is used for individual's own purposes (although often against the purposes and interests of established institutions and usages)" (2003b, p. 302). As noted by Steve Jones (1995) in his article "Cyber-punk and Information Technology," cyberpunk literature situates the future in the present and consists of societies in a high information state. He theorized, "the parallels we draw between machines and living things strongly color our understanding of the world. Now, information is central to biology—life is thought of as a genetic code, and like a machine code is available for editing" (p. 89). For Bruce Bethke (2004), cyberpunk is a fictional warning about "the science of controlling human functions and of electronic, mechanical and biological control systems designed to replace them" (Bethke, 2004). The technology of this genre is characterized by what he describes to be ultra-technology where technology is used to create genetic mixes, machines that think like humans and humans that think like machines. Cyberpunk literature served as a warning against technology's potential dangers (Kellner, 2003b). This genre appears in landmark films like *Blade Runner*, and *Tron* as well as in science-fiction literature such as William Gibson's *Neuromancer*.

Blade Runner (De Lauzirika, & Deeley, 1982), based on the Philip K. Dick Novel *Why Do Androids Dream of Electric Sheep?* (Dick, 1996), was unique for its depiction of a bleak, urban, Asian-American future demonstrating a strong contrast to the 1950s and 1960s plastic pop sci-fi like the *Star Trek* T.V. Series (Roddenberry, 1966) and the popular film *Barbarella* (Di Laurentis & Vadim, 1968). Directed by Ridley Scott, Deckard, a blade runner (a.k.a. bounty hunter) played by Harrison Ford, has to track down and kill four rogue cyborgs called replicants. Through this process the viewer comes to question the definition of humanity and the line between authentic and inauthentic. The viewer is also introduced to the idea that the world can exist without clear distinctions between humans, machines, and altered states of being. Most interesting is the replicants' superhuman qualities and the film's interrogation of the aging process and mortality, a theme we see often throughout the 1980s and 1990s. Nietzsche's ubermensch (2012) is one way better understand these cyborgs, as they are more physically and psychologically evolved than humans. Replicants represent complex machines that question their own metaphysical condition in their quest for freedom and to resolve their mortality. Although they transcend humanity, they still seek to become more like their weaker human makers. This film reflects the reality that at the time humans were pushing the boundaries of their own limitations through computer technology, yet cyberpunk artifacts reveal an opposite dynamic to illustrate the dangers this quest represents.

The original *Tron* (Kushner, 1982) directed by Steven Lisberger depicts a hero, Kevin Flynn played by Jeff Bridges, as a software engineer and hacker who becomes trapped into a computer's hardware and must fight for his life and freedom from this oppressive environment. Although, the film was made with computer graphics limited to

simple techniques resulting in a rather simplistic look, it is hailed as a milestone in the computer animation industry. Ironically, a film whose content is skeptical of technology utilized some of the most advanced technology of the time. Simultaneously, William Gibson was publishing his groundbreaking science fiction book *Neuromancer* (2004) where his protagonist, Henry Case, is a drug addict and cyberspace hacker who must use his hacking skills to save his life.

Each of these cultural works depict a rather grim view of technology overcoming humans and humans having to use their unique qualities of logic and reasoning to escape the impending doom. Like several past inventions that changed society such as the printing press, telephone, and television, people's uncertainty and anxiety about contemporary computer technological advancements are reflected in the cyberpunk current. The genre is an interesting juxtaposition to the neoliberal push for idealizing technology as a path to a more open, free, liberated and prosperous future.

Counter to the cyberpunk movement, Turkle's early 1980s book is celebratory about technology's social influences and potential for a better life and society. Although these writings are counter to the film and literature at that time, they are consistent with the political, military, scientific, and MIT supported ideology that technology will protect and transform society for the better. Interestingly, science fiction writers seemed better able to decipher the real and imagined abuses of computer technology.

Life on the Screen: Utopia in the Making

A decade later, Turkle's seminal book *Life on the Screen: Identity in the Age of the Internet* (1997) is published. This piece is an evolution from her first book as it relies less on empirical research and more on individual interviews to prove larger theoretical points.

Whereas *The Second Self* looked at our involvement with computers, this book expands to the early stages of cyberspace. A society viewed through Turkle's lens, is one where virtualization enables marginalized groups to be more in control of their lives. She also credits computer technology with expanding diversity by opening up a more "closed" modernist society to become a more "open" postmodern society where a multitude of expressions are encouraged. Furthermore, she expands some of the ethical and moral challenges computer technology is posing to one's sense of what it means to be human including conceptions of aliveness, spirituality, and God. These are some important findings given the fact that Turkle argues we have crossed into postmodernity evidenced by her identity arguments.

What I appreciate most about this book is the mapping from modern to postmodern identity. Most concerning is the too celebratory outlook on the current and imminent downside to cyberspace. Other than discussing the issue of virtual rape, she stops short of musing about the impact corporations and neoliberal ideology may have in and around this new environment. She does not preview the control and probing into citizen's cyberlife. Additionally, her observatory stance lacks a moral position on this issue.

One of Turkle's most salient points about identity in light of multi-user virtual environments like MUDs and MOOs is the fact that these cyber-environments allow for their participants to more fully explore different aspects of themselves including the ability to play with their identity and try out new ones. Although identity scholars like Sheldon Stryker (1980) argue that our identities correlate with the roles we play in society. Turkle's observation opens up the idea that identity in cyberspace extends beyond the roles we play in society to include imagined roles conjured up in cyber environments. This is an

important point given that up to this time the only identity play available was trying on

different aspects of self in real life with much higher stakes and where certain types of

identity play simply was not possible or extremely difficult (e.g., gender swapping).

By the early 1990s, the broader public is given access to the World Wide Web with

the first web browser, created by Tim Burners-Lee, released in 1991 (Wall, 2013). At the

time, computer connections were still very slow using modems and dial-up. Furthermore,

the websites one encountered imitated print newspapers with web pages structured like

newspaper front pages. Additionally, the ARPANET is disbanded and rapidly morphed into

the Internet. Mosaic, the precursor to Netscape is created, the WWW is released, and the

Internet explodes. As outlined by the Computer History Museum, "what had been doubling

each year, now doubles in three months. What began as an ARPA experiment has, in the

span of just 30 years, become part of the world's popular culture" (2006b). Turkle was on

the cutting edge with her exploration of these early Internet communities.

Life on the Screen was published during the Clinton years, a time of economic high.

The national debt of the Reagan years had been turned into a surplus and the country was

experiencing an economic boom (Clinton, 2005). This was also the era of the dot com

bubble epitomizing society's obsession around the web's potential becoming the new "gold

rush" of the time. The Clinton Administration widely supported technological growth in the

form of keeping cyberspace free of trade barriers and a series of bilateral agreements on

intellectual property, high tech products, services and other sectors. For the Clinton

Administration, such technological policies were the building blocks of the "new economy"

(National Archives and Records Administration, 2000).

Socially, the median family income increased, unemployed was at its lowest level in more than 30 years, and there were 7 million fewer people living in poverty (National Archives and Records Administration, 2000). This led to a time of social optimism and hope for a future of which the technology sector's unrealized potential was an integral part. Additionally, the Administration was committed to doing what it could to narrow, or close, the Digital Divide by tripling the funds for Community Technology Centers, which provided access to computers and the Internet to low-income urban and rural neighborhoods. President Clinton also challenged the private sector to develop new business models for low-cost computers and Internet access to make universal access at home affordable for all Americans. Subsequently, by the end of the 1990s, 95% of public schools were connected to the Internet and 63% of American classrooms had connection (National Archives and Records Administration, 2000). It was through these and other measures that Clinton was to fulfill his larger mission: to manage the nation's transition from the Industrial Age to the Information Age (Klein, 2003). Turkle's work during this transitional time reflects this optimism with cyberspace being an emancipatory agent, where machines and humans are becoming more alike than different, and where people are provoked to consider postmodern ideas about the instability of meaning and the lack of universal and knowable truths.

The technological high was also seen in cutting edge research with MIT switching its focus from the military to corporations. In the early 1990s, MIT received a $2.65 million dollar grant from Hewlett Packard to support research in the area of improving the ways in which humans interact with computers (Moy, 1993). In 1995 MIT's media lab announces its newest project, "Things that Think" referring to their mission to embed computing into

common objects that are first and foremost something other than a computer or

telecommunication device (Hsu, 1995). Additionally, the director at the time, Nicholas

Negroponte, recognized that the media lab was a way for corporations to outsource their

basic research. In a 1995 interview with *The Tech*, MIT's school newspaper, Negroponte

states, "so from the corporate point of view, we are basically presenting ourselves and they

see us, I believe, in this way—as a place where they can, at very low cost, still keep their

finger in basic research into applications" (Hsu, 1995, p. 15). It is interesting to note that

Turkle's writing does not foresee the commodification of identity to come nor higher

education's role in this practice.

Culturally, the hit film *Terminator 2: Judgment Day* (Austin, & Rack, & Cameron,

1991) was released. In line with MIT's "Things that Think" initiative, it depicts cyborgs,

machines with human qualities, that are capable of controlling humanity. The terminator

protagonist, who had been the antagonist in the first *Terminator* film, played by Arnold

Schwarzenegger, is sent from the future to prevent judgment day when machines release

an atomic bomb and begin to exterminate humanity continuing the association of

technological advancement with the decline of society as we know it. *Terminator 2* is also

interesting because it marks one of the first times a digital effects character, liquid cyborg,

is presented to the public. Extending technology advancement to biology, Steven

Spielberg's popular film *Jurassic Park* (Kennedy, & Molen, 1993) contains a storyline

centered around bio-technology's ability to recreate the past in the form of dinosaur

cloning. What starts out in the film as a marvel of bio-technology advancement soon turns

into a nightmare as the dinosaur theme park breaks down and humans are terrorized by

their own invention. In light of this critical view of the human-technology relationship,

Turkle's writing at this time becomes even more optimistic about this relationship. This aligns her work with the hegemonic narrative of the 1990s that technology promises a future filled with promises and unimaginable possibilities to release human potential.

***Simulation and Its Discontents*: The Onset of Disenchantment**

Through most of the new millennium's first decade, the George W. Bush administration expands the Clinton Administration's support mechanisms for technology by acknowledging that school connectivity is not enough. As Bush outlined, "behind every wire and machine must be a teacher and a student who know how to use that technology to help develop a child's mind, skills and character" (Robelen, 2000, p. 1). The focus was shifted from the number of schools that are wired to what children are learning within those wired environments. By the time Turkle's third book, *Simulation and Its Discontents* (2009), is published Barack Obama had just won the presidency and the country was going through ideological shifts on many fronts. One of the most striking parts of Obama's campaign was his ability to connect with the population and fundraise through new media. He was the trailblazer for a wave of modernized campaign strategies and a legitimization of technology as a cultural centerpiece.

Turkle outlines virtualization's contested terrain within science, design and architecture where the benefits of simulation are compared to its disadvantages. Most interesting is her account of the transformation professional identities are undergoing in light of technology. One of those changes includes an increased comfort level with opacity presented through software. For Turkle, young professionals are not concerned with understanding how a particular software arrives at an answer nor do they question whether it can be incorrect rather they accept the software "answers" as truth. It is noted

that industry specific software programs have even re-shaped minimum qualifications for fields such as architecture where the ability to hand draw architectural plans is no longer required. Furthermore, her findings start to unpack the ideological divisions along generational lines spanning the fields of engineering, architecture and the life sciences. Turkle's writing begins to show some uncertainty in her adoration of technology's impact on society.

This period is marked by the economic troubles beginning with the weight of the continuous "wars on terror" and a sluggish economy, which soon becomes a major economic meltdown, followed by general panic and a questioning of capitalism's ultimate outcome. By 2009, Obama tries to quell the mayhem by providing hope for a new approach to politics by working to achieve a renewed economy through by-partisanship. Unfortunately, the country becomes politically polarized, and a united opposition of conservative Republicans, who are prodded by the populist movement called the Tea Party, fiercely fight Obama's dream of a "new deal." Ironically, this was the same time that technology reaches a critical mass with the explosion of social networking sites fueled by the same optimistic youth who were instrumental in voting Obama into office. These new phenomena provided a glimmer of optimism at this critical time. Not only were people able to share their lives in a novel, instantaneous and interactive fashion, they were also able to use these tools to organize themselves for further social changes, serving as a precursor to the 2011 Arab Spring (Kellner, 2012a).

On the education front, the administration acknowledges technology to be a promising tool when it comes to teaching and learning. The launch of a new national center for advancing learning technologies called *Digital Promise*, designed to harness the efforts

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of stakeholders from educators to entrepreneurs to spur research and development by the

adoption of breakthrough technologies. This initiative is designed to help transform the

way teachers teach and students learn ("Fact Sheet: Digital Promise Initiative," 2011). By

2009, Web 2.0 implements more interactive graphic interfaces and the Internet is in full

swing. Its high bandwidth capacity nicknamed the super highway helps expand

technology's reach to become our new "other." We moved from largely one-way

communication to two- way transactional communication that could cut across space and

time enabling geographically separated families, friends, and colleagues to build and

maintain relationships in unprecedented ways. Thus, our reach was broadened to bring the

geographically dispersed people in our lives closer as a collective entity; everyone can

follow each other's lives in a global sharing experience. This participatory experience

enables us to project our "other" digital self, market ourselves to our inner circle and

maintain whatever composite image we wish to present. In this third book, Turkle does not

expand her discussion to include more facets of identity as they are formed and presented

across social networking sites such as these. This is especially surprising given that *Life on

the Screen* was consumed with the precursor to social networking in the form of Multi-

users domains (MUDs).

At this time, not only are our machines increasingly fundamental to our lives, but

also in the wake of the Iraq and Afghanistan invasions, we see the acceleration of

unmanned drones turning war into a high stakes video game. We also see the acceleration

of humans merging with technology. The U.S. military continues to spend a great deal of

money advancing the creation of new, emergent technologies to enhance human capacities

during warfare and to replace and replicate lost human body parts creating some of the

first cyborgs. This is evidenced by the MIT media lab's biomechatronics group who in 2004 received $7.2 million in funding from the department of Veterans Affairs to create what scientists hope to be "biohybrid" limbs that will use regenerated tissue, lengthened bone, titanium prosthetics and implantable sensors allowing an amputee to use nerves and brain signals to move limbs ("Research aims to restore amputee limb function," 2004). These realities point to the fact that the real and the virtual as well as the biological and the machine are becoming less distinct.

Films of the new millennium such as *The Matrix* (Silver, A. Wachowski, & L. Wachowski, 1999), *A.I. Artificial Intelligence* (K. Kennedy, Parkes, & Curtis, & Spielberg, 2001), and *Minority Report* (De Bont, Parkes, Curtis, & Molen, & Spielberg, 2002) depict technology being pushed to the point that viewers are provoked to reconsider humanity. *The Matrix* presents life as simulation with machines using people as an energy source for "the matrix" a mechanism that enables them to live in a simulated world. Neo, the main character played by Keanu Reeves, is a computer hacker who threatens to overtake the machine's enslavement of humanity. Likewise, Steven Speilberg's *A.I. Artificial Intelligence* is the story of a robotic boy who longs to be human and secure the love of his human mother. Although he looks human, he is able to overcome humanity's weakness by demonstrating deeper levels of empathy and ultimately surviving death. The film takes the ubermensch theme to the next level when the boy in the end is presented as the only survivor of civilization and the repository of humanity's memory. Finally, *Minority Report* presents a world where technology enables criminals to be caught before they actually commit a crime by creating a police state where everyone is a potential target. A problem ensues when one of the officers in this special unit is accused and strives to prove his

innocence. This film shows that no matter how fail-safe a technology is presented to be, it is still subject to manipulation and malfunction. It also shows the enslavement of a group of people, clairvoyant's called Precogs, at the service of the political establishment to keep control of society.

The fact that Turkle's early work presents cyberspace as a place to explore identity based on an emerging set of rules beyond those in real life is consistent with these films. Although she does not push the argument to the point of transcendence and overcoming death, her books present a path to this eventual state, as we become indelible in cyberspace. I will expand on the ubermensch concept in relation to technology and the digital world in the next chapter.

Alone Together: **Approaching Dystopia**

It is interesting that at a time when there is wide support of technology Sherry Turkle's most recent work, *Alone Together* (2012a), takes a giant step back from her perspectives in *Second Self* and *Life on the Screen.* She argues that technological immersion and sociable robots, robots that she indicates have been introduced in Japan as social companions to the elderly, are creating a culture of isolation and obligation.

Alone Together contains observations that digital immersion has created a new contradiction: We are both newly free and newly tethered. For Turkle multi-tasking has extended to multi-lifing where we now inhabit worlds of partial attention with little time for the important identity act of self-reflection. She points out a couple of modern day dichotomies, technology has enabled us to be closer than ever but it as also isolated us; we are craving authenticity in our online interactions but increasingly find ourselves and others engaging in and accepting digital in-authenticity. Most surprising is Turkle's shift

from technophilia to technophobia by concluding that the Internet has given us a new way

NOT to think and the world of instantaneous communication has stifled the space needed

to consider complicated problems. In the tradition of Irving Goffman, Turkle notes that

when we are socializing online and creating our online avatars or profiles, we are giving a

"performance" of us. This is also consistent with postmodern theorist Guy Debord's notion

of *Society of the Spectacle* (2004) who argued that modern society has a myriad of

superficial and manufactured distractions including "the obvious degradation of being into

having…and from having into appearing" (sec. 17) that keeps society focused on the

commodity, in this case the commodification of the self, at the expense of thinking more

deeply about social life. Thus, for Debord, the "falsification of social life" (sec. 68) impacts

our wants, desires, value, our very existence.

What I appreciate most about Turkle's book is her ability to take a step back from

her earlier infatuation with technology's potential to explore an alternative side to it.

Interestingly, many of her criticisms are consistent with the postmodern way of being that

she valorizes in *Life on the Screen*. It would have been helpful to see an articulation of the

line between a positive versus a negative postmodern state. Additionally, her perspective in

this book could use more balance between that of young and older perspectives;

technology's positive and negative impact; complete immersion and complete

disconnection; and freedom versus control. Perhaps Turkle had such high hopes for

technology that those hopes were dashed as she witnessed less empowerment and

liberation and more control, an issue explored further in chapter four.

On the technology front, the popularity of cloud computing moves the locus of data

control from the individual to the corporate sponsor who in turn becomes the ultimate

keeper of our data. By the 2010s, digital mobility devices take a central position where their miniaturization along with the plethora and sophistication of mobile applications (known as apps) become the main vehicle by which we infuse real life with virtual life. It is this very mobility that Turkle is most critical. Nevertheless, it is undeniable that the waves of devices such as iPhone (est. 2007), Droid (est. 2009), iPad (est. 2010), iPhone 5 (est. 2012), Droid Razr HD (est. 2012), and iPad Mini (est. 2012) are marking an evolution from the desktop of the 80s, the laptop of the 90s, then crossing into mobility of the late 2000s to the full mobile computers that they are by the early 2010s.

The Obama administration is in full swing and recognizes that technology is an essential ingredient of economic growth and job creation. Following the guiding principle that technology such as high-speed broadband Internet access, fourth generation (4G) wireless networks, new health care information technology and a modernized electrical grid are critical to America's long-term prosperity and competitiveness ("Technology | Guiding Principles," 2011). However, the country does not experience short term economic growth and feels beaten down by the continuous prosperity of large corporations in the wake of a massive government bailout. The crisis was used as a means to cut staff, reduce salaries, obliterate pensions and health benefits while making record profits. It is the beginning of a new decade's class warfare in the United States.

On the social front, the persistent economic crisis has created a time of polarity, fragmentation, disparity and a general mood of gloom. Turkle seems to reflect this mood in her writings by switching her stance from computers and the Internet being a place of self-discovery to a place lacking meaningful self-reflection. In contrast, technology continues to be embedded in everyone's life from social networking to increasingly smarter phones.

Although Turkle highlights some of the negative aspects emerging as we become more reliant on our technology, she does not provide much of a solution outside of suggesting that we take a mindful step back from these devices. Theorizing solutions are especially needed given the fact that the information and technology revolutions are entering a new phase in the sense that they are becoming increasingly imbedded into our culture. Thus, society needs theoretical tools to differentiate between individual agency and manufactured agency.

The year 2000 marks the end of founder and idea man Nicholas Negroponte's leadership, MIT's Media Lab transitions to the corporate leadership mentality of Frank Moss whose 25 year business background includes running software, computer and life sciences companies (Weisman, 2006). In his interview with *The Tech*, Moss indicates that the media lab may conduct more research into projects of interest to its corporate sponsors such as sociable robotics research to build machines that can interact with people on human terms (Weisman, 2006). In 2011, the media lab changes hands once again to that of businessman Joichi Ito whose vision for the lab is to work on the areas of education in a more connected and global environment (McQueen, 2011). Additionally, he plans to balance the large companies long term thinking with the agility of short term thinking associated with Silicon Valley start- ups. This seems to be a refocusing from the venture capital approach of his predecessor.

Within the 2000s, films like *Transformers* (Murphy et al., 2007) and *Avatar* (Landau, Breton, McLagen, & Cameron, 2009) reveal a new narrative where humans and machines are more similar than different and their relationship becomes collaborative. Both films reflect a movement to a more postmodern way of thinking about humanity's co-evolution

and collaboration with technology. On one hand, *Transformer's* Autobots are hyper-real, larger than life robots with abilities and powers beyond any modern day human made machine. On the other hand, they are representative of a classic American icon with personalities and a sense of morality. There is a mystical bond between man and machine who join forces to fight a mutual enemy. Likewise in *Avatar*'s world, biology enables hybridization at the cellular level where human DNA is spliced with the DNA of Pandora's indigenous, the Na'vi. Human minds reside in Na'vi bodies with both human and *other* physical characteristics. The avatars are neither friend nor foe to humans rather completely meld with human identity. While inhabiting the body of their avatar, human drivers are able to roam the world around them free from the constraints of their earthly life. It is a place where interspecies communication and relationships are possible. It is also a place where a paraplegic war torn veteran can once again experience the sensations of his limbs and the joy of living. A step beyond the current MIT work on prosthetic limbs, an aspect of technology Turkle doesn't grapple with ("Research aims to restore amputee limb function," 2004). It would have been nice to see Turkle expand her definition of cyborgs to include this group of people as opposed to limiting the definition to people who carry or wear smartphones.

The new millennium's second decade introduces technology stardom where within society's cultural psyche there is an embrace and glorification of the tech world. The film *Social Network* (Rudin, De Luca, Brunetti, & Chaffin, & Fincher, 2010) illustrates this point by turning the birth of Facebook into a heroic endeavor. Programmers are identified in the movie as geeks; a term previously pejorative is turned here into a superlative. Technical prowess is depicted by showing the programmer immersed in an epic battle while wearing

headphones as a protective shield from the outside world, commonly referred to as being "wired in." Being "wired in" is not the characteristic of an assembly line automaton but rather a modern-day warrior. This point is further illustrated through the film *Inception* (Thomas, & Golberg, & Nolan, 2010) where participants are wired into a machine that immerses their psyche with access to manipulating someone's dreams. Interestingly, Turkle shows being "wired" as analogous to the loss of human agency and control, yet as we see in modern films, being wired is also viewed as a liberating and desirable state, a step towards a heroic superhuman state of being.

Now that Turkle's work has been summarized and contextualized, I will outline several themes critical to digital online culture including identity; authenticity and digital conformity; surveillance and self censorship; gender, race, and class; and schooling. This will be accomplished by first summarizing Turkle's stance on each theme, then mapping areas of appreciation and concern and concluding with implications.

Mapping Identity

One of the main themes across Turkle's writings is the notion of what computers do to us individually. *Life on the Screen* perhaps does the most thorough job addressing the shift in our identity from a modern sense of hierarchy and depth to a postmodern identity that is multiple, fragmented, de-centered, surface and simulated. This is one stance she does not step back from across her writings. Interestingly in *Alone Together* she uses the very criteria of postmodern identity hailed in 1995 to build a case that technology[2] is doing more harm to us than good trapping us in cyberspace as a way of life. Another point made

[2] The term technology is used here to convey the fact that Turkle's point is larger than human computer interaction or the Internet.

across her work as discussed earlier in this chapter is that once we own a computer, we enter into a social relationship with our machine.

Turkle's observation that computers and humans interact transactionally is an important one. She argues we interact with our computers but they also interact with us. In Turkle's view, this relationship has shifted from a positive one where identity exploration is possible and new meanings are gleaned about culture and society to identities that are fragmented, preoccupied by the task of managing multiple selves and multiple lives, overwhelmed by continual navigation of shifting surfaces and increasingly comfortable with the virtual over the real. Subsequently, she argues identity has become superficial with no time to reflect and with individuals who use their online selves as a laboratory for identity projection based on a prototype of who they want to be. Although I appreciate Turkle's observation, I am not in agreement that this relationship has soured because I see its pervasive and addictive qualities. Few people would be willing to give up this relationship given the fact that in the midst of this cultural change machines became more intelligent and we become more reliant on them. Therefore, we perceive that we reap more personal and social rewards from interacting through our computers than its associated costs. The price of breaking this complex addiction is to be off the grid and disengage from society at large as well as from our very identities. The rebooting of society through some of these social movements is characteristic of the post-cyberpunk movement that will be discussed in the next chapter.

It would be helpful if Turkle were a bit more balanced with her stance across books, as she rather sharply swings from technophilia to technophobia. In *Life on the Screen* very little time is spent on exploring the negative side to online communities, programming,

hacking, and proprietary software. Additionally, in *Alone Together* we do not see an analysis of the reasons for her conclusions that people are so immersed in technology that they can no longer think or interact meaningfully. One unexplored explanation for some people's unfettered use of technology lies in our schools. As discussed earlier in this chapter, each U.S. presidential administration since Clinton has had a vision and agenda for how to integrate technology into our classrooms and educate our society in light of this cultural phenomena; however, technology has outpaced our ability to respond leaving schools grossly behind in educating the public on how to handle these devices on a philosophical, socio-emotional and relational rather than purely material level. The neo-liberal education agenda that has spanned administrations since Clinton supports short-term learning initiatives at the expense of deeper societal improvements related to digital online culture. The Bush Administration's *No Child Left Behind* and The Obama Administration's *Race to the Top* and *Digital Promise* initiatives are perfect examples of a pattern that reflects a corporate culture of favoring quick results at low costs as opposed to changes grounded in methodical and ideological values, which is certainly why Obama's *Digital Promise* is a bipartisan endeavor.

Another interesting observation Turkle makes about identity is the fact that, "We make our technologies and in turn our technologies shape us" (2012a, p. 263) and simulation not only demands immersion but also creates a self that prefers simulation. Within these simulated environments, Turkle grapples with the issue of authenticity observing that young adults have an implicit understanding and tolerance for people who enhance their projection of self online. Although her finding is interesting, Turkle stops short of providing a deeper philosophical and social analysis. For instance enhancing an

online profile relates to Jean Beaudrillard's notion of simulacra (1994), one's cleansed projection of self as communicated by a user profile is a simulacra of ones real self. Like Baudrillard's comparison of Disneyland's main street to an idea of a real American small town main street, the online profile is a vision of the person that has been altered to be a more perfected version of the real. This idea is further complicated by the fact that the perfected real is a projection of one's perception and thus part of one's identity. These findings provoke thoughts about the value of what it means to be authentic, which can be found in the imperfection. Our strengths as individuals lies in our essence and with that essence comes our individual quirks, weaknesses along with our strengths, which ultimately endears us to others. Stripped of these idiosyncrasies we become an empty shell of simulated perfection. Turkle's findings call into question whether an online profile is projecting identity as an empty shell and if so causes us to question what should be done about it. For instance, should our schools teach us how to "read" these profiles like we are taught to read the media? Should schools train students in the ethical use of the Internet including truth and honesty in one's self portrayal? Difficult questions like these need further theorizing which will be addressed in chapter five.

Another way to look at Turkle's concerns in *Alone Together* is to examine the multiciplicity of values, meanings and messages that are gathered from virtual communities, and to explore the various ways in which users decode these communities according to their own subject positions. Life on the screen is often polymorphous, containing multiple meanings in need of deeper exploration. Although Turkle's work is multiperspectival in many ways, it falls short in this area. According to Douglas Kellner, a multiperspectival approach combines qualitative and quantitative, hermeneutical and

critical, semiotic and structural and the various critical theories to get at the full range of meanings. Unfortunately, Turkle's range of meanings lack a fully rounded multiperspectival edge. Her interpretation should lend more time to looking at alternative perspectives such as how these tools are used and perceived across generational lines. This would help to corroborate the general belief that there is a rather deep divide across generations related to many technological issues.

Turkle's writing often implicitly refers to one of Marshall McLuhan's most useful axioms where he argues media is both a source of extension and amputation. Although not mutually exclusive to each view, extension articulates the positive aspects of these inventions; whereas, amputation focuses on what is lost as a result of new technology. Applying this theory to Turkle's work, we see more clearly its usefulness. Virtualization has broadened our presentation of self, our abilities to share, to explore aspects of our accessibility and ourselves. However, it has also reduced our privacy, our old methods of connecting with people, old ways of thinking, and our means to escape from work. For Turkle, it has expanded postmodern identity and contracted modern identity and it has also magnified our social relationships and brain power and simultaneously shrunk them. I believe it has also augmented our humanity by enabling us to overcome several of our human limitations, a point discussed further in the next chapter, and it has decreased our civil liberties, a point explored further in the chapter on manufactured consciousness.

Authenticity and Digital Conformity

For Turkle, social media asks us to represent ourselves in simplified ways and then, via our online audience, pressures us to conform to these simplifications. Although she does not elaborate on the reason we are represented in simplified ways, it calls to question

whether these simplifications are due to technical limitations; limitations imposed by the programmer as a choice; or the limitations of the users themselves trying to navigate social media tools or a combination of these. The fact that she argues that social media profiles present our edited life and then ponders, "If where we live informs who we become, in simulation, where do we live and what do we live for?" (*Alone Together*, p. 277) calls to question whether she is basing this conclusion on just the content of a profile rather than the novel and unpredictable interactions within these social media environments.

For Turkle, screen communication started as a mode of freedom and a laboratory for self exploration but has now become a place to hide, where one can reflect, retype and edit. Subsequently, more people are finding something as simple as the telephone conversation and the face to face conversation to be uncomfortable communication channels due to their spontaneity. Furthermore, she argues that technology has evolved to the point where people use it as an excuse not to deal with people in real time. I would also argue, they use it as a free pass from doing identity work in the areas of dialogue management, socially appropriate self-disclosure, and development of refined rhetorical styles. Digital, text based communication, does not require that a sender focus on both the message being sent and the nuances of the receiver such as nonverbal cues of understanding (e.g., head nod), anxiety (e.g., affect displays-fidgeting with one's hair), or leave taking behavior (e.g., diminished eye contact, stepping away as one finishes a point). Likewise, socially appropriate self-disclosure occurs when one is able to consider the relationship with the sender, the amount of reciprocity from the receiver and the larger social context in which the communication is occurring. Face to face identity work is important in our self definition as it is through acts like social comparison and modeling

that we shape who we are; a point Turkle does not engage. It would be helpful it Turkle were to have analyzed whether these are the same or different in the virtual.

Turkle does not seek people as active theory makers and meaning makers. Rather, she argues people get caught up in technology to the point that they are led by its demands and influenced by its worlds at a low level of consciousness. In other words, people are not as strong as technology's pull. However, in social media environments, people can use video to present themselves in seemingly authentic ways. It should be considered that these environments still provide a lot of room for people to play with their presentation of self via camera angles, lighting, makeup, and in some cases costuming. Another point to consider is how our definition of authentic may be morphing as we come to accept social media environments as part our lives. Turkle does not seem to see that it is an intensifying two-way relationship between technology and its users with each pulling and pushing each other.

Surveillance and Self-Censorship

It is refreshing to see Turkle develop her critical edge in *Alone Together*. One of her most important observations is around privacy and civil liberties. She aptly notes that high school students do not really understand the rules of online surveillance. Turkle found that they do not know whether they are being watched or not. If they are being watched who is doing the watching and why? Is surveillance provoked or routine. Is it illegal? They do not understand the terms of service for Facebook or Gmail, for example, and they do not know what protections they are entitled to. I would argue this is not just true of high school students, Turkle should have included the population at large while making this point. The young differ in this area in their acceptance of just having to "be careful" online and their

assumptions that if young people create an online company like Facebook or Google, then these companies can be trusted to be composed of ethical people. This is consistent with the attitude of the early computer culture, where open source, free access, open sharing and goodwill (Stallman, 2010) are valued over proprietary communities that would like to profit from each new development. Another interesting point Turkle mentions is the fact that young people do not know what else to do but to supply information. Their belief is that if they want to use the programs, what choice do they have? Turkle uncovers that there is a sense of resignation and impotence at the thought of online privacy. Like sheep following the lead of these proprietary companies, people provide personal information hoping for the best. This is in strong contrast to the hackers that like modern day Robin Hoods work against these various practices and are hailed as heroic for this younger generation that abides by the software regulations. Our neoliberal education system should be held accountable for both creating a population unable to critically function within these environments and for implementing a plan that addresses this shortfall.

Turkle draws the analogy that cyberspace creates a warm cocoon where users feel secure and subsequently feel they are operating in a private space. The reality is the fact that the Internet always leaves a trace and that it can be used against its users. In some instances, we become the instruments of our own surveillance by providing the information and imposing a form of self-censorship on our actions due to the idea, without proof, that we are being watched. Privacy is linked to civil liberties, yet attitudes about this link are not the same in simulation. Real mail cannot be opened by a stranger without committing a federal offense, yet email is shareable and unprotected. Turkle does not make suggestions for addressing this such as the role the education system in general and

schooling in particular should play in helping to protect our citizenry from such

infringements.

Another recurring theme unique to Tukle's work is that of virtual spaces as "objects

to think with" which means they are vehicles by which we think of ourselves and of society.

For example, Turkle points to virtual spaces like the MUDs of the 1990s as evocative

objects that we use to think about identity and postmodern ideas. Turkle's work is

interesting for the extent to which she maps computer culture's psychological and

philosophical impact on human identity. However, she does not extend her analysis to

include technology as an evocative object to think about race, class, deeper aspects of

gender, social class, and its implications for schooling.

Limits on Gender, Race and Class

Although Turkle does present plenty of female perspectives in her interviews and

case studies, her discussion of gender issues is limited to that of programming preferences

along gender lines, gender swapping in virtual environments as an opportunity to explore

conflicts raised by one's biological gender, and virtual rape. Missing from this body of work

is an expanded engagement of gender inequality in both real life and simulation. For

instance, Turkle argues that the nonhierarchical nature of simulated experiences makes the

environment more welcoming for women, yet does not broaden her analysis to include

how virtual environments can be objects-to-think-with about the social conditions,

discourses, control, power and struggles that impact women in these environments.

This point is illustrated by the fact that even today there are a disproportionate

amount of men who program and who are part of the hacker culture, where control and

access are at the heart of the group's work. This includes the creators of tools such as My

Space, Facebook and Twitter as well as creators of video games. As Turkle pointed out in *Second Self*, "A computer program is a reflection of its programmer's mind. If you are the one who wrote it, then working with it can mean getting to know yourself differently" (2005, p. 24). If follow this argument's logic, then those who use any given computer program get to know a little about the way its programmer thinks. It seems that culturally we are more aware of how men think in these contexts than women.

Another gender issue Turkle reveals is the problem of psychological or symbolic rape of MUD characters akin to real life rape. Needed is a deeper discussion of how this shakes out across gender lines. In Turkle's case studies, it is the male MUD participants who are the perpetrators by taking forced control of another female MUD character through hacking or the creation of phantoms that masquerade as another player's character. In Turkle's summary, the debate demonstrates that although rape is an unsettled issue among the community, some players feel it is done in the spirit of "fun" without real life harm and should continue. Others feel the mind is an extension of the body and a psychological rape is akin to a real rape and this practice should be banned. In Turkle's limited sample, it appears male players share the position of accepting rape whereas female players share in their opposition to it yet does not specify whether men or women controlled the victimized avatars. In virtualization, a platform originally designed for freedom and egalitarian ideals, we find even the early inhabitants of the 1990s, extend real life issues of patriarchy and female oppression into these communities.

The birth of Facebook, a world wide social networking phenomena demonstrates the continued objectification of women. It was initially started via a system of comparing Harvard sorority girls to one another and rating which of them is "hotter" (Mezrich, 2010)

illustrating the use of virtual communities as perpetuating female oppression. In this case, it took women, who through their intellectual prowess were admitted into Ivy League universities like Harvard, and reducing them to sex objects. Likewise, it implicates the men who were purportedly educated enough to know better proving that even virtual communities are battlegrounds for dominant, deeply ingrained, hegemonic views of women. This is a sociological and psychological area of cyberculture that needs attention. Unfortunately, even in Tukle's most recent book, *Alone Together,* she does not explore this point.

Another oversight is Turkle's almost nonexistent discussion of race. Her work is devoid of analysis on how racial stereotypes and prejudices are treated in virtual environments or how virtual environments can be evocative objects-to-think-with about race. Some questions that need further considering are: Since users are now behind a screen, does that make digital online culture post-racial? If not, how does racial domination and hegemony manifests itself in digital online culture? How does the perspectives of these environments vary along racial lines? Whose perspectives are most represented in digital environments?

Finally, Turkle would benefit from contextualizing her findings within the broader class related social conditions. Before proceeding on these points, I want to point out the limitations of Turkle's sample as it relates to class. Although Turkle makes some thoughtful observations, in the 1980s and 1990s, her subjects were mainly comprised of privileged elementary school students as well as MIT students whom at the time had rather unique access to participate in early online communities like MUDs and MOOs. Furthermore, her sample sizes and demographic makeup are not always clearly revealed. This fact certainly

does not negate her observations; however, had Turkle addressed the limitations of her sample's representativeness, the reader would better situate her conclusions' generalizeability and overall limits. As Harvard Professor Martha Stone Wiske observes in her review of *Second Self*, "the description of her methods are sparse...We do not learn much about the settings she studied, the way she collected and analyzed her information, the nature of her sample, the representativeness of the subjects she chose to quote, or the range of other issues and styles her subjects raised" (1985, p. 239). One thing we do know about her sample is many of them are from privileged communities. For example, her elementary students learn in computer rich elementary schools that at the time of her writing were unique for their access to computers and online environments as well as the level of training they received in how to program, use, and interact with technology.

Considering that Turkle's conclusions are not objective truth but rather a particular point of view, she does not address the class differential in the access, training, use and creation of virtual environments. How does class influence one's biases in terms of what is done online, how one's identity is framed, and how one's identity is edited and presented to others? How does truth and authenticity versus simulation and fakery play out across class lines? For example, in *Alone Together* Turkle finds that there is an implicit understanding that friends "enhance" their online profiles. This is not taken as an affront to truth but rather as a fact of simulation. How do unwritten norms such as this one manifest themselves across socio-economic strata? How are those from lower socio-economic classes oppressed or empowered in virtual environments? For example, is there any correlation between class, gender, race and cyberbullying?

Empowerment Through Schooling

Turkle makes several interesting and thought provoking observations about schooling in light of technology, however, at the heart of these observations is the generational gap reflected in Turkle's writing. Just like those who came of age in the 1960s, a time in American history of great social and political change, today's generation is growing up digital with very different outlook on society and identities, yet Turkle fails to acknowledge these differences. One of the areas Turkle seems most disenchanted about is the fact that expectations have changed regarding technological transparency. Schools and children have moved away from learning how to program computers, which is a great disappointment to Turkle as she argues that programming is a way to understand the computer's power and to gain control over it. Additionally, Turkle sees programming as a form of empowerment and as she notes, "the Macintosh and its 'double clicking' was emblematic of disempowerment, both technical and political…it made technology opaque and therefore a bad object to think with for thinking about society" (1997, p. 44). She expresses great concern over our tendency to replace programming with out of the box use of software, video game playing, blogging and online chatting. Although there is value in learning how to program a computer for the practical and thinking skills it imparts, Turkle's suggestion is problematic. Technology has become increasingly more complex and programming languages and skills have evolved rapidly over the last thirty years. Perhaps an epistemology of suspicion is a better position here over a solution that involves turning every student into a programmer. Rather, we should consider inculcating the student population to adopt the thinking skills of a programmer, which includes the logical thought process dear to the "solutionists" who view everything as a problem solving equation that

can be resolved through logic. This recommendation is not to suggest that all problems

should be resolved through machine-like logic but highlights that such thinking is needed

in a world where we are fusing with machines whose core function is based on such logic.

It is no surprise that Turkle argues programming is at the heart of computer

literacy, yet her view is emblematic of a belief that humans should be the masters of their

machines over the reality that humans should be psychologically preparing for the

impending human-machine merger. Such human-machine fusion negates a dominant-

subordinate dimension but rather suggest an egalitarian one where their difference no

longer bears meaning. This point on the human-machine relationship is true as well for

digital online culture, and one observation Turkle makes regarding this relationship is

evident when she notes, "when it comes to human relations, simulation gets us into trouble.

Online, in virtual places, simulation turns us into its creatures" (2012a, pp. 287–288). The

word "creatures" reveals Turkle's view that humans and computer technology are settling

into a subject-object relationship where humans hold a weaker position. Surprisingly,

Turkle's only suggestion for remedying her concern is for users to master the machine via

programming and then to also take an intentional step back from it. Given her level of

concern, it is surprising that Turkle does not provide solutions by dialoguing with readers

about the role schooling might play in remedying some of these perceived problems.

Another point Turkle makes in particular about students' uses of technology in the

learning process is that children thrive when allowed to tinker via trail and error, also

referred to as the use of bricolage that as Claude Levi-Strauss detailed, involves the do-it-

yourself mentality (1966). Although Turkle's presentation of this point refers back to a

mastery over the machine, I argue this is an important point to consider given that it

connotes a co-evolution and collaboration with machines. The machines are driving a

change to learning habits, as direct instruction combined with reading a textbook simply

does not work in today's environment. In turn, students are embracing the new methods

technology offers and employing in unimagined ways at the service of their own curiosity

to learn.

Unlike Turkle, I argue that schooling should begin its transformation with training

in how to think about technology in terms of its pervasiveness and its fusion with the

population. A critical theory of technology for schooling[3] is needed to provide schooling

with additional tools for addressing the fact that the lines are blurring between RL and VL

as well as humans and machine. This includes helping teachers and students to read digital

online culture's embedded ideology, political economy, subtle forms of control and

oppression as well as the treatment of race, class, gender and socio-economic status. Such a

theory could also be employed to help students prepare to think about the integration of

simulation and technology into their culture so that they maintain control over their life

choices.

Turkle's work makes some important headway in understanding the current

changes we are undergoing as a society, a culture, and as individuals. It is to her detriment

that she is unable to recognize the reality that mergers are underway. Thus, we need more

scholarly theorizing in how to navigate digital online culture, understand its integration

into our lives along with its potential strengths and weaknesses. As evidenced by this

analysis, there is urgency for a critical theory of technology for schooling that better helps

[3] A framework for a critical theory of technology for schooling is outlined in chapter five

to explain and predict the ways in which we are constructing our own understandings of culture, life and identity. We should look more carefully at the qualitative changes in behavior occurring in the course of our development along side technology's development. Finally, further exploration is needed in the area of symbols and meaning making in terms of the kinds of meanings that are being created through our habitual interaction with the objects and simulated worlds. In the next chapter, I delve deeper into deconstructing VL-RL and human-machine distinctions by exploring the issue of identity change in light of virtualization and digital on line culture.

CHAPTER THREE

DOWN THE RABBIT HOLE: IDENTITY AND SOCIETAL MUTATION

...When the rabbit actually took a watch out of its waistcoat-pocket, and looked at it, and then hurried on, Alice started to her feet, for it flashed across her mind that she had never before seen a rabbit with either a waistcoat-pocket, or a watch to take out of it, and burning with curiosity, she ran across the field after it, and was just in time to see it pop down a large rabbit-hole under the hedge....In another moment down went Alice after it, never once considering how in the world she was to get out again.
("Alice's Adventures in Wonderland", Carroll, 2009/1865)

Identity: A Definition

We are all to one degree or another mesmerized by the new world computer technology and cyberspace has opened. Like Alice, we popped down this rabbit hole never considering to what extend it would affect our lives. Once there we encounter, "nonsensical and amusing characters" as well as traversed down a path that is fundamentally changing our culture and our very identities.

In this chapter, I take you on a tour down the cyber hole to explore identity within the context of virtualization and digital online culture. Throughout, I examine identity using multiple social science perspectives including psychology, sociology, communication studies, and cultural studies while addressing identity in terms of how it is shaped by new media and the digital online culture surrounding it. I do not explore identity from child development or psycho-analytical perspectives. Likewise, I do not grapple with identity as it is portrayed by pre-modernity epochs such as the Romantics. I do, however, build upon a more recent psychological approach: constructivist psychology, which argues humans actively interpret the world around them and construct meaning rather than see it (Katz, 1981, p. xiv). I also build upon Herbert Blumer's symbolic interactionism asserting that the

life and action of people change in line with the changes taking place in their world of

objects (1986).

Several contemporary scholars agree that our identities are in a constant state of

flux with experiences, relationships, and culture feeding into who we are and who we are

becoming (Turkle, 1997; Gergen, 1991; Best & Kellner, 1991; Giddens, 1991; Stryker,

1980). Our identities include what Stryker and Burke (2000) call cognitive schemes

understood as our internally stored information and meanings that serve as frameworks

for interpreting experiences. Thus, I recognize identity as a concept composed of a complex

set of characteristics influencing the way we live out our lives. Some of these characteristics

include self-reflexivity, worldviews, and the varying roles we play, each of which I will

briefly explain. It is important to note that these characteristics are not mutually exclusive

nor are they immutable for a lifetime. Expanding on Anthony Giddens (1991) definition,

"self identity…is something that has to be routinely created and sustained in the reflexive

activities of the individual" (p. 52). I include self reflexivity as one characteristic of identity

especially as it relates to self presentation and impression management; however, identity

does not operate in a vacuum and there are other agents of change that may consciously or

unconsciously influence it such as the reactions others have to us, our use of and

interaction with inanimate objects, cultural norms and rules as well as the social roles we

play. Social roles being expectations attached to positions occupied in networks of

relationships (Stryker & Burke, 2000). Worldviews include the lens by which one

interprets and understands the world, positions oneself in it and interacts with others.

Each is influenced by culture, past experience, daily habits, and communication. Best and

Kellner (2001a) speak to the idea of positioning oneself noting that different people use

different maps to make sense of the world and deploy a variety of ideas, models and

theories to organize their experiences. Giddens clarifies that "perspective" is constructed

by interacting with the outside world. He argues, a person's identity is found in their

capacity to keep a particular narrative going by continually integrating events which occur

in the external world and then sort them into an ongoing story about the self (p. 54).

Although the fundamentals of identity formation have not changed as a result of the

information revolution, this chapter employs constructivism to examine the narratives,

tools, practices, norms and habits of VL, RL, humans and their machines as they relate to

identity formation in the twenty-first century.

As I grapple with the idea of contemporary identity, I take into account the current

trends both technological and societal, and at times examine identity as it was understood

during modernity and postmodernity to acknowledge what elements are still preserved,

changed, and created within the digital age. We will begin with one pivotal factor impacting

our interpretative process: The shifts to our identities through changing perceptions.

Digital Online Culture and the Establishment of the "Self"

As George Herbert Mead's seminal identity work (1967) suggests, there is an aspect

of the "self" shaped by the attitudes of our surrounding culture. A salient part of today's

attitudes is grounded in society's changing worldviews and multiple outlets of self-

presentation. An understanding of this movement begins with mapping an inescapable part

of digital online culture, celebrity culture and going viral, explained through the social

psychologist Charles Cooley's theory of the looking glass self. Using the mirror (i.e., glass)

as a metaphor, Cooley argues just as we see our face and body in a mirror, and are

interested in them because they are ours, and pleased with them according to whether or

not they conform to what we would like them to be, we perceive how others interpret our "appearance, manners, aims, deeds, character, friends, and so on and are variously affected by it" (1902, p. 152). Cooley outlines three principle components of this theory including the imagination of our appearance to the other person, the imagination of the judgment of that appearance, and some sort of self-feeling, such as pride or mortification. Thus, we are ashamed to seem evasive in the presence of a straightforward person, cowardly in the presence of a brave one, gross in the eyes of a refined one, and so on (p. 152). For Cooley, the thing that moves us to self pride or shame is not a simplistic mechanical reflection of ourselves but rather the imagined effect of our reflection on another's mind. Today more than ever we have a glimpse into other people's minds via social media and reality show programming.

Cooley also talks of hero-worship, the admiration of those we perceive to be above us. The act of hero-worship is said to help shape our sense of self in childhood and in adulthood to give us a sense of youth. As Cooley stated, "to admire, to expand one's self, to forget the rut, to have a sense of newness and life and hope, is to feel young at any time of life. Whilst we converse with what is above us we do not grow old but grow young; and that is what hero-worship means. To have no heroes is to have no aspiration, to live on the momentum of the past, to be thrown back upon routine, sensuality, and the narrow self" (Cooley, 1902, p. 280). Most interesting is Cooley's observation that when it comes to hero-worship, we never truly see a person in an objective sense rather we use a few visible traits to stimulate our imaginations to the construction of a personal idea we hold in the mind (p. 281). Cooley's work provides some grounding for today's cultural obsession with the cross-

related elements of celebrity, going "viral," and media spectacle, which are all modern day forms of hero-worship.

The rise of celebrity culture has reached an apex of adoration highlighting a shift from the modernist idea that celebrities are somehow unlike the layperson due to their born traits of looks, talent, and intellect to today's celebrity population, partially made up of ordinary people often acting outrageously in quite mundane situations. This is a result of various factors including reality show producers using creative casting, dramatic editing, and careful selection of footage, to influence the viewer's perception thus producing a population fascinated with a manufactured form of celebrity (Turner, 2004; Rojek, 2001).

One of the genre's pioneers is arguably MTV's "The Real World " which brought together a group of young 20 something adults to live together where their everyday interactions were filmed, edited, and supplemented by clips from "off camera" participant interviews all packaged for dramatic effect and ultimately public consumption (Curnutt, 2009). The genre has given birth to reality shows centered on just about any interest. It is no surprise that soon enough the non-celebrity became famous not for any given accomplishment or talent outside of allowing a camera to follow their every move and lack of restraint (Turner, 2006). The reality-celebrity uprising is also fueled by society's changing news preferences. Today's competitive news outlets contain not just traditional news but also cable news, blogging, and Internet news creating a 24 hour cycle where there is a frenzy to be the first to fill air space pushing networks to use some of the tabloids' fodder and subsequently broadened the media spectrum for celebrity news (Turner, 2010). Under these cultural conditions, going viral often presents itself as a genuine artifact of news, information or even entertainment and is widely disseminated via classic and new

media, yet the extent to which this "news" has been force fed under the umbrella of a new's frenzy should be questioned. Today, reality-celebrities often go viral despite the fact that the public often complains about the vacuity of the genre, yet at the same time continues to watch, discuss and generally consume it and by doing so expand its reach. Society's reality show love affair inevitably impacts our own self views and behaviors by providing us with models for what we should be proud of, mortified by, and generally strive for.

As *The New York Times* journalist David Carr notes, today, being interesting is the key to going viral (2011) and for the reality genre, the definition of "being interesting" involves unabashed displays of over the top personalities, idiosyncratic habits and customs, and often unconventional dress, hair and overall styling. It also includes relentless, ultra-hyped, media exposure. As the executive editor of *Wired* magazine, Kevin Kelly, notes, in today's world "attention is the currency" (2007). Going viral appeals to the feelings accompanying Cooley's hero-worship by providing the public with aspirations and celebrities including reality "stars" to be used as a basis for building personal ideals. On a psychological level, going viral is a path to becoming our own hero, and if the ordinary citizens of reality TV can do it, the rest of the public often feels they can too and many of them have (Trebay, 2012). On a material level, going viral is enabled by the radical change in our new media tools such as those encompassed in the term web 2.0 and their accompanying high bandwidth allowing individuals to easily record, edit, upload and view images and videos without the filter of big media corporations. The dissemination and diffusion of these images gives people an outlet for self-expression and an opportunity for others to freely access a talent pool. In a Freirean twist, individuals engage in a manufactured mass exercise is to publish photos, videos, and the like to show their

individualism to the world, yet in doing so, they are conforming to a larger capitalist driven

trend to publish personal artifacts of a viral nature in the hope of boosting their sense of

self by attaining celebrity status. This modern day presentations of self are manufactured

in the sense that we have absorbed celebrity culture and presentational media.

The public is also exposed to a more insidious form of going viral, media spectacle

that Kellner (2012a) describes as a dominant form in which news and information, politics,

war, entertainment, sports and scandals are presented to the public. For Kellner, media

spectacle refers to "media constructs and events which disrupt ordinary and habitual flows

of information, and which become popular stories capturing the media and the public's

attention, and circulating through broadcasting networks, the Internet, social networking,

cell phones, and other new media and communication technologies. In a global networked

society, media spectacles proliferate instantaneously, become virtual and viral and in some

cases becomes tools of socio-political transformation, while other media spectacles become

mere moments of media hype and tabloidized sensationalism" (Kellner, 2012a, p. 1).

Media spectacles are also fed by news outlets moving from being reporters of the

news to becoming commentators of the buzz emanating from digital online culture. They

collect artifacts from the blog sphere, forums, chat rooms, YouTube videos and a plethora

of web based sharing sites. These artifacts are presented as the echo of the entire public

rather than the edited representation of a few that they are, selected based on spectacle

criteria rather than sound journalism. Web based sharing environments are becoming a

key component of societal change, their multitudinous, chaotic and unfiltered nature

provides raw material that intersects and sometimes conflicts with the organized, filtered

and scripted traditional form of news in either print, radio or television. As they

increasingly taking center stage, they become active agents in shifting our perception of the world in part by the methods of acquisition and of diffusion that new media tools offer.

New Tools, New Lens

Marshall McLuhan (1994) articulated the fact that new technologies shape our identities by providing us with a different perception of the world. For instance, those with access to the global repository of information that is provided via the Web come to perceive the acquisition of knowledge differently in the sense that it is accessible, easily obtained, and abundant. Furthermore, computer technology is influencing culture through changes to our language, as we now hear Google used as a verb "just Google it," and further illustrated through the Sapir-Whorf hypothesis, a theory that language, written or spoken, strongly influences or fully determines worldview (Kay & Kempton, 1984).

Not only are new words being introduced to our lexicon but also communication is now morphing into forms specific to our media tools which appears in the form of abbreviated bursts to satisfy tweets and texts.[4] These new tribal dialects are creating a codified and unique form of communication unified around common interests and tools. For each software and application there is a specific method of interaction. Around the globe, this is creating a virtual cohesiveness between fellow users, and in many cases, trumping the social divisions of race, class, gender and nationality. It is as if participants constitute an independent tribe assembled by a common interest such as those who connect about learning multiple languages (Leland, 2012) or those who form communities around an obsession for Air Jordan Tennis Shoes, dictatorships in Africa, or U.S. politics.

[4] Although Tweeting and Texting are mediums of language alteration today, I recognize these are ephemeral and will changes as new media tools come along.

As the famous symbolic interactionist, Herbert Blumer (1986), observed, individuals change along with their world of objects. It is with this in mind that I will briefly discuss our changing world of objects and our psychological relationships with them. Humans with their biases and varying perspectives built machines and software, yet this is seldom at the forefront of users' minds. Database designer Michael Christie (2004) notes the decisions (i.e., political and technical) and or controversies surrounding the design of a database become invisible once the interface is put into place. For Christie, the interface obscures by the illusion of objectivity when in reality a database design often focuses on particular viewpoints at the expense of others. Furthermore he notes, information architecture reflects a politics of knowledge and somehow enacts it. This point was acknowledged by Ted Nelson back in 1974 when he wrote, "People talk about the 'depersonalization' of computers. I want to emphasize the personalization of computers—that individuals design them, their programs, and languages, each with his or her own obsessions. So more than any book for beginners, this one stresses the personal contributions of individuals, and the wide ranging disagreements of a field which to many in the outside world seemed 'objective' and 'scientific'" (*Computer Lib/Dream Machines*, p. 4). The reality is we are not highly conscious of programmers' and designers' impact on our tools and therefore on the shaping of our identities.

The ways we think about our machines often go unnoticed yet as affordance theory demonstrates (J. J. Gibson, 1977), unexpected aspects of machines connect with us on a low level of consciousness. Don Norman's affordance work in his influential book, *The Psychology of Everyday Things* (1988), describes how we learn to use everyday things by the information available from the appearance of objects. Norman stresses the importance

of "natural design" so that the artifact signals the user without requiring the user to be conscious of it. Such an artifact is created in ways that allow for users to intuitively know how to operate the device. In order for an artifact to be naturally mapped, it must take advantage of analogies and cultural standards that lead to immediate understanding. As Reeves and Nass (1996) found, user interface personality is actually communicated in several ways: error message language, user prompts, navigation options, choices for type font and layout.

Apple, the maker of the iconic Mac computers, iPad, and iPhone, serves as an apt example of a company that has imbedding standpoints into their product design by mapping them for easy handling and intuitive navigation. Johnathan Ives the senior vice president of industrial design describes his first impression of a Mac computer, "I was struck by the care taken with the whole user experience. I had a sense of connection via the object with the designers" (Ive, 2007). In a 1998 CNN interview, Ives shared that when designing the iMac he wanted to redefine a computer's form while making sure people could recognize it as a computer. Although he was going to step out of the "beige box" design that computers had been known for, he also recognized that like a toilet, people had to know by looking at the newly designed computer that they could type documents, send email and run applications. Another goal of the iMac redesign was to make it less exclusive and more accessible by adding a handle as Ives notes, "while its primary function is obviously associated with making the product easy to move, a compelling part of its function is the immediate connection it makes with the user by unambiguously referencing the hand. That reference represents, at some level, an understanding beyond the iMac's core function. Seeing an object with a handle, you instantly understand aspects of its

physical nature—I can touch it, move it, it's not too precious" (Ive, 2007). A salient point is that the machine becomes an active agent in identity formation and actions by teaching people how to handle and use it through its design. Design's impact on our behavior doesn't stop there, as it also influences the role computers play in our lives.

A current example of the increasingly specific and integral role computers and software are taking in our day-to-day lives can be found in Siri (Kittlaus, Cheyer, & Gruber, 2011), an application designed by Apple, to be a digital personal assistant. Technically, Siri is a speech recognition and interpretation interface described also as a knowledge navigator. Siri's design is both verbal and visual as it understands and responds with natural speech, visually presents relevant material per the user's command as well as sends messages and much more. It is unlike traditional voice recognition software in that it asks users questions if it needs more information to complete a task. Siri's true uniqueness, however, comes from its ability to utilize the cloud where a powerful artificial intelligence algorithm analyzes words so that the more they are used the more it learns becoming increasingly adept at interpreting vocal commands (Daw, 2011). As an emergent technology, Siri expands its abilities as other humans feed it data, thus, all who use it contribute towards strengthening it. Siri is an apt example of the level at which technology is being positioned to become increasingly useful to our lives by its ability to assimilate our needs into its functionality.

The fact that technological tools impact on our selfhood is echoed throughout Turkle's work. She notes, "we often deny the power of our creations on us...We are creating a psychological world we are not prepared for" (Coutu, 2003, p. 3). Perhaps what is most unsettling for Turkle and others is the fact that everyday life is becoming more difficult to

predict and conceptualize. The modernist belief that the truth about people can be understood via a thorough examination of the details of life (Gergen, 1991) is being trumped by fact that we are developing rather unpredictable and subsequently un-theorized ways of collaborating with technology. Confirming Turkle's belief that the control is transferring to the technological invention, we may not always be aware of our technological devices but one unintended consequence of their very existence is the impact they have on our behavior towards them and others.

As the new media tools we use become a piece of our identity, they turn emotional because they are imprinted on us (Norman, 1988; Reeves & Nass, 1996; Coutu, 2003). The tools we use and their interfaces are loaded with cultural and historical associations holding a powerful appeal to our subconscious. Take for example the work of Shin Mizukochi (2009) who studies the pervasiveness of smartphone use as it relates to Japanese identity. His research agenda is focused on the extent to which Japanese youth are attached to their phones on a socio-emotional level, as the phones contain personal and emotional artifacts such as photos and a saved history of exchanged personal messages. This is further evidenced by the personalization of their phones in the form of fancy covers, decorative straps, and even dangling charms (Baron & Ling, 2007). This point is corroborated within the constructivist psychology framework that argues perceptions are affected by the tool used. Just as the reality a physicist sees is affected by whether a phenomenon is looked at with the naked eye, an x-ray or a telescope, our identities are shaped by the use of technological artifacts (Katz, 1981). For increasingly mobile societies, smartphones initiate a relationship with their users. This relationship in turn influences the way users perceive and interact with the world. Thus, identity in this arena is consistently

in flux and adaptable to multiple modes of interaction including human-machine. To hold

on to modern notions of identity as static, regimented, and rather predictable is to deny

who people are today.

The affordances of social networking sites are of particular interest for the

psychological and practical impact they have on shaping our expectations and behaviors. In

the act of inviting us to share our inner thoughts with our list of "friends," users find

themselves addressing a forum of people without a sense of what this really means. This

new form of distributive sharing is a result of how social networking sites function, as a

program they establish rules of how the user will operate within the boundaries of their

defined environment. We, as users, allow these environments to mediate our interactions

without thinking about the implications of this distribution process and soon enough our

thoughts have an extended diffusion, sometimes worldwide.[5] As we type, we get familiar

with the ease of the process and every random thought seems to become part of a large

dissemination.

Social networks not only influence the communication sent to others, they also filter

the communication received from others. This filter comes from programs with established

restrictions such as Twitter with the maximum length of a tweet at 140 characters setting

limits that require the user to adapt to this format and inadvertently create a new language

to accommodate this form of communication, as discussed earlier. On one side, users are

prodded to consistently interact with others by being encouraged to post thoughts, images,

videos, and links to other sites visible to their circle of friends, giving them a public

[5] Especially in the cases where users do not specify in their profile that they want to limit diffusion to their friends

medium. On the other side, these sites give the false sense of being tailored to its users individually and with that comes a perception of uniqueness. Through this process, users are naturally functioning in a new psychological paradigm where they see everything coming to them personally and at the same time, every one of their thoughts is dispatched to a forum of people all of which is happening with little time to reflect on it. Our perceptions are further impacted by the capabilities of today's new media.

Portability, Fragmentation and Hybridization

Imagine if Alice were able to carry Wonderland with her back to England where she can maintain relationships in both environments. In this scenario, Alice's worlds are not only mobile but also portable, easily carried around with her, enabling her to simultaneously interact in a world without physically being there. Portability allows simultaneity and with simultaneity comes fragmentation. One way to understand fragmentation is through the work of Fedric Jameson who described it to be the emergence of the multiple in new and unexpected ways, unrelated strings of events, types of discourse, modes of classification and compartments of reality (1991). The portability and fragmentation of digital online culture enables us to bring along and interact in our individual worlds as we live out our daily lives, not only creating a population who is increasingly comfortable with both portability and fragmentation, but also helping to prepare the population for what is to come. As discussed in a recent *Forbes* magazine article journalist Juliette Barbara, "in the future, what we now call 'gadgets' are built into every moment. Technology isn't a separate entity that needs to be turned off and on. It blends into our environments and moves with us. It knows where we are at all times because it's already there" (Barbara, 2013, p. 2). Turkle talks about us living in a new

psychological world, I argue those who participate in digital on line culture are currently being prepared for it.

Portability is also fostered by our infrastructure with web-enabled coffee shops, airports and even cities offering opportunities for fragmentation. In the past, we were only able to activate a given portion of our identity within a singular context and interacting between two contexts was limited by location such as with the land line telephone; however, portability enables us to move between and among multiple identities across multiple contexts sharing visually, textually, and graphically at the same moment in time. These tools are creating a society of users more adept at this navigation and who expect it to happen even while interacting face to face with others. Some scholars argue this contributes to the degradation of identity. Kenneth Gergen notes that we are now playing "such a variety of roles that the very concept of authentic self with knowable characteristics recedes from view" (1991, p. 7). Likewise Turkle argues that, "even a simple cell phone brings us into the world of continual partial attention" (2012a, p. 161). Portability and fragmentation certainly have their weakness; however, I would like to explore an alternative interpretation.

We now inhabit worlds of individuals who have adapted to a highly complex environment. Just as one trains mind and hands to type on a keyboard without having to think much about the process, a person whose life has been consumed with portability is invariably developing the cognitive and physical abilities to adeptly function. This appears to be a liability, yet it can also be viewed as a society whose ideas about how, when and where to interact are changing. When one is living this reality it is a "normal" state of being. Take for instance, a recent *New York Times* article reporting on the evolving expectations of

web users. It was found that users' expectations for speed are increasing faster than the infrastructure. With four out of five online users clicking away if a video stalls while loading, mobile service providers are scrambling to build a network architecture for the kind of speed users now expect (Lohr, 2012). This reality demonstrates that just as our technology pushes us to expand our identities and actions, we push our technology to further enhance our identities by extending beyond what is currently possible. Through such transactions, we are incrementally becoming hybridized with our technology.

Hybridization, characterized by human-machine fusion, became especially noticeable with the advent of Bluetooth, a short range wireless network. Suddenly, we started to see people walking in public, apparently talking to themselves enveloped in invisible communication between wearable devices such an earpiece and its smartphone. Today, hybridization is going further with more advanced technologies enabling fusion between our own reality and the virtual such as the new abilities of facial recognition software. Such software enables advertisers to determine the age range, sex and attention level of a passer by, so that ads can be tailored to the specific demographics of those passing by (Singer, 2011). As noted by Alessandro Acquisti, an associate professor of information technology and public policy at Carnegie Mellon, "It's a future where anonymity can no longer be taken for granted—even when we are in a public space surrounded by strangers" (Singer, 2011, p. 2). Technology is becoming so embedded in our culture that we often do not have a choice to interact with it because it interacts with us. As we progress deeper down the rabbit hole, another upshot of portability becomes apparent: multiplicity and parallelity.

From Multiplicity to Parallelity

The postmodern idea of multiplicity is often used to analyze and theorize identity change in light of an increasingly computer mediated world. Kenneth Gergen (1991) argues social saturation through new media capabilities enables "multiple and disparate potentials for being" (p. 69). Likewise, Sherry Turkle (1997) posits that in simulation, identity can be fluid easily moving through multiple identities (pp. 49, 231). Finally, Best and Kellner (2001a) observe that technology enables identities to expand and multiply (p. 8). Michel Foucault's notion of heterotopias further clarifies the multiplicity idea. For Foucault (1986), heterotopias constitute a mixed or joint experience analogous to looking into a mirror. When one looks into a mirror he sees himself in an unreal, virtual space. His reflection projects himself "over there where I am not" (p. 4). The mirror is a utopia in that it enables one to see oneself where one is absent. Foucault notes, "The mirror functions as a heterotopia in this respect: it makes this place that I occupy at the moment when I look at myself in the glass at once absolutely real, connected with all the space that surrounds it, and absolutely unreal, since in order to be perceived it has to pass through this virtual point which is over there" (p. 4). The notion of the mirror can be seen throughout our cyber presentations of self. We now can see our selves and others where we are technically absent making identity both real and unreal. However, unlike a reflection in the mirror, what we project in cyberspace can be very different from what is projected in real life. So identity on the other side becomes a reflection of our desired selves cleansed as we pass through the cyberspace medium.

Multiplicity has expanded to include a simultaneous state of parallelity where digital on line culture participants are able to be several places at the same time. Today, this is

happening in numerous everyday contexts where individuals are both present in real time while maintaining a parallel cyberspace presence. The U. S. military's use of what are now called RPAs (Remotely Piloted Aircraft), also referred to as drones, illustrate this point. Although those "deployed" in combat are not in imminent physical danger, they are exposed to the emotional trauma of being in a war zone. These pilots develop relationships with the troops on the ground via mobile phones and the Internet, work long grueling hours, and undergo a different kind of war zone stress from those on the ground, so they too are at high risk for post traumatic stress disorder (Zucchino, 2012). Although these pilots are physically working in a command post located in the Nevada desert and at the end of their shift are able to go home to their civilian homes without fear of attack, they have been immersed all day in an actual war feeling its psychological effects. Thus, demonstrating that a RL-VL parallel condition has a physical and psychological impact.

Parallelity often involves multitasking but is not limited to it. To be parallel is to maintain and seemingly enact multiple identities at the same time. What I refer to as parallelity, Turkle calls multi-lifing, both involve a constant state of partial attention. Although the idea of partial attention seems like a negative practice, this is not necessarily the case. It has been used in computer science in the form of parallel processing involving computers simultaneously processing instructions to complete a task. Multiple processors multitask by sharing the work to be done, dividing the task into threads, and distributing them across numerous processors for completion. The interesting thing about parallel processing is that it is mainly accomplished by preemption, interrupting a given task temporarily to complete another one then resuming the original task. It time-shares the threads of the task between processors. This may seem like a simultaneous action but

parallel processing is actually breaking a task into individual parts that may interrupt other tasks to complete it thus fragmenting the processing. Parallel processing's appearance of simultaneity is a result of the speed at which it executes its tasks. Like these processors, our technological practices can arguably change our neural pathways to enable us to adeptly function under these new conditions. This pathway idea is supported by research on neuroplasticity (Fredrickson, 2013).

Our ability to quickly "parallel process" multiple, fragmented selves is best explained by the Stroop Effect, of which parallel processing has been frequently linked. A theory used by computer programmers and psychologists alike to explain a task's reaction time. To briefly summarize, John Ridley Stroop's study (1935) found that research subjects were able to name colors when the text color matched the color named (e.g., the word RED written in red ink), yet when the text color did not match the color named (e.g., the word RED written in blue ink) research subjects' reaction times slow down and are more prone to errors. Research done by Cohen, et al. (1990) found that practice and pathway strength (i.e., a particular process is assumed to occur via a sequence of connected modules that form pathways), produces gradual, continuous increases in processing speed. Using this logic, individuals are becoming more proficient at multitasking as they become more practiced at it.

Although, partial attention is certainly an upshot of this new state of existence, there are technological advances designed to push the idea of parallelism to the next level. Each year new devices are released enabling us to increase our processing speeds. The popularity of augmented reality evidences this. Not only is augmented reality easily accessible via smartphones, it is now in the beta version of Google Glass that streams real

time information directly to eyeware eliminating the need to look down at a smartphone.

With Google Glass, a user will be able to navigate worlds, real or virtual, hands free and

with even more instantaneously, "it is very quick to learn and once the user is adept at

navigation, it becomes second nature and almost indistinguishable to outside users"

(Bilton, 2012, p. 1). Specifically, Google Glass enables users to monitor the world in real

time and overlay information about locations, surrounding buildings, friend who might be

nearby, and so on. What we see unfolding here is another example of the making of a new

culture. A culture that is multiple, parallel and producing citizens more adept at navigating

these layered demands for their focus and attention. The questions to be answered are who

are we becoming in light of these capabilities? And how we will continue to evolve in our

relationships, gestures, norms, rules, and values as our devices enable us to more easily

and fluidly move in and out of realities? Although answers to such questions are still to be

determined, we do know that this new culture also includes an evolved hyperreality.

Hyperreality and Virtualization: A New Culture in the Making

In a post-cyberpunk era, technology is society (Person, 1998). The cyberpunk work

of the 1980s was a fringe movement beginning among science fiction writers and spilling

into the larger culture reflecting a general angst about computer technology. As discussed

in the previous chapter, at the time, computer technology was characterized by big

ominous supercomputers, fears of "big brother" watching and a counter movement among

hackers to subvert this system. Today, technology is infused into life, as the executive

editor of *Wired* Magazine, Kevin Kelley, describes to be a world embededded with "Web-

ness and connection… so that our environment…becomes the Web" (2007). A fact

consistently citing by today's technology writers is the idea that we are adding something

to our capabilities. Whether this is criticized or applauded, as technology evolves, we evolve along with it. We are adapting to today's significant technological innovations as we did to past ones. Electricity is largely taken for granted today, yet it changed our culture. The myriad of equipment that surrounds us is powered by electricity in one form or another. As we switch on/off all kinds of devices all day long, we have seen the transformation of our sleep/wake cycles, our entertainment, our dependence on each other, and so on. Like our adaptation to electricity, computer technology is melding with our thinking and way of life.

Within this new culture in the making, technology is enveloping us creating a multitude of options. It is as if our brain is expanding along with technology adding new sets of neurons and synapses all firing data at the same time. Such an overwhelming flow of communication creates further fragmentation as we race to perform tasks in synchronicity to fulfill a general desire of including every option possible. We often codify our rapid bursts of information into shorter and shorter bursts so that we can address all incoming demands either by direct verbal interaction or via computer interface going from a verbal exchange to tweets, to texts, to phone calls, to voice and gestural commands. Such cacophony becomes a well-orchestrated symphony that turns this technology mediated communication into an altered form of high context encoding and decoding where the receiver is expected to fill in the gaps, read between the lines and generally interpret for themselves the encoded communication.

Through miniaturization, mobility, and virtualization, our natural inclination is to function in parallelity, and with it comes a state of hyperreality. In the real, a highly contested term, we interact with tangible people and environments as well as their

representations. Nicholas Oberly (2003), from the Chicago School of Media Theory, explains the notion of hyperreality is not a static term and thus can be challenging to define. However, the two concepts most fundamental to understanding hyperreality are simulacrum over simulation. As outlined in Oberly's article, simulacrum is a copy with no original whereas simulation is characterized by a blending of reality and representation. Just as Alice's Wonderland is without a model, in our world, reality has no true definition. Following Baudrillard's theory, a hyperreal state is one of forgetting the "real." As Baudrillard and Evans further elaborate in their 1991 article "Simulacra and Science Fiction," the hyperreal is "not a question of parallel universes, or double universes or even of possible universes: not possible nor impossible, nor real nor unreal" (p. 311). Science fiction has traditionally played upon the double, the artificial replication or imaginary duplication, yet the double has given way to the fact that "one is always already in the other world, another world which is not another, without mirrors or projections or utopias as means for reflection. The simulation is impassable, unsurpassable, checkmated, without exteriority. We can no longer move 'through the mirror' to the other side, as we could during the golden age of transcendence" (p. 312). We are living at a time where the tangible 'real' and hyperreal are homogenizing. Wonderland no longer exists down the rabbit hole. It has fused with Alice's England. Perhaps this point is best illustrated through an analysis of contemporary film such as *Scott Pilgrim vs. the World* (Platt, 2010) and extending to the film *Sucker Punch* (D. Snyder & Z. Snyder, 2011).

Based on a graphic novels series by Bryan Lee O'Malley, *Scott Pilgrim vs. the World* is a superhero movie with Scott Pilgrim, played by Michael Cera, living a post high school life as a band member and roommate courting Ramona Flowers (Mary Elizabeth Winstead)

who must fight her seven ex-love interests in order to conquer her heart. One

distinguishing characteristic of what separates *Scott Pilgrim vs. the World* from the plethora

of superheroes movies such as, *X-Men (Shuler-Donner & Winter, 2000)*, *Spider-Man (Ziskin,*

Bryce, & Curtis, 2002), Iron Man (Arad, Feige, & Alonzo, 2008), and others is instead of a

singular world where superpowers are accepted and portrayed in realistic fashion, *Scott*

Pilgrim demonstrates an augmented reality where comic book graphic qualities are

imbedded into a realistic setting blurring lines between a common, realistic world and a

hyperreal one where the main characters are naturally enhanced yet remain very

pedestrian in their behavior and look. The characters in this story accept their augmented

world as normal through their blasé attitude toward what would ordinarily be shocking or

surprising conduct. A.O Scott, the film reviewer for *The New York Times* calls it the "best

video game movie ever" (2010). Director Edgar Wright is able to "collapse the distance

between gamer and avatar not by throwing the player into the world of the game, but

rather by bringing it to him. As a result, the line between fantasy and reality is not so much

blurred as erased" (p. 1). As Betsy Sharkey of the *Los Angeles Times* describes, "That is the

genius and difficulty of *Scott Pilgrim*; it both defies and, at its lower moments, meets

expectations for this sort of film. Director of photography Bill Pope, who's no stranger to

the conversion of graphic concepts to the big screen, having done "Darkman" and the last

two "Spider-Mans," among others, keeps Scott's world on the ethereal, hyper-realized side

whether or not he's in superhero mode" (2010, p. 1). As Peter Bradshaw, film reviewer for

The Guardian, points out "Scott Pilgrim is an intriguing picture for being so exotic and

eccentric, and for aligning itself with the style and structure of a videogame rather than a

film: following not conventional narrative arcs, but a series of game-levels and flavoring

this sequence, not with the usual dramatic reversals and character-development, but with an open-ended comic shtick" (2010, p. 1).

Consistent with Baudrillard's observation that we are already engaged in multiple worlds (1991), Scott Pilgrim takes our immersion into digital online culture in the form of video games and virtualization and gives us a glimpse into our co-evolution with it. The film can be understood as a reflection of our current version of reality. Although we still have to logon to enter, this film visually illustrates the psychological melding and our increasing acceptance of the fact that boundaries are blurring. Another narrative illustrating this point can be seen the film *Sucker Punch*.

Although *Sucker Punch* garnered the scorn of film critics (Sharkey, 2011; Scott, 2011; Roeper, 2011), director Zack Snyder presents viewers with a world characterized by a pastiche of overlapping and blended realities. Three intertwined realities are presented so that the viewer does not accept any one of them as the only tangible reality yet everyone of them is a possibility. The first reality is presented as a narrative of the main character, Babydoll, played by Emily Browning, wrongfully committed to an insane asylum. This narrative is interrupted by introducing a second reality where the asylum is now presented as a brothel where girls are imprisoned and forced to put on burlesque shows in a swanky men's club. In turn, this reality transitions into a third one where our heroine is now a warrior fighting various entities such as samurais, World War 1-era zombie soldiers, fire-breathing dragons, and futuristic robots in phantasmic environments. Each of these realities is reinforced with a highly stylized look and camera work. The use of filters shows a contrast between a depressing real world to warmer and colorful alternative worlds.

Additionally, the change of the camera's motion and speed work in concert to give the feeling of a virtual ballet or dance where everything is in constant choreographed motion.

Throughout the film, Babydoll is made up to look like a fragile, sexualized little girl only to reveal a warrior princess when escaping to another reality resembling a video game. As the *Los Angeles Times* film critic Betsy Sharkey writes, "the warrior princess leitmotif tracks back to Greek legend and has turned up in fiction and film ever since" (2011, p. 1), yet what is unique about Snyder's Babydoll is her superhuman qualities once she enters into a hyperreal world of characters. Most interesting is the mechanism script writers Zach Snyder and Steve Shibuya employ to blend multiple realities and demonstrate humanity's changing nature so that when Babydoll and her other female friends enter into what some critics describe as a fantasy world (Sharkey, 2011; Roeper, 2011), a world akin to immersion into virtualization, they become more than human. They are more moral, as evidenced by each task's goal to save the earth from some type of destruction even at the expense of personal loss. They fuse with technology to the point that they are neither human nor avatar but a new entity with physical and mental capabilities beyond ordinary humans.

As A.O. Scott of *The New York Times* describes it, "Babydoll and company leap around like video-game avatars, following the instructions of a crinkly faced guru" (2011, p. 2). For Scott, the problem with a film that incorporates a video game motif is it struggles to overcome the "inherent tediousness of watching someone else play." Although this is an apt observation, the film demonstrates a new narrative emerging. With virtualization, we enter into a world, often without references, that frees us from real life to become stronger,

smarter, more capable, and even at times hold ourselves to higher moral standards than in our real lives.

Throughout the film, the viewer does not know with certainty which of the three realities is the real or whether they all work in concert to produce a new type of "real." What is clear, however, is in the hyperreal narrative, life can be fast forwarded or slowed down, it is far more exciting and the stakes are often much higher. *Sucker Punch* further supports Baudrillard's point that we can no longer move through the real to the other side. Real life and virtual life as well as the human-machine merger are blending to the point that our expectations and perceptions are shaded by both and we come to accept hyperreality as a natural state. The other side is coming to us and as it progresses we find our culture grappling with the very natural concerns that come with it.

Critiquing Identity

Before proceeding to the final thoughts of this chapter, the perspectives of several critics are worth analyzing (Turkle, 2012a; Carr, 2011; Gabler, 2011; Gergen, 1991) each of their concerns center on the idea of inundation as it relates to the human-machine relationship. For Gabler information inundation is stifling thinking to the point where we are no longer motivated to do so. For Turkle, we are inundated by people via the world wide web and mobility to the point that relationships suffer. Gergen expresses concern over the inundation of the self through social saturation resulting in the fragmentation of identities to the point that they no longer exist, and finally, Carr argues inundation is eroding our ability for deep thought and contemplation to the point where our very humanity is in question.

Neil Gabler's *New York Times* article "The Elusive Big Idea" (2011) argues that we now live in a post-idea world. For Grabler, one can understand post-idea by juxtaposing it to post-enlightenment with its style of thinking that no longer deploys the techniques of rational thought, in contrast, post-idea means that thinking is no longer done, regardless of style. Of the many factors contributing to this post-idea world, he highlights the eclipse of the public intellectual in the general media by the pundit who substitutes outrageousness for thoughtfulness, as well as the rise of an increasingly visual culture, especially among the young, a form in which Grabler argues ideas are more difficult to express. The biggest culprit for Gabler is the amount of information we now have access to via the Internet and we are inundated with so much information that we do not have time to process it even if we wanted to. The problem, for Mr. Grabler, is most people do not want to. Therefore, Grabler asserts that living within Gresham's law in which trivial information pushes out significant information, we prefer knowing to thinking because it keeps us in the loop, connected to our friends and our cohort. We live in a world of information sharing via social networking sites, yet for Grabler, this is not the kind of information that generates ideas. These social sites serve as a distraction to thinking. Thus, thinkers and their ideas are victims of information glut. For Gabler, the ideas of today's famous technologists like Steve Jobs change the way we live but do not transform the way we think because their products are material and not ideational. Gabler ends on the pessimistic note that there is a future looming of information without people who actually think about it. Sherry Turkle is another skeptic who believes our changing world is causing us to develop habits of mind and behaviors detrimental to our culture.

As outlined in the previous chapter, Turkle's most recent book *Alone Together* (2012a) reflects a growing concern over our addiction to technology. For Turkle this results in neglected relationships, kids longing for the attention of their technology absorbed parents; decreased personal contact, people preferring to text rather than talk; and no time left for self reflection and meaningful thought, as we are losing our ability to stay still and reflect. She also laments that the Internet has enabled us to avoid doing things we should do like apologize, make amends, and respect someone's privacy. The most disturbing part of Turkle's conclusions is her assertion that in the presence of technology people are weak. They experience anxieties because people are not as strong as technology's pull and we conform to what technology wants (Turkle, 2012a, p. 242). Just as Turkle expresses concern over technology's influence, we see in Gergen's writings a concern over technology's natural tendency to flood our sense of selfhood.

Indeed Kenneth Gergen's outlook is not much brighter than Turkles'. He argues the degree of complexity added to our lives by technology is increasing to the point that our "ability to take a rational coherent stand on issues is impossible" (1991, p. 79). Furthermore, he argues deep personal relationships to be unattainable as we become more fragmented over an array of partial and circumscribed relationships. It is through the technologies of today that the number and variety of relationships in which we are engaged, frequency of contact, expressed intensity of relationships and endurance through time all are steadily increasing to the point of social saturation. For Gergen, the upshot of saturation is a sense of self that is manifold and competing and multiphrenic in which "one swims in ever shifting, concatenating and contentious currents of being" (pp. 62, 79). Gergen also notes that the very concept of an authentic self with knowable characteristics

recedes from view and "the fully saturated self becomes no self at all" (p. 7). Nicholas Carr's writing in many ways mirrors the point of Gabler, Turkle and Gergen.

Nicholas Carr uses a bit more balanced approach than the aforementioned authors yet is still a skeptic. Employing his skills as a columnist, he incorporates research grounded in neuroscience, media theory, and philosophy to support his point that our incessant work on the web is rewiring our brains in ways that alter sustained concentration, deep thought, and memory. By the end of his book, *The Shallows* (2011), he extends this argument to make a point similar to Gergen that, "one of the greatest dangers we face as we automate the work of our minds is…a slow erosion of our humanness and our humanity" (p. 220). In his afterward to the paperback edition of the book, similar to Turkle, he calls for a rebellion against the future "our computer engineers and software programmers are scripting for us" (p. 220).

What seems to be reflected in these scholars' writings is the very natural concern over change. When change is fast and abrupt in our lives, it is often resisted. Yet, when people have time to psychologically process change, they tend to gradually accept details of the new situation and the reordering that come with it (Bridges, 1991). Our ability to assimilate change can be compared to Kubler-Ross's grief cycle (Kübler-Ross, 1997) where we cycle through denial, anger, bargaining, depression, and acceptance. Gabler, Turkle, and Gergen collectively appear to be expressing longing for the way life used to be and in doing so are inherently denying that we are undergoing a major, rapid cultural metamorphosis that is affecting our way of thinking and generally doing things. Although Carr is past the denial stage, he has yet to accept that today's net driven cultural change is not necessarily going to be as disastrous as he deduces. We see across these writings the natural tendency

to compare what is new and partly unknown to what is known. Neil Gabler's concerns about our thinking abilities in light of technology assume that we remain static as our culture evolves around us. His observation that we have no time or desire to process information can be read as a lament for the way we used to process information. It is not that we do not think today we are just in the process of training our minds and bodies how to do so differently. I argue that high-tech societies are in the midst of developing a new set of thinking and life skills that have plunged us into a state of transition and not all of society has psychologically accepted this idea.[6] This is not to suggest that these changes should not be interrogated and critiqued only that the critiques should provide more multiperspectival analyses.

In addition to Sherry Turkle's book, *Alone Together,* she has been on the lecture circuit urging people to not wholly forgo their technology devices but to take a mindful step back (Turkle, 2012b). In a recent *Ted Talk*, she argues, "What I am calling for here, now: reflection and, more than that, a conversation about where our current use of technology may be taking us, what it might be costing us...I am not suggesting that we turn away from our devices, just that we develop a more self-aware relationship with them, with each other and with our selves...start thinking of solitude as a good thing. Make room for it...create sacred spaces at home." The fundamental problem with Turkle's path is the urging people to take a premeditated and habitual step back something I argue is unrealistic. Nicholas Carr mirrors this position by calling for a rebellion against the future.

[6] See chapter five on schooling

A society immersed and in the midst of a transitional time simply cannot step back, it can only move forward. Ironically, Carr acknowledges a significant step back is highly unlikely even admitting that he cannot step back for too long. He admits that he needed to turn his devices silent in order to complete his book, yet admits that as he typed the closing chapter, he "backslid" by keeping his email running all the time, jacking back into his RSS feed, playing around with multiple new social networking sites, posting on his blog and even purchasing new hardware that will enable him to stream information from the web to his television and stereo. He closes with a tongue in cheek confession that "it's cool. I'm not sure I could live without it" (p. 200). The recommendations of Turkle and Carr are misplaced in that we should be focusing on how to manage the change and embrace the future, whether we like it or not, as opposed to rebelling against it especially when one weighs the benefits computer technology brings against its liabilities. As Kevin Kelly notes, "it [technology] will just become more of the same thing but only better… it will become more ubiquitous in terms of filling our environment, and we will be in the middle of it" (2007). Just to complete this thought, Technology is already more than ubiquitous, it seems to be in the passenger's seat and the ride is just beginning.

As today's technology continues to gain a stronger hold on us, it is within society's best interest to focus on one of its primary engines of progress, education. It is through modern schooling that we can stop denying, lamenting and trying to step back from change and work to contribute to our meaningful co-evolution. Understanding the change, a central goal of my work, is critical to knowing how to respond to it. On a final note, another way to think about identity change today is to look to the ideas of Friedrich Nietzsche.

Movement toward the Technomensch

Neitzsche's concept of the ubermensch is so enduring that an entire volume of the Journal of Nietzsche Studies (Loeb, 2005) has been devoted to it. In his editorial forword to this volume, Paul S. Loeb, notes that many influential observers outside of the world of Nietzsche commentary think we are entering an era that will fulfill Nietzsche's famous prophecy of a posthuman future (Best & Kellner, 2001b). The goal of the volume's writers was to think about what the ubermensch means in light of twenty-first century developments and debates. Subsequently, a theme consistent across the writings is that the ubermensch involves man overcoming his condition (e.g., metaphysics, states of being, ideals). I use Neitzsche's ubermensch as a tool for analysis as I pull together the contemporary observations and developments contained in this chapter. As illustrated, society is in conflict over the changes virtualization and digital online culture poses to individual identities and wired society with some scholars, artists and technocrats arguing we are moving toward an ubermensch state where technology allows us to transcend our human condition. Other scholars argue we are moving toward an untermensch state where technology is degrading humanity. I propose a third interpretation that we are moving toward a technomensch, a middle ground between these two opposites, where technology enables but not without limitations.

The technomensch is characterized by our human-machine co-evolution. As outlined, our sense of self is mediated through cyberspace, presentational media, web 2.0 tools, smartphones, and a morphed news cycle. The web and new media enables us to be more portable, fragmented, multiple and hybridized. They are causing us to adapt to a culture where hyperreality is reality and we no longer live on the other side of the mirror

as Foucault argues but rather the other side of the mirror no longer exists. As Baudrillard

asserts, the mirror lives along side us in parallelity. Technology increasingly complements

human characteristics allowing for a new global, unrestricted dimension of being. In a

fascinating expansion, identity can now be expressed through various mediums as we

engage in diverse facets of self-exploration. We can transcend our mortality through our

digital permanence, becoming virtually immortal, yet we still cannot escape many of the

challenges and limitations of our physical condition including death. The main nature of

our mind can soar by being one and multiple at the same time as our hybridized bodies still

eventually plummet by the slow decay of our aging process, bringing us closer to the

inevitable.

A final thought on the changes our culture and identity are going through as they

relate to the technomensch can be viewed as an accidental evolution where each computer

technology improvement in the form of miniaturization, hardware sharing, flexibility of

software and wireless bandwidth of data were initially focused on resolving individual

problems. These improvements made possible the ability to remotely access and use

software as well as store the end result; all bundled into distant servers and offered to

users as a service recognized today as cloud computing. Although there are many

definitions of the cloud, it is commonly understood as a metaphor for the Internet. I use the

term to represent the current state of the World Wide Web where both software,

applications, and data are being stored, moved, and used across the World Wide Web

network. This enables the expansion, enhancement and hybridization of our identities.

It is through the cloud that we are also able to meet our highly individualized needs.

We have turned into a society accustomed to personalization characterized by increasingly

specific demands. We feed our requests with minute details to get our unique needs fulfilled. There is an expectation that if we search for a doctor, for example, we should be able to find one matching numerous criteria such as specialty, background, location, gender, language or a combination of the aforementioned. An assumption consistent whatever the subject might be, and for the most part the cloud enables us to easily meet such expectations. As we use the web to meet these individualized needs, we globally project our identity by sharing our opinions through reviews, blogs, participation in virtual interest groups and engaging in a constant exchange of ideas, pictures, and thoughts. We simultaneously feed the cloud and in doing so become part of an amalgam of all identities self organizing and enhanced through technology.

In contrast to this euphoria, economic and political forces are also part of this equation generating immense wealth not seen since the industrial revolution. Fueled by a race for profit, the cloud provides society with an incredible engine of creativity by both supporting startup companies that bring about new improvements and encouraging the expansion of existing tech companies. This creative dynamic is dual sided. On one side, it carries an altruistic, genuine energy that is open minded and groundbreaking in its approach. On the other side, however, it embraces pure capitalism where profit is achieved in the most indirect and ethically questionable fashion. Nothing is off limits in today's wild-west mentality such as poaching other companies for user data or mining it. This duality can be summarized in one concept, *friction*. It is through friction generated by both users and providers that the cloud subsists and expands. With it brings prosperity to various participating entities and privacy infringement to others. In the following chapter, I explain

the concept of friction and explore some of digital online culture's multifaceted and often

contradictory sides.

CHAPTER FOUR

MANUFACTURED CONSCIOUSNESS AND SOCIAL DOMINATION

You take the blue pill and the story ends. You wake in your bed and you believe whatever you want to believe…You take the red pill and you stay in Wonderland and I show you how deep the rabbit-hole goes…Remember that all I am offering is the truth. Nothing more.
("The Matrix", Wachowski & Wachowski, 1999)

As we see our identities shifting in the shadow of technology's expansion, it comes at a cultural cost with great implications. For all the freedom of sharing, instant celebrity and the multitude of access the Web offers, it requires that we surrender our privacy. That prized possession, vigilantly guarded through our laws and rights, yet under attack by corporate capitalism. This chapter employs the work of the Frankfurt school as an analytical tool to interrogate digital online culture and its impact on the balance of social control and domination within modern society. Furthermore, this chapter references Hans Magnus Enzensberger's (1975) notion of the consciousness industry where he argued that radio, cinema, television, recording, advertising, and public relation are tools of manipulation and propaganda. He extends this group of communication mediums to include education, as he saw it as a fully industrialized system that is becoming a mass media product. For Enzensberger, the mind industry's main business is to "expand and train our consciousness in order to exploit it" (p. 8). I would extend Enzensberger's mass communications definition to include cyberculture. Although it did not exist at the time of his writing, cyberspace has rapidly emerged as a dominant mass media tool with global reach.

Drawing on Baudrillard's notion of simulacrum, I argue that our digital selves reflect our real life identities, yet in cyberspace, many of the rules and norms of the real do not apply. Our digital actions are often seen as separate from reality mediated by an idealized view of the world where information and people are free and somehow distinct from the real world. However, as I argued earlier, there is no longer a clear demarcation between reality and its online representation. The purpose of this chapter is to cull together several cultural factors involved in the commodification of our identities as part of the manufacturing of false consciousness. This is achieved by analyzing the normalization of freely exposing our personas, discussing some of its dangers and rewards, and demonstrating that the practice of social domination is very much alive within cyberspace. I further argue that part of our core values have been taken hostage by a neoliberal cyber agenda emerging from technology entities such as Google, Facebook, and others. An agenda originally born out of academia is transformed into a tool of manipulation intended to shift the user's identity and interests into a commodity. I will use a multi-perspectival approach to address a series of cultural dialectics related to this dynamic, and will articulate the manner in which digital online culture is reshaping hegemonic and counter-hegemonic ideas to redefine core values.

Although several frameworks can be employed to help with this task, this chapter draws from a constructivist approach to pull together the different ways in which ideas, norms, identities, language and other cultural practices work to create a social structure that enables and constrains individual agency (Jackson, 2011). It also draws on Tessa Morris-Suzuki's theory of information capitalism that argues the computer age has allowed for the unprecedented generation of and access to social knowledge, enabling corporations

to expropriate it in the service of new market creation (1988). Subsequently, this chapter makes several arguments: corporate domination is at the heart of many popular Internet inventions; movement of information over the web, that I call friction, is the main vehicle of personal exposure, big data, and the very existence of most tech companies; friction enables digital identity to be freely taken and willingly given away; there is a new cultural narrative emerging that trivializes loss of privacy; transparency and surveillance have become institutionalized and normalized in American culture; there are several transformative, yet fringe, counter movements fueled by technology that are working to swing us back to democratic ideals.

Friction in the Cloud

As society moves its commerce, socialization, and government services to the Web, a myriad of information is passing through computers and the Internet. With cloud computing, more and more personal information is being held on the servers of various organizations, such as private technology corporations or government agencies. At the heart of all this circulating data is what I call friction. Friction is the commodification of identities through the movement of personal data over the web. It comes from user initiated web activity that creates data in the first place, the manufacturing process of data transformation as well as the market activity around its exchange. Consistent with today's capitalist production model, this vast quantity of data has become the raw material that feeds the cyber-data manufacturing process. Steps in the friction process are depicted in figure 4.1.

Figure 4.1: Friction Model

Information acquisition is the first step in the friction process, and in order to

deconstruct this practice, I begin by clarifying what constitutes our information (a.k.a.

data). Online data related to an individual is made up of several kinds of web information.

One source is through government administrative sites where information is kept about

people based on records from a variety of agencies such as the DMV, social security,

military, post office, voter registration, professions requiring government licensing, homes

and property ownership, any interaction with law enforcement or the courts, and census

material. The data is also acquired through several cultural practices including willing

giving personal information by sharing over the web. It is worth noting that participation is

often prodded by social network sites in the form of updates, requests for opinions such as

"like," "review," and "comments." The data is also acquired through the poaching of

personal information from entities like smartphone service providers, social networking

sites, search engines, and web browsers. Data can further include, the network of one's

Facebook friends, Twitter posts, LinkedIn connections, search history and patterns, online

shopping choices, photograph sharing, GPS geographical location tracking, and so on. Such

information is often referred to as digital "breadcrumbs," and although they do not look

like much individually, when added together they become significant. The data in Figure

4.1 is initially depicted as a solid line analogous to a narrative of a person. This collection

process forms a dataset kept in a virtual vault where massive amounts of information is

stored commonly referred to as big data.

At the center of big data is the practice of Knowledge Discovery in Databases (KDD),

the non-trivial extraction of implicit, previously unknown and potentially useful

information from data (Vedder, 1999). The KDD process begins by cleaning up the dataset

through a preprocessing stage where the data is "depersonalized" and unusable data (also

called noise) is removed. During this phase, the narrative is fragmented into singular

markers represented by individual dots. The data is then organized in the transformation

phase, where it is converted from one type to another (i.e. changing nominal to numerical)

in preparation for analysis. The analysis step of the KDD process, known as data mining, is

a repetitive, iterative process where specialized analytical methods (i.e., classification,

regression and clustering) are employed for pattern discovery and extraction (Fayyad,

Piatetsky-Shapiro, & Smyth, 1996). The last step in this process is the production of

knowledge. This knowledge becomes a data product, which consists of the reconstitution of

our digital online self based on partial information, which is then sold for marketing

purposes and (or) recycled back into the data vault for further data mining.

My critique of the friction process is consistent with the Frankfurt School's Marxist critique of the capitalist production model's role in the legitimation and mystification of social reality. I argue that the digital age has not changed the manufacturing of false consciousness and social domination rather it provides a context where new tools covered in a mask of freedom, equality and liberation are used to further manipulate and sometimes suppress members of society. Enzensberger can be used to further support this point with his critique of immaterial exploitation where any given "product" becomes more and more abstract, and the industry depends less and less on selling it to customers. He notes, "direct advertising and political propaganda is something nobody buys, rather, it is crammed down our throats" (1982, p. 9). Enzensberger's immaterial exploitation can be applied to friction where our perception of what part of ourselves we protect and what part of ourselves we project is becoming blurred. Instead of this choice being our decision, information capitalists are dictating what we need to keep private and what we need to share.

It is through hegemonic mystification that much of our personal data is willingly given, and in the name of entertainment, leads us to become our own paparazzi, market researchers, publicists and the like. It is no surprise that social media sites are developing relationships with corporations and unlike advertising companies, these sites do not have to figure out what their customers prefer because users share this information freely by way of simply using the site (Guynn, 2012). The fact that a great majority of the cyber population willingly gives away their personal data is a result of several factors. The most significant of these is a new ideology infiltrating society via a young cultural intelligence force, that I call high-tech capitalists, comprised of but not limited to technologists like

Mark Zuckerberg, Sergey Brin and Larry Page who are working to impart changed norms about privacy, transparency, and individuality. This is not surprising given the fact that dominant technology company leaders are pushing the idea that privacy is anachronistic, transparency is synonymous with digital living, and individuality is supreme. Take for example, Facebook founder Mark Zuckerberg who believes privacy is no longer a social norm (Johnson, 2010) and Google CEO Eric Schmidt who argues, "if you have something that you do not want anyone to know, maybe you shouldn't be doing it" (Bartiromo, 2009). These attitudes represent a larger cultural struggle reflected in infamous hacker George Hotz observation, "This is the struggle of our generation, the struggle between control of information and freedom of information" (D. Kushner, 2012, p. 7). The struggle today is over control of information by the individual versus the corporation as well as the appropriation of the "freedom of information" practices in service of capitalist ends.

As noted in chapter two, Sherry Turkle found most young people accept the idea of having to be careful online and inherently trust the founders of large tech companies to do the right thing. An attitudinal shift further corroborated by one of Facebook's new advertising strategies involving turning customers' "likes" into endorsed advertisements to their friends. One Facebook user jokingly posted a "like" for a 55-gallon barrel of personal lubricant and then found that an advertisement with his face next to his endorsement had been sent to his collection of Facebook friends. Upon this discovery, he reacted with, "I know the costs of using Facebook. It does not cost me money. It uses my personal information" (Sengupta, 2012). Another person who unwittingly became an advertisement via his Facebook endorsement commented, "It would be naïve…to count on an entirely free deal from Facebook" (Sengupta, 2012). Both reactions demonstrate an acceptance of

privacy infringement and are what Facebook, other Internet companies, and even the government relies on. When Facebook was sued for what plaintiffs argued were unfair and deceptive practices in deploying users' names and pictures without consent, they used a freedom of the press argument stating that sponsored stories based on "likes" were actually "news" because all Facebook users were public figures to their friends (Sengupta, 2012). Baudrillard argued that language and ideology work together to structure perceptions and define a new real. I argue that within digital online culture, one way tech capitalists are manipulating social development is by making personal infringement justifiable through redefining the meaning of people's online interactions.

Data Movement.

Our false perception that personal data is safe in the hands of either high tech capitalists or government agencies is being challenged by the two-way information flow between the private and public sectors. Not only is the government selling and supplying information to the private sector, but also the private sector is assisting the government in generating information about individuals (Solove, 2002; Singel, Ryan, 2009). In essence, it is the wild west of buying, selling and often poaching digital information from the global citizenry. This practice is not entirely new, as since the 1970s the U.S. government has been selling census data to marketers. Additionally, many states have a long held practice of selling their public records to the highest bidder (Solove, 2002); however, today just about all government records are digitized, they can be pulled together for selling with the push of a button. In other words, the selling has expanded from census data to a wide variety of data types.

The U.S. government has also been buying information about individuals from the private sector. One example of this can be found in the private company ChoicePoint, Inc. who holds a database of ten billion records and contracts with agencies such as the FBI and the IRS (Solove, 2002). Data about individuals is not limited to government agencies, it is also very important to corporations. The practice of mass quantification is so popular today it reportedly will leave no area untouched (e.g., academia, business, government) (Lohr, 2012). This trend toward quantification is no surprise given the fact that new media such as Google searches, Facebook posts and Twitter messages make it possible to measure behavior and sentiment in fine detail. Such tools are contributing to society making decisions increasingly based on data analysis rather than on experience and intuition. We see here is an erosion of what has traditionally been an important part of the decision making process, the subjective quality of perspectives grounded in unique characteristics that ultimately define humanity.

Much of the motivation behind today's new forms of data collection and analysis can be traced back to the political economy of advertising. Since the advent of television, a prime time 30-second advertisement spot was considered the most effective way to expose a large audience to a product ("Internet Advertising: The online ad attack," 2005, "Internet Advertising: The ultimate marketing machine," 2006). By the early 1990s, the Internet, initially an ad-free zone, rivaled television viewership. At the same time, Internet companies were running out of their venture capital and looking for ways to turn a profit without compromising their values of keeping their web products *open* and *free*. Tech companies and advertisers teamed up to explore mutually beneficial ways to collaborate. As companies shifted some of their advertising budgets to the Web, they saw a medium

they could turn into a space full of banners and pop-up ads. In the 1990s, 55% of all online

ads were formatted as banners, 37% were sponsorships and 8% were formatted as

hyperlinks, interstitials (full screen ads that run in their entirety between two content

pages) and pop-ups (ads that appear in a separate window on top of content that is already

on the user's screen) (Rodgers & Thorson, 2000).   Pop-ups were also followed by a more

egregious advertising method called 'adware' or 'spyware' software programs that run in

the background even when the original file-sharing software is not operating and

sometimes quietly uploading information about the Web surfer's habits (Wilson, 2004), a

first step toward surveillance discussed later in this chapter.

By the late 1990s, Internet advertising's interactivity became a salient feature that

distinguished it from other advertising medium by enabling users to participate in the

persuasive process in the form of choosing to click on a banner or not, search out an

advertising website, or select pages to look at. Most importantly advertisers recognized

that web advertising could be personalized to the consumer, referring to him by name, or

indicating that she is known for a particular interest (Rodgers & Thorson, 2000),

illustrating the next step in the relationship of a consumer to society via products theorized

in Herbert Marcuse's *One-Dimensional Man* (1991/1964). For Marcuse, "The people

recognize themselves in their commodities; they find their soul in their automobile, hi-fl

set, split-level home, kitchen equipment …And as these beneficial products become

available to more individuals in more social classes, the indoctrination they carry ceases to

be publicity; it becomes a way of life… the so-called equalization of class distinctions

reveals its ideological functions" (pp. 8,9, 12). Its ideological function, Marcuse argues, is

the shared vision to preserve the Establishment. I draw on this point to highlight that today

the customization of products psychologically seduces the consumer to believe that the

artifacts of digital online culture, including advertisements, websites and mobile phones,

have been made specifically for them, and through this uniqueness consumers transcend

themselves to another social strata. The psychological seduction of these new commodities

anchors social control in "the new needs which it has produced" (p. 9). I argue the

manufactured "need" for today's digital culture commodities laid the framework for the

giving, taking, and selling of identity. The need of public consent on the part of tech-

capitalists seems to come from a desire to adhere to the specter of a real democracy, when

in facts, what they are really seeking is a passive population that marches to the beat of

their drums. This point is consistent with Enzensberger's position that the self appointed

elites who run modern societies must try to control people's minds to secure their

positions (1982).

A turning point where users' digital identity became commodity began in 1996.

Internet entrepreneur Bill Gross created Idealab a company at the heart of the paid search

or pay per click advertising practice. Gross' idea was the inspiration for Google's AdWords,

which involves placing advertising links next to relevant search results and charging only

for clicks with the added twist that advertisers could bid for keywords in an online auction.

AdWords led to the creation of another Google product, AdSense, a system that goes

beyond search results pages and places advertising links on the web pages of newspapers

and other publishers that sign up to be part of Google's network. Both approaches are

contextual in that they are relevant to the web page's content and the advertiser pays only

when a web surfer clicks ("Internet Advertising: The ultimate marketing machine," 2006).

All of this collective clicking and searching has created unprecedented datasets rich for analysis and hegemonic use.

Companies routinely use web analytics, a field concerned with collecting, analyzing and interpreting web metrics (i.e., information about how website visitors use the site), to improve the quality of their websites (Weischedel & Huizingh, 2006; Phippen, Sheppard, & Furnell, 2004) and help companies' market products. Before the Internet, corporations had to rely on other methods of market research such as surveys, interviews, general tabulations (e.g., count of grocery stores in a given area), and limited government statistics (Larson, 1994; Lockley, 1950). Although these methods are a form of privacy infringement, they still maintained a degree of anonymity (Lockley, 1950).

The new found abilities of companies to gather and analyze data from these massive web-enabled datasets attracted large technology companies, such as I.B.M, Microsoft, Oracle and SAP, to invest in business intelligence and analytics software. Thereby, paving the way for bringing increasingly advanced and accessible data mining products to the market. One of the most well know analytics companies is the SAS corporation, a private analytics software and services company specializing in helping corporations "gain predictive insights" and "seize new opportunities" ("Business Analytics and Business Intelligence Software," 2012). It is no surprise that big datasets equate to big business, as they are one method of achieving market and social domination. Corporations and governmental agencies, large and small, are the beneficiaries of this process as it redefines customers' identities through depersonalization and repersonalization.

One way to understand this practice is through the work of Holland et al. (1998) who maintain that the identity production process is influenced by the "positions" offered

to us in different "figured world" or environments in which we operate that are socially and culturally constructed. For Holland et al., when people are positioned they are no longer actively engaged in their own identity formation but rather are relegated to a position of accepting, rejecting or negotiating the identities being offered to them. In my view, within the context of high-tech capitalism, individual agency is further suppressed, as our identities are not even presented to us for comment before being presented to the world on our behalf. To further understand this practice, a multiperspectival approach offers the ability to shift the point of view and highlight the important points of the process through different lenses. Thus, I begin with the user's perspective, as the depersonalization process is centered on who we are as individuals. Then, the product's perspective is used, as repersonalization is focused on marketing the "product" to its potential "customers." Here a product ranges from a shampoo sold by a corporation, a checking account introduced by a bank, or even a target list of suspects identified by the government.

Depersonalization and Repersonalization.

It is important to note that like DNA, personal data is composed of specific markers. As these markers get disassociated from our authentic identities, they are considered to be benign, singular, anonymous information bits. At first glance, this seems rather harmless; as it uses data that has been depersonalized from the individual it was originally linked to and then added to a general dataset to be analyzed. But anyone of these little bits define us sociologically and in a multiple, parallel, and fragmented world grounds our authenticity, our original identity. Nevertheless, this is a pragmatic part of the KDD process, as depersonalized data is not protected under U.S. privacy laws and norms. So, in the name of "privacy," obvious indications of an individual's identity such as name and social security

number are removed. In essence, our data is depersonalized when dumped into big data vaults and combined with other peoples' information, and after the KDD process, it resurfaces as data analytics. However, even without official markers, it is possible to zero in on a singular individual via unique characteristics and behaviors. Thus, people can be identified using combinations of unconventional markers such as zip code and the type of soda they drink. The noteworthy part of this process is that the final data product is repurposed back to users on an individual level in the form of practices and policies that impact their lives such as credit scoring, medical data health risks predictions, and direct marketing (Vedder, 1999).

The data mining process is built on the ability to run algorithms on a significant number of organized data to extract knowledge. The more data, the better, as a single variable analysis has little worth; while, the accumulated quantity of data from multiple users strengthens the predictive quality. Here, the product perspective takes center stage as it guides the process by defining parameters of what constitutes the "perfect customer." The goal is to match-make between the product and its suitors, the targeted users, who have been profiled through pattern recognition. Thus, at the heart of repersonalization is the creation of the perfect customer.

KDD is further implicated in this reality, as the post-KDD data product is our digital online self reconstructed based on partial information constituted by combinations of our disparate online actions mixed with bits and pieces we leave around cyberspace. Further exacerbating the problem, these bits are pulled across a variety of contexts crucial to their meaning. We may be surprised to find our data mined selves to be very different from who we understand ourselves to be thereby problematizing identity by abstracting us into

composite sketches of a person who fits corporate marketing needs. As noted by Leah

Lievrouw, UCLA Information Studies Professor, "no matter how extensive information

about a person may be, it is never a complete or full picture of a person's life. Judgments

made on this basis of such partial and out of context information can have major

unintended consequences" also "data from divergent sources and contexts can be

combined inappropriately, so that negative and incriminating conclusions can be drawn,

even if they are not justified" (Wyer, 2012).

Depersonalization and repersonalization articulate a complete commodification of

the citizen where identities are collectively sold to corporations to address a demand for

guaranteed customers. This demand has been accentuated by the micro segmentation of

markets reflecting a push for companies to secure a consumer base for their wares during

an especially volatile economic time. Corporations are developing an increasingly high

reliance on the KDD process to help them analyze and digest people in the hopes of

ensuring a sure customer. The aforementioned identity commodification process is

parallel to any number of futuristic, dystopian films such as *The Matrix* (J. (Producer) Silver

et al., 1999) or *Soylent Green* (Seltzer & Thacher, 1973) where human beings are in essence

both the literal food of the system and the consumers of this food, we are becoming both

the producer and consumers of our own identities.

An example of composite identity sketches can be seen through corporate use of

predictive analytics, subsets of marketing departments devoted to discovering hidden

patterns and trends (i.e., KDD) setting up "the golden age of behavioral research." said Eric

Siegel, the chairman of the Predictive Analytics World conference, as reported by Charles

Duhigg (2012). Their work is not limited to understanding consumers' shopping habits but

extends to unpacking customers' personal lives, so as to more efficiently market to them. In his *New York Times* article titled "How Companies Learn Your Secrets" columnist Charles Duhigg (2012) outlines a fairly new role statisticians play in mapping the intersection between data and human behavior. The ability of corporations to analyze data at increasingly fine grained levels was highlight in Duhigg's uncovering of how Target determines whether customers are expecting a baby, a time when couples are most flexible in their brand loyalties. Sending a coupon or catalogue before a baby is born happens to be one of the best times to cause a consumer to begin spending in new ways. Companies like Target can analyze conscious and unconscious patterns via datasets and algorithms revolutionizing what they know about shoppers and markedly changing how precisely they can sell to them.

Staying within its legal bounds, it turns out that Target is able to use 25 products that when analyzed together, allow researchers to assign each shopper a pregnancy prediction score. An estimated due date could also be calculated within a small window so that Target is able to send deals and offers timed to very specific stages of a shopper's pregnancy and subsequent brand loyalty vulnerability. Andrew Pole, a Target statistician, noted "even if you're following the law, you can do things where people get queasy," as reported by Charles Duhigg (2012). In essence, just as in the film *Minority Report* (De Bont et al., 2002) where Precogs are able to see a near future event before it happens. It could be argued that corporations are using big data to move toward their utopian marketing ideal of sales predictability. Through this, a guaranteed consumer would be created, a captive citizen stripped of individual agency.

Target certainly is not alone in its advanced data analysis and there is an even

darker side to the practice with some discriminatory social costs. Numerous current events

attest to the fact that companies take data without overtly asking for it, as evidenced by the

widely reported practice of smartphone providers and web application companies who

help themselves to users' personal data (Perlroth & Bilton, 2012; Yin, 2011). Taking user

data without permission is not limited to smartphones, as it continues to be a widely used

practice across the Web (Andrews, 2012; Danna & Gandy, 2002), it seems that taking

information is disguised as an acceptable practice when that information is in digital form.

Once a personalized sketch of us is composed based on this tacitly acquired data, no matter

how inaccurate, we can be stereotyped thereby further exacerbating social inequalities

such as discriminatory practices around employment, credit and insurance eligibility,

banking practices and other denied opportunities (Andrews, 2012; Danna & Gandy, 2002).

It seems that the Web has not helped to solve critical theorists' critique of false boundaries

and hierarchies that are constructed to justify domination of one group over another.

Although marketing departments have traditionally used everything from census data,

audience test groups, surveys and other tools (i.e., Neilson box) in a search to understand

and predict audience preferences, unique today is the level of specificity these companies

can tap into. Two especially egregious practices related to repersonalization are *weblining*

and *firing the customer*.

The concept of weblining is based on the old practice of redlining where customers

were discriminated against based on geographic location. Insurance companies literally

drew a red line on a city map around neighborhoods the insurers presumed to represent

unacceptable high insurance risks and charged customers more based on the neighborhood

in which they resided. Like redlining, weblining involves any number or exclusionary

practices based on data mining including limiting choices in products or services, paying

more for a product or completely eliminate someone's access to opportunities. Unlike

redlining where entire groups of anonymous people were blanketed under one

discriminating umbrella, weblining is based on personal data about an individual to create

a specialized customer profile and uses that profile to limit access and opportunities

(Hernandez, Eddy, & Muchmore, 2001). Weblining occurs in the financial industry, for

instance, when a customer is profiled to fall above some risk criterion level, and

subsequently, he or she is unlikely to be told about lending programs and other credit

offers (Danna & Gandy, 2002).

The practice of firing the customer is a more convoluted concept as it implies that

individualized profiles are increasingly intertwined with data on health, education, loans

and credit history (Stepanek, 2000) leading to further discriminatory practices. Firing the

customer involves companies providing certain customers disincentive to stay such as a

bank raising an undesirable customer's ATM fees while lowering the same fees for a

desirable customer (Danna & Gandy, 2002; Peppers & Rogers, 1997).

I argue weblining and firing the customer are another expression of the politics of

representation in action only the profiling of individuals is not limited to race, class, &

gender. Rather, it has expanded to the funneling of products and opportunities to

consumers most likely to afford and purchase them with the intent of furthering market

access and magnifying economical impact while ignoring the subjective nature of people.

Interestingly enough, even if the method of funneling and/or denying products is based on

a form of discrimination, there is still a product for everyone regardless of how

economically disadvantaged they may be. The KDD process combined with the

repersonalization of identity and our changing norms about privacy have worked to pave

the way for another form of hegemonic manipulation involving democratic societies under

surveillance.

Surveillance, Politics, and Political Economy

Rather than a formal declaration of war, the erosion of our privacy has happened

slowly beginning with adware and spyware, described earlier in this chapter, and more

recently in the name of national security to find those hiding in plain sight. This occurred

with two goals in mind to search for individual suspects and to cast a net in hopes of

finding just the right mix of information to thwart the next terrorist attack. Interestingly

before the September 11, 2001 terrorist attack on the U.S., Robins and Webster (1999)

recognized that surveillance and intelligence procedures had become increasingly central

to the state and in the name of security, "state surveillance has become a pandemic, and

even normative, feature of modern society" (pp. 162–163). The turn of the millennium

terrorist threat provided one of the best justifications for further eroding citizens' civil

liberties and getting people to accept surveillance as part of American cultural life.[7]

To better understand American's general acceptance of surveillance, I will briefly

revisit my earlier discussion of the larger cultural narrative about transparency. First, we

are a culture in transition with a population of youth who have become accustomed to the

idea of transparency to the point where they believe privacy is not critical (Turkle, 2012a;

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[7] Surveillance culture is not limited to the United Sates, as over the last decade, it has also taken root in various Western countries such as England evidenced by their pervasive use of cameras throughout the city.

Thuraisingham, 2002). When juxtaposed with earlier generations of snail mail users

holding dear the idea of private communications with violations constituting a federal

offense, the seriousness of this transition becomes clearer. Digital on line culture with its

tools, practices and values has been particularly important in reproducing this new privacy

belief. The popularity of openly sharing one's thoughts and life in general through a

combination of mobile computing, via smartphones, social networks and the increasing

tendency to use one's time to consume such artifacts has been working to change

perceptions. The transparency trend has not just stopped at online sharing it has led to

changing views on surveillance solidified through the cultural outlets of news, politics,

television, films, and other texts. This is evident in the role news entities take in helping

politicians to "sell" the nation's need for an ever expanding public safety infrastructure

including widespread surveillance and data-collection (Jackson, 2011).

It is no surprise that over a decade after the first major terrorist attack on U.S. soil,

we are as deep as ever in the security and surveillance business in the name of counter

terrorism efforts, as evidenced by the Transportation Security Administration (TSA)

practices reminiscent of a totalitarian state. Two of the most recent U.S. advancements[8] are

the relaxing of restrictions on how counterterrorism analysts retrieve, store and search

information gathered by government agencies for purposes other than national security

threats (Savage, 2012). The new guidelines allow the National Counterterrorism Center to

hold, up to five years, private information about Americans when there is no suspicion that

they are tied to terrorism. The guidelines also result in the center making more copies of

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[8] As of the writing of this chapter

entire databases and data mining them. Instead of focusing on specific individuals, there is an increased reliance on casting a wide net, listening to phone conversations and capturing massive amounts of the general population's emails. Then running KDD style algorithms to pinpoint possible terrorist behaviors. Although the U.S. government cites the genuine need for changes to better thwart terrorist attacks by correlating existing intelligence intercepts and communications in order to analyze and detect threat patterns over time, the problem lies in the fact that many states have not used their shared intelligence and databases to detect terrorists (Priest & Arkin, 2011). Rather, such databases have been used to collect, store and analyze information on thousands of U.S. citizens and residents. In the PBS documentary *Are We Safer?* (2011), reporters Dana Priest and William Arkin's investigation reveals an Orweillian moment when several nonviolent U.S. activists groups, one even consisting of several nuns, have been unjustifiably targeted by these enhanced and coordinated surveillance programs.

Another perhaps even more startling surveillance development is the increasing popularity of drones. As the editor and chief of *Wired* magazine, Chris Anderson, argues we are now entering the drone age. Popularized by their military application in the post 9/11 Iraq and Afghanistan wars, drone use has been promoted domestically by the U.S. State Department's decision to post Predator and Reaper mission clips on YouTube in the name of "enlightening" U.S. enemies (K. Thompson, 2009). With over 10 million views, such videos, coined "drone porn" for the controversial aspect they represent, are consistent with the society of spectacle introduced by Guy Debord in his book *The Society of the Spectacle* (2004/1967) and further explored by Douglas Kellner in his book *Media Spectacle* (2003a). These videos show how citizens are desensitized from basic human rights by the

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captivating spectacle of surveillance followed by the tracking and killing of human beings. As Debord notes, "But a critique that grasps the spectacle's essential character reveals it to be a visible negation of life — a negation that has taken on a visible form (2004, sec. 10). The denatured aspects of the drone images further evidences the negation of life where a black and white simplistic visual accompanied by technical audio presents humans as mere distant ghostly figures. Following Debord and Kellner, these military "snuff films" draw on the societal taboo associated with pornography where the viewer senses its wrong but still consumes the spectacle. Furthermore, these spectacles are pushing for drone acceptance in the eyes of the public, Kellner notes, "As military activity itself becomes increasingly dependent on computer simulation, the line between gaming and killing, simulation and military action, blurs, and military spectacle becomes a familiar part of everyday life" (2003a, p. 10). The widespread consumption of drone porn as military spectacle combined with the winding down of two U.S. led wars paved the way to bring the drones back home with the troops.

The U.S.'s decision to open up national airspace to unmanned aerial vehicles (UAVs) for commercial, scientific, law-enforcement, and public safety uses[9] (Paumgarten, 2012) passed through congress without much fanfare or debate. The result of what some have called collusion between drone manufacturers, faced with declining military budgets, and law enforcement agencies. I would add to this point that it was also the result of marketing efforts to garner drone acceptance by the general public, as described previously. The domestic application of drones was also made possible by their miniaturization through

[9] In February 2012, U.S. congress passed a law that by 2015 will open the national airspace to drones.

the development of small-scale types that can be controlled locally and launched by hand like a model airplane or cell phone with wings. Drone supporters' attitudes reflect the new cultural ideas about privacy in that they believe the era of privacy ended a while ago and a few aerial shots in addition to all the other surveillance we are under (cell phones, city cameras, the Internet) is not going to change things much.

Like most technologies, the future use of drones is not all good nor all bad but does take a strong step toward becoming what the American Civil Liberties Union calls a "surveillance society" where our every move is recorded, tracked, and scrutinized. The combined efforts of dominant forces such as the U.S. military, large tech firms, government agencies and other non-tech companies to garner widespread cultural acceptance of surveillance are eroding our long held cultural values around individuality, anonymity and privacy. One of many ways this is achieved is through reframing perceptions about the affordances of drones.

The rhetoric for using drones at home is focused on benign applications such as search and rescue operations, fire fighting, catching criminals, and inspecting pipelines. Some argue that like the Internet, which started for military use, drones could be used for personal fun and enhancement like having a personal robo-videographer to log footage of one's vacations, sporting events or other life activities (Anderson, 2012) taking the idea of personal celebrity to the next level where individualized drones become our personal paparazzo helping us to create our own reality show to be shared with our followers.[10] Embedded within this discussion is the potential of drones to be another provider of

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[10] This attitude is consistent with my discussion of identity in the previous chapter.

pseudo-reality in the form of spectacles. As depicted in the popular film *The Hunger Games* (Jacobson & Kilik, 2012), where the young characters' gladiator style fight for survival is televised as a public spectacle.

Although drones can be used for entertainment and the larger public good, as with all potentially good things, there are a few additional caveats. First, U.S. privacy laws are not strong enough to ensure that this technology will be used responsibly and consistently with democratic values (Stanley & Crump, 2011). A drone's affordances have not been fully realized especially when monitoring civilian lives. Drones have the potential to give someone, law enforcement or criminals, the ability to subjugate, aggress or even assassinate unwitting citizens (Paumgarten, 2012). Another downfall is the use of drones to spy without due process leading to a police state or even a state whose own citizens watch each other. We have a potentially very dangerous mix considering the combination of widespread drone use, data mining, and individual profiling all potentially feeding today's military industrial complex.

The U.S. economy has an interest in keeping the citizenry complicit with surveillance and transparency. Following the 9/11 attacks, a multitude of businesses have flourished from the emergence of a concerted high anti-terrorist effort. Governmental institutions such as the Department of Homeland Security, the CIA, the NSA and the Department of Defense (DOD) have extended their reach by opening up a myriad of careers in the counterterrorism industry: Private security firms supply screening services; pharmaceutical firms provide vaccines in preparation for bioterrorism; and drones manufacturers continue to adapt their aircraft to meet military, and now non-military, demands. It becomes clear that there is a strong financial interest from a variety of

stakeholders in maintaining widespread acceptance of the war on terrorism (Jackson, 2011) including surveillance. Thus, we have a renewed military industrial complex including a national safety market legitimized through selling a discourse of public fear.

This same argument can be made for transparency acceptance. As mentioned earlier in this chapter, it is through friction that tech companies such as Google, Facebook, and Twitter are able to serve what Lievrouw (2011) has identified as their real customers, corporations. The same corporations who have been in the data mining business are now in the surveillance business.

It is within this context that we must consider the fact that American government and commerce has an interest in upholding transparency to facilitate surveillance. Broadly applying a social exchange framework (Emerson, 1976) we can see the story is not entirely one-sided. The public values the fact that the World Wide Web is "free" and has allowed it to transform our lives making them more manageable and fun in many ways; however, the trade off is we share a little slice of who we are through seemingly benign micro-acts like clicking the "accept" button, posting a video to share, or commenting on someone's blog post. These micro-acts translate into cumulative macro-intrusions into our personal lives, which for a growing number of cyber-citizens results in costs that they perceive to not outweigh the rewards of participation.

Counter Surveillance

As articulated through this chapter, today's culture is being redefined through a change to it normative practices from privacy to transparency, anonymity to celebrity, and surveillance to security all representing modern day dialectics in a battle over social control. In the midst of this struggle, there are several fairly powerful counter-hegemonic

forces responding in the form of alternative and activist movements (Lievrouw, 2011). I will limit my analysis to cyber activism as well as activist, alternative and participatory journalism for the strong counter-surveillance reactions they represent within digital online culture.

I argue that cyber activism is a movement in defense against the individualistic trend that today's neo-liberal tech-capitalist practices are promoting. As discussed in chapter three, the combination of today's social networks, search engines, and other web 2.0 tools have enabled the personalization of the user's account into a glorification of individuality; a complex term used here to describe a circumscribed environment with a manufactured egocentric user at its center. There are a variety of rogue cyber activist groups pushing back against the social and personal dangers looming from tech-capitalism running free. Often times, such counter reactions emerge through an amorphous identity largely organized through and shielded by the Web.

One of the most well known counter-hegemonic computing entities is Anonymous, a leaderless, cyber-group who are often inaccurately characterized by the media as "global cyber warriors," "cyber vigilantes," and "online activists," which according to scholar Gabriella Coleman (2011), illustrate the broader media's misunderstanding of them. Anonymous is the product of an increasingly and ever shifting digital world. Like other digital online activist groups, their membership is fluid, politics evolve organically, and their activities involve a combination of "feral tricksterism" and expert online organizing (Coleman, 2011). Consistent with Coleman, I characterize Anonymous as a new form of cyber activists since their main points of differentiation from other cyber activist groups

are their notion of Lulz[11] and their amorphous form, which in my view, does not negate

their activism. Some of the societal critiques they are known for are their attacks against

the Church of Scientology, Operation Payback, a campaign that paralyzed the websites of

companies that opposed WikiLeaks in the name of free speech, and their involvement in

the Occupy movement, to name a few (Olson, 2012; Coleman, 2011).

There are many parallels between cyber activist groups like Anonymous and the

first generation hackers. One of the main similarities is their belief in digital utopianism,

viewing computing as a force of social transformation. Other similarities include anti-

authoritarianism, devotion to the preservation of open access to information, and finally

their trademark pranks. They differ from first generation hackers who intended to

demonstrate the skill of the programmer/engineer rather than to disrupt or damage a

system per se (Lievrouw, 2011). Today's generation of hacker-activists[12], however, will

disrupt and damage systems as well as physically take to the streets in their pursuit of

social transformation. It is no surprise that Anonymous chose a Guy Fawkes mask as their

symbol given that this mask represents disobedience dating back to England's 1605

gunpowder plot and most recently in the popular film *V for Vendetta* (Silver et al., 2006). In

this film, its hero, who wears a Guy Fawkes masque, is called "V" and uses unorthodox

means to fight against a totalitarian regime. Another notable classic activist film *Spartacus*

(Lewis, 1960) illustrates the rogue revolt of gladiator slaves against the Roman Empire.

Most interesting about these two films are their closing scenes where unification and

[11] Lulz is a pluralization of Laugh Out Loud (lol) referring to amusing jokes, images, and pranks often at someone else's expense, typically through embarrassment (Olson, 2012; Coleman, 2011).

[12] Anonymous also uses hacking to achieve its goals.

solidarity are championed in *V for Vendetta*, each citizen donning a Guy Fawkes mask and

in *Spartacus*, through each slave claiming to be their leader in the famous line "I am

Spartacus." Like the antagonists in these films, today's cyber activists illustrate the ability

of people to unify the population within digital online culture. They organize and

collectively, yet anonymously, challenge formal, codified and political aspects of society in

unique and effective ways. Of course, Anonymous is only one of many such groups. In the

same trickster spirit, the Pirate Bay, a Swedish BitTorrent site, responded to the use of

drones on civilians by announcing its plans to load their servers onto drones and have

them be permanently airborne, to protect them from law enforcement (Paumgarten, 2012)

illustrating new activist groups are often part of strong political and cultural critiques.

    While cyber activists' ideals may be utopian, it could be argued that their form is

not. In order to fight the neoliberal cyber agenda, it would appear the work of these groups

would be better served if they were to stop diluting it with their prankster tone and

actions. However, another way to look at this is that their pranks are what differentiates

them from other activist groups like purist Hackers and may have even helped them to stay

under the Establishment's radar. It could also be argued that another problem they may

have to eventually resolve is their lack of a definitive leader to guide the group. Activism

without clear leadership can become diluted to the point that it loses its meaning, as we

saw happen with the Occupy Movement. Another perspective on this is that it is precisely

because they do not have a "Julian Assange" poster figure that the news and government

agencies have been left to reinvent a narrative every time these amorphous groups take

action. Despite these problems, cyber activist groups are gaining voice, power and

influence across digital and mainstream culture. Another struggle at the crossroads of false

consciousness, social domination and new media is in the area of journalism.

Corporate Journalism and New Media

Democratic governance requires an active and informed citizenry to ensure fair and

equitable participation and is largely achieved through societal tools that help to facilitate

these ends. One of the most long-standing and respected industries for this purpose is the

press. Journalists and news outlets are charged with the task of providing the public with

fair and neutral coverage of social, political and world events so that society can engage in

meaningful debate about these topics. This responsibility was confirmed by both the First

Amendment guarantee of "Freedom of the Press" as well and the Federal Communications

Commission (FCC) mandate of news divisions in broadcast corporations to devote time to

"public service" traditionally appearing in the form of a nightly news summation.

Another noteworthy FCC mandate was the "Fairness Doctrine" requiring broadcast

networks to present controversial issues in a fair and balanced fashion. In the midst of

1980s conservative deregulation, however, the "Fairness Doctrine" was slowly eliminated

and as recently as August, 2011 the FCC formally removed the language that implemented

the doctrine. Another upshot of deregulation is partial control of the nation's airwaves

moved from the public domain, subject to government regulation, to giant news

conglomerates paving the way for the rise in corporate journalism where entrepreneurs

who own and control media broadcasting hold unprecedented media power. This

transformation became more pronounced after the success of CNN, created in 1980, as a

full time cable news source, which was followed over 15 years later by the creation of

MSNBC in 1996 and Fox News, the same year. Soon, all were fighting for viewership in a

shrinking market when the Internet entered the game bringing about a plethora of

bloggers and alternative news sites. Although this explosion of spontaneous reporting

challenged journalism's "public service" ethos, it did not obliterate corporate journalism.

Media conglomerates are now able to use their massive media outlets to promote

their own interests, agenda, politicians and policies (Kellner, 2012b). This is significant

because it is through journalistic practices that dominant ideologies are upheld and citizens

come to accept hegemony as either natural or the product of common sense (Gitlin,

2003/1980). One example of this is outlined in Douglas Kellner's article, "The Murdoch

Media Empire and the Spectacle of Scandal"(2012b). In essence, the Murdoch media

empire, now under scrutiny by several governments, chose to align programming with a

conservative political party. They also colluded with police departments and other public

service entities at the expense of ordinary citizens and even celebrated members of society

such as members of Britain's royal family. The exposure of Murdoch's business practices is

consistent with the public's general disillusion of what used to be a sacred cow in

democratic societies: A free, ethical press operating for the benefit of the public as opposed

to corporate profits.

The general lack of confidence in traditional news can be further attributed to the

phenomenal propaganda manipulation by the news witnessed during the Iraq war. It

started with the widespread failure of the press to challenge the Bush administration's rush

to war (Papandrea, 2007), then was further amplified with the "imbedded journalist"

position offered to the press by the government. This could be seen as a repercussion of

how the Vietnam war was covered with its gruesome pictures and vivid reports of a failed

military operation that in part was considered influential in ending that conflict. It is known

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that further wars such as Grenada and the first Iraq war were off limits to the press, but the "off limits" practice was not a solution as the news coverage was still non-supportive of the operations. The solution of placing news teams in the midst of the troops can be considered a factor for the bias coverage the war received and the spectacle of combat given the fact that reporters were sharing a foxhole with fellow "soldiers," as it is difficult to criticize those on whom your life depends. Viewers could now follow, in the comfort of their homes, the war adventures of their favorite journalist as part of the larger military spectacle, unfolding daily like an episodic TV series.

A strong and pervasive perception that the news is biased and packaged has prompted networks to reshape their format into two parts. On one side, news sources began to rely on pundits, and on the other, they became aggregators of alternative news models. As Raymond Williams (1977) notes, hegemony "does not just passively exist as a form of dominance. It has continually to be renewed, recreated, defended and modified" (p. 112). In the midst of media privatization, news stations across broadcast networks have employed the use of pundits or experts hired to give their opinions on the news for the purpose Williams outlines (Hopmann & Stromback, 2010). In a race for viewership, many televised news programs conflate professional reporting with the opinion of these pundits to the point that the two are indistinguishable. They also engage in cost saving measures that seriously limit news perspectives through aggregation practices such as pulling news and comments from social networks, blogs and other news sources. Additionally, in an attempt to stay solvent, more local news stations are sharing news sources such as video feeds, helicopters, and even the scripts written for their nightly news anchors across local stations resulting in the numbers of editorial voices being drastically reduced in a given

market (Stelter, 2012). The recent practice of using sponsored content further illustrates this point (Vega, 2013). In a quest to find new ways of marketing to potential online customers and for publishers to find new revenue sources, advertisers are now sponsoring or creating content that looks like traditional editorial content making it even more difficult for readers to differentiate journalism from advertising.

Given these practices, it is of little surprise that cable networks began to support comedic synthesis of news organizations' biases and blunders. Together these entities have systematically critiqued mainstream news sources and simultaneously provided an alternative news outlet. Thus, journalism is not limited anymore to what I argue has been pseudo-professional restrictions on objectivity. One of the most influential news sources today is Comedy Central's *The Daily Show with Jon Stewart* with the show rising to be the preferred method of news consumption among 18-34 year olds (Feldman, 2007). Traditional journalists hold *The Daily Show* both in reverence and contempt as they struggle with the limitations of being a "real" journalist with professional ethics to uphold as opposed to a faux journalist or comedians who are held to a much different standard. Most interesting is the idea that alternative news sources have challenged the very ethic that is supposed to differentiate journalists from the rest, objectivity.

Since the early 1900s, the field of journalism has anchored its trustworthiness and believability on the notion of objectivity, and it is through this value that journalists contend that news, as opposed to other media genres, provides factual and thus trustworthy account of events (Feldman, 2007). Alternative news sources have proven that objectivity is a myth, something that never was and simply cannot be achieved. Even at the dawn of the 1960s televised news commentators, the "most trusted man in America" at the

time, Walther Cronkite, was bias in his reporting. As noted by his biographer, Douglas

Brinkley, some of Cronkite's dispatches during the liberation of Europe were deliberately

misleading about Allied progress (Menand, 2012). This is not limited to Cronkite, as

another respected journalist, Dan Rather, had his professional credibility challenged in his

2004 firing from CBS over his inaccurate reporting of George W. Bush's military record

(Cook, 2005). Such events attest to the mythical aspect of objectivity where news is

mystified to serve as filtered information, cleaned up, scrubbed and fed to a sheltered

consumer society. As George H.W. Bush famously stated, the best way for the U.S.

population to support the war effort was to "go shopping" demonstrating that it is difficult

to escape hegemony's seduction.

Alternative news outlets do not claim to be objective rather much of their popularity

rests on the fact that they are unabashedly bias. As noted by Mark Baard in a 2004 *Wired*

magazine article on blogging, the blogsphere is a form of journalism that is free of editors

and centralized authority and clear about their biases, yet if viewers subscribe to 2-3 blogs,

they are able to see a story from multiple perspectives. This is likely provided that the

multiple blogs an individual is reading present different views; otherwise, it becomes a bias

echo chamber. What started with the blogsphere, which often includes ordinary citizens

reporting and ranting about a variety of topics, has morphed into the Twitter generation,

enabling citizens to participate in political and social change at a level of immediacy never

conceived of before.

The Arab Spring of 2011, a wave of demonstrations and protests that even toppled

governments in several Arab countries, was attributed to citizen journalism. Many of these

Arab states limited access to journalists and the international community (Aday, Farrell,

Lynch, Sides, & Freelon, 2012), and some areas were simply too dangerous for traditional

journalists to enter. This led to an explosion of blogs, videos, and Twitter feeds devoted to

debunking government propaganda, creating alternative propaganda of their own and

generally bearing witness to events as they unfolded (Aday et al., 2012). The

unprecedented move by Twitter to delay a critical network upgrade because of the role it

was playing as a communication tool during Iran's 2009 post-election protests

foreshadowed what was to come during the Arab Spring. Subsequently, when the uprising

hit Egypt, the government swiftly moved to shut down its Internet connections and

cellphone services, with the cooperation of international firms, to try to quell the protesters

(Richtel, 2011). This act ultimately forced Egyptian citizens to take to the streets in mass

numbers further energizing the crowd against the government, thereby, legitimizing web

2.0 tools as modes of resistance and mobilization.

Wikileaks is another form of activist journalism causing celebration and ire. As a

non-profit, global, free press journalism organization, it uses virtual spaces to circumvent

traditional hegemonic information control by publishing documents, images and videos

that governments and other institutions regard as confidential. This organization has a

pattern of releasing information related to corruption, malfeasance and ineptitude by

corporations, governments and individuals (Benkler, 2011). The activist characteristic of

Wikileaks comes from the fact that the news they distribute via traditional media outlets

are neither altered nor edited. Rather, it is raw news with the exception of occasional

blacked out names on some of the documents they release to protect sources or if the news

could endanger the people mentioned. The United States 47th Vice President Joe Biden

referred to Wikileaks founder Julian Assange as a "high tech terrorist" whereas others see

him and his organization as going against the grain of political and corporate control to provide the public with a form of what Assange has called "scientific journalism," a journalism that can be verified and checked to avoid the power imbalance we have today where gatekeepers control and monitor what is released and limit the public's ability to check corporate news "facts" leading to abuse (Khatchadourian, 2010). Assange's notoriety demonstrates that the hegemonic forces are paying a great deal of attention to him in order to neutralize him, and through Assange, neutralize Wikileaks.

Society's move away from traditional journalism represents a swing back to creating an informed and opinionated citizenry capable of meaningful debate. Most interesting about alternative journalism is its facilitation of social justice. Alternative outlets allow cyber citizens to access perspectives that are less male, less bourgeois, and less dominated by the market and ultimately fosters more active and inclusive forms of citizenship (Harcup, 2011). It is through digital online culture that we are witnessing a major push back against gate keeping, unitary perspectives, and political and corporate control. Alternative journalism has proven to be a strong step toward a more socially balanced method of informing the citizenry. However, it should be noted that this is not a panacea, as the media, including alternative journalism, is still in a battle over hegemony. Forces have co-opted alternative sources to further their dominance evidenced by the selling of the *Huffington Post* to the AOL corporation and the fact that despite its "alternative rhetoric," the *Daily Show with Jon Stewart* is a Comedy Central program, owned by MTV, which in turn is owned by the Viacom conglomerate; a wolf in "alternative" sheep's clothing.

Fighting Seduction

There are several important points to be drawn from this analysis. The struggle against oppression and for a more socially just society extends into digital online culture. For the multitude of freedoms cyberspace affords us, there are issues of social control, domination, and manipulation utterly embedded within each online activity we engage in no matter how seemingly benign.

I have established that for tech companies to flourish they need a citizenry actively engaged in digital friction, for without friction they cease to exist. Their agenda is capitalist which is often presented as inextricably bound with democracy and the realities of cyberspace life, yet in reality, is often at odds with the democratic and cyber ideals of openness, fairness and equality. Companies now want to "own every waking moment" (Streitfeld, 2012) through building a device, selling it to consumers, selling them the content to play on it, and then using that content for their own monetary benefit, direct (i.e. Monthly dues) or indirect (i.e. AdSense). The beauty behind this dynamic is that users fill databases with personal information to the point that they bind themselves to the company that manages their account. I am arguing the addictive quality of these tools isn't necessarily due to users' natural craving for more interaction, but rather it is fostered through a crescendo of requests for user action bordering harassment (i.e., friction) that can reach compulsion. The tech company's actions in this instance are analogous to an intravenous drip that slowly delivers a constant flow of data (Streitfeld, 2012); however, in this scenario, the intravenous drip flows both ways. Just as digital online identities are tied to the devices we commit to such as the Mac/PC divide (Turkle, 1997), our identities are

slated to expand to the particular digital ecosystem to which one commits and pour one's life into.

It is critical that Internet citizens are not seduced into thinking the Internet is completely open, free, and egalitarian. They must be trained to recognize there are several covert battles going on in relation to changes to our cultural norms and practices mixed with long held basic rights. As our world is redefined through discourse around changing ideas of privacy and transparency, we should keep in mind the need for consciousness about what constitutes a true democracy, the education of its citizenry and how cyberspace including large tech capitalist companies battling democratic ideals is an arena where social justice battles continue to take place. For democracy to flourish, we need a well informed and engaged citizenry, otherwise, we will continue on the path where the control for our digital selves is contested terrain; a battle over social domination. The citizenry can only remain free from what Debord described to be one of the main forms of societal distraction and stupefaction, "the spectacle is the moment when the commodity has attained the total occupation of social life. The relation to the commodity is not only visible, but one no longer sees anything but it: the world one sees is its world" (2004/1967, sec. 42), through rigorous training in media literacy, the mechanics of hegemony, consciousness and choice. This requires an expansion of critical thinking to move beyond the rules of logic and how to assess evidence to also include a critical theory of technology for schooling, a topic I address in the next chapter.

CHAPTER FIVE

TOWARD A CRITICAL THEORY OF TECHNOLOGY FOR SCHOOLING

We are ill prepared for the new psychological world we are creating
(Sherry Turkle) [13]

As I have worked to unravel the contrast between real life and virtual life in the midst of the information revolution, I have demonstrated that the line between them is becoming less distinguishable. Also, I have identified how the current burgeoning of inventions, both in hardware and in software, are pushing technology's integration with the human body to the point where they will be intertwined. Whether or not one thinks it is valid to call this a merger, a fusion or the like, the reality is that we are witnessing an expansion of human abilities through technology. Thus, I see a need to prepare the citizenry, and more specifically the younger generations, for this upcoming state of being. In the midst of these unstable realities, students need to be psychologically grounded to help them effectively function in this changing world. Their guidance should come from a curricular and pedagogical path that provides the tools to appreciate, respond to, question and anticipate the present as well as next iteration of technological advancements. A critical theory of technology for schooling would provide such a framework.

As I embark on this task, it is critical to remind the reader that I write this with a globalized, digitized and more or less connected society in mind. According to Kellner (2005), "in a globalized world it is important to project normative visions for education and

[13] Quote is taken from an interview with Sherry Turkle for the *Harvard Business Review (Coutu, 2003, p. 3)*.

social transformation that could be used to criticize and reconstruct education in a variety

of contexts" (p. 59). I am critically aware of that all over the world, there are some societies

who struggle for basic school necessities let alone technological access. Given their

historical, political and economic contexts, the issues I discuss here may be realized,

adopted and thought about according to one's own unique circumstances. Nevertheless,

the time is overdue to articulate how schooling systems could live out their present and

future realities. As I work toward a critical theory of technology for schooling, I draw on

the historical and synoptic work of Douglas Kellner (2005), who articulates a critical theory

of education as a normative and even utopian dimension that attempts to articulate how

education and life construct alternatives to what currently is. Also for Kellner,

A critical theory of education must be rooted in a critical theory of society that conceptualizes the specific features of actually existing capitalist societies, and their relations of domination and subordination, contradictions and openings for progressive social change, and transformative practices that will create what the theory projects as a better life and society. A critical theory signifies a way of seeing and conceptualizing, a constructing of categories, making connections, mapping and engaging in the practice of theory-construction, and relating theory to practice (2005, pp. 58–59)*.*

Such critical practices have been used throughout this dissertation to engage scholarly

discussions around the intersection of technology, schooling and identity.

Invariably technology will bring about new forms of schooling just as it has

reverberated through most sectors of society. As discussed in chapter one, Best and

Kellner's postmodern prognostic advocates that humans are coevolving with technology to

create novel configurations of society. Schooling is bound with society and traditionally

often slow to change, however, it will soon find it does not have a choice in the matter. Our

machines and tools in concert with their users will demand and require it.

Schooling can learn from postmodernism to allow new ways of thinking about its core function. Postmodernism brought about ideas related to bricolage and opened up new ways of thinking about society, which can now be used to pave the way for schooling's own transition to occur. As indicated in chapter two, Turkle observed that in light of technology users are provoked to consider postmodern ideas about the instability of meaning and the lack of universal and knowable truths. It is time for schooling to acknowledge that its own legitimacy will soon be challenged.

In the U.S., policy makers are looking to schooling as means of taking a stronger step into the future, as seen in the launching of *Digital Promise*, a national center for advancing learning technologies discussed in chapter two. Largely missing from these national discussions is the voice of intellectuals who theorize, outside of corporate and government interests, and represent an independent position with a questioning and balanced voice.

In order to conceptualize a critical theory of technology for schooling, I will begin by defining a couple of terms including my use of schooling over education and users. From there, I summarize my observations about the relationship among users' digital objects, identities, and knowledge acquisition. I then map schooling's past and current responses to virtualization including a critique of the relationship between schooling, capitalist production and some present day tech reform models. This is followed by a sketch of an initial critical theory of technology for schooling, and closes with future directions, which among other suggestions calls for a bill of schooling rights. This chapter does not pretend to present a full theoretical elaboration of a critical theory of technology for schooling but rather introduces the idea to foster further scholarly developments. In using the term critical theory, I employ the practices of the Frankfurt School and British Cultural Studies to

analyze how artifacts of digital online culture impact society. Up to this point, I have used

critical theory to interrogate the categories of hegemonic and counter hegemonic forces by

demonstrating some of the ways identities have changed, how ideologies are transposed

into digital online culture, and outlined several new iterations of social inequalities. In

response to these realities, I now apply critical theory to technology in the service of

schooling for social justice ends. It is with this in mind, that I will draw on the writings of

Dewey, Rousseau, Freire, Marcuse and Illich to discuss how technology can be used to

overcome the changing societal conditions currently impacting students' abilities to live a

good life by moving from object to subject positions.

My analysis uses the term schooling over education to precisely refer to the

methods by which we achieve the ideals of education in a normative sense. In

conceptualizing schooling, I especially draw on Kellner's synthesis of classical ideals of

education where the process of schooling "develops pedagogic practices that allow for the

greatest release of human potential and cultivation of citizens who will produce a just

society, and counter education contrived to fit students into the existing social system and

reduce schooling to an instrument of social reproduction" (2005, p. 54). I would like to also

highlight that my suggestions for schooling are to help mitigate the effects of neoliberal

agendas' for social reproduction in the digital age.

Since both in and out of school, teachers, students, and administrators are all

technology practitioners, I will not be discussing teachers and students experiences with

technology as mutually exclusive. Although I recognize generational differences exist

related to comfort and skill levels, it should be acknowledged that soon enough today's

users, who possess disparate orientations to technology will eventually be replaced by

users who have been born into a technology-saturated world. The generational gap

between these newcomers and their elders will be even more pronounced, yet at first

glance, it seem that it will begin to diminish along with the natural workforce turn over.

However, these discrepancies between generations will still persevere, as technology will

invariably take new turns that will continue to result in various forms of generational

handicaps. Therefore, in this chapter, I will extend the discussion of altered identities to

include all "schooling users" including students, teachers, and administrators.

Another population to consider is those who merge with technology, in essence

cyborgs. This idea broadens users to include those who could hold various positions within

the human machine merger. Thus, I use the term "altered being" to refer to those who have

begun their own merger with technology in the form of wearable and imbedded devices.

Such people could eventually extend to a portion of the schooling population who are fully

fused with cyber electronics to the point where they will be identified as machines.

Intelligent Learning Companions: Swiss Army Knife

Digital objects surrounding modern life have drastically changed identities. With the

expansion of the web into the middle class American home, which quickly shifted from

bulky desktop computers to mobile technology, the personal computer device's

relationship with humanity became increasingly influential. Through design, messages

(verbal and nonverbal), and graphic user interfaces, programmers and designers are able

to create a symbiosis between users, their machines and software. This is true even when a

machine or software is obsolete, as the user will often defend it against all logic. Thus, these

objects hold the power to effect users' attitudes and behaviors in ways they suggest (Diana,

2013; Fogg, 2003). Personal computers are also treated in many ways like fellow humans

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(Reeves & Nass, 1996). A relationship that began to deepen with the explosion of the World Wide Web, and the miniaturization of the personal computer, which quickly evolved into the smartphone and tablet computer. This reality combined with the expansion of software complexity has empowered digital practices where populations now possess intelligent objects that accompany them in living their daily lives. Even the name "smartphone" for a mobile device could have been called an "enhanced cell phone," yet the current name humanizes the device to the effect of projecting its affordances to the human psyche (see Norman, 1988; J. J. Gibson, 1977). Technology now participates in how humans acquire knowledge, which can be understood from two overlapping perspectives: the user and the machine.

Although there are many ways to be a user, in every user there is a learner. Technology is reshaping learning identities regardless of whether ones' practices are for formal or informal ends (i.e., work or play). Already, several changes in learning identity amongst frequent users have been documented. The web has enabled them to be their own personal reference librarians by requiring them to navigate through confusing, often complex information spaces (J. S. Brown, 2002). This has led to new styles of collaborative and playful learning as seen in discovery based skill building through video gaming (S. Johnson, 2006; J. S. Brown, 2002; Tapscott, 1999). It is no surprise that high tech users have demonstrated an aversion to learning by reading a manual or listening to linear instructions. Instead, they learn by intuition, by working with others from around the country and globe, and by virtualized exploration in the form of tinkering. This is evident in everything from entertainment such as video gamers, who arguably develop an intuition for how the game works rather than learning the rules, to those looking to You Tube to help

them solve everyday problems (Foege, 2013). In these virtualized contexts proficiency is achieved through thinking tactically, developing hypotheses and strategies, making subtle judgments based on little information, recognizing abstract patterns, and the constant awareness of multiple variables as they change throughout the quest (Bissell, 2008; Gee, 2005). It also involves the ability to learn through informal, collaborative, and participatory means.

Subsequently, a shift in reasoning practices is occurring from deductive and abstract to the more inductive and intuitive use of bricolage, a concept discussed in chapter two. Within digital online culture this often results in understandings that are largely socially constructed and shared. In doing so, learners take on new roles as members of a particular community of practice in which they seek to participate where learning becomes a part of both action and knowledge creation (J. S. Brown, 2002; Tapscott, 1999; Wenger, 1999).

Machines are also playing an integral role in the classroom. A growing majority of learners now arrive at school with virtualization in their pockets in the form of personal Swiss Army Knives of the digital age: A full-time digital teaching and learning companion in the shape of their web enabled, multipurpose, portable devices. Digital companions are turning students into more savvy learners. In simultaneity with a given classroom lesson, these devices provide students with near instantaneous answers to any number of inquiries at the time when their curiosity is piqued. Most interesting is the fact that many of these inquiries are not mandated by teachers but can be inspired by the machine itself through automated text messages, proposed inquiries based on previous searches and other past behavioral patterns. Machines are becoming active agents in knowledge construction by offering an ongoing stream of information in the form of symbols and

codes all of which are to be stored, processed, and used in the knowledge acquisition process. The symbol and code interpretation process is inextricably bound with identity, as the self is built out of experiences and interactions, which in turn impact interpretations. The interpretative process progresses us toward our own truths, which may vary depending on which virtual standpoint is adopted (see chapter three).

Digital companions are portals to virtualization where there is an ongoing, global, general and specific flow of information most often available to users any time anywhere. Learning has been freed from the time, place, and access constraints of traditional school allowing students to have access to people and documents that would have proven too difficult in the past. A renowned professor may be difficult to reach in person or by telephone yet with surprising speed will respond to an email. Documents confined to specialized libraries in specific geographic locations have now been set free, accessible within minutes. With this radical change in the learner's access to information, symbols and codes, it is no surprise that the knowledge construction process will also adapt to this multi-layered, global, instantaneous, and simultaneous exchange environment.

While knowledge construction is an innate part of humanity, society has deemed schooling as the dedicated environment for its acquisition and dissemination. Changes in users' learning identities and knowledge acquisition process have resulted in traditional forms of pedagogy and curriculum falling behind leaving an ever growing disconnect between schooling and students (Welch, 1998). Traditional forms of pedagogy face challenges from the global information society, including virtual pedagogies, which allows students to access information (whether in formal courses or not), share knowledge, pose questions, and seek advice from individuals (not necessarily academics) worldwide. This is

echoed by Ronald Goodenow (1996) who argued that the power of cyberspace cuts to the legitimacy and survival of what has traditionally worked for educators.

Adding to this problem is the fact that in the not too distant future, the knowledge acquisition process will be challenged once again as technology becomes imbedded within the human body. Artificial intelligence and neuroscience specialists are making progress in their sustained quest to mimic human biology. A common theme running through the next generation of digital tools and software is the mimicking of the way the brain absorbs information and learns from it as seen today in Apple's Siri (Kittlaus et al., 2011), an emergent technology discussed in chapter three that gets more accurate as people feed it data and Google's Street View, which employs machine vision (Markoff, 2012). Learning companions are only one of many technological innovations inspired by human biology. We are now moving toward appropriation of the human body in the form of physical electronics designed to change physiological performance.

Transient electronics, electronics that physically disappear over time, allow all types of human-technology mergers, bringing people a step closer to the idea of a cyborg state. Currently such technology is under study for its medical applications such as implantable diagnostic and therapeutic devices that resorb in the body to avoid adverse long-term effects (Hwang et al., 2012; E. Brown, 2012). As of the writing of this chapter, researchers are striving for human trials of transient devices (E. Brown, 2012) demonstrating that the population is quickly moving from external to internal technologies that are able to pass through people as needed. It is not too hard to imagine a future with transient learning technologies that will offer a more seamless fusion between users and their intelligent companion. At which point, the line between users and their devices will blur to the point

that we fully enter into the fifth discontinuity,[14] as Best and Kellner theorized (2001a).

Additionally, artificial intelligence advances continue to improve in the form of deep-

learning programs, which resemble the neural connections in the brain (Markoff, 2012). It

is not too hard to imagine that users will eventually be able to tap into their learning

companions through thought processing (Bilton, 2013). This is just the beginning of what I

understand to be the new psychological world Turkle refers to. Part of this new psychology

is the reality that machines and users will interact with one another differently. Machines

are programmed to exhibit uniformity in how they relate to users, despite the user, while

users retain subjectivity in their responses to machines. This status quo changes when both

sides merge, a point addressed later in this chapter.

Schooling's Response to the Virtualized World

In the midst of these technological advances, it should be recognized that schooling

has made great efforts to address the digital age. Beginning in the 1990s, school districts

across American responded to the Clinton administration's charge to ramp up

technological competency among the nation's youth (Cuban, 2001). This resulted in schools

pouring a great deal of their resources into the hardware, software, support staff and

training to get their campuses and teachers ready to meet the demands of the high tech

generation. By fall 2005, nearly 100% of public schools in the United States had Internet

access compared to 35% in 1994 and 94% of public school instructional rooms had

Internet access, compared with 3% in 1994 (Wells & Lewis, 2006). These efforts have been

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[14] As discussed in chapter one, with the fifth discontinuity, humans no longer maintain a
superior position in the world. Technology is becoming more human and the human
species is becoming more technological.

hailed as important for moving schools into a position to better respond to youth growing up digital by helping students develop competencies that prepare them for a knowledge-based global economy (Greenhow & Robelia, 2009).

Through the first decade of the new millennium, the meaningful integration of technology into America's classrooms has been recognized as important to schooling's progress (Gray, Thomas, & Lewis, 2010; Carlson, 2005). In addition to education policy makers' pushing for and supporting the placement of technological infrastructure, students also hold expectations for their education ecologies to include technology (G. E. Kennedy, Judd, Churchward, Gray, & Krause, 2008; Carlson, 2005; Jonas-Dwyer & Pospisil, 2004; Arafeh, Levin, Rainie, & Lenhart, 2002). Subsequently, schools across the nation have responded by supporting technology related professional development. In 2005, 83% of public schools with Internet access offered professional development on how to integrate the use of the Internet into the curriculum and 49% of schools had between 51% and 76% of their teachers attend (Wells & Lewis, 2006). A 2009 study revealed 78% of teachers found that independent learning prepared them (to a moderate or major extent) to make effective use of educational technology (Gray et al., 2010). These moves have increased educators' material computer competence but surprisingly have resulted in an increase in computer use in unexpected ways.

Teachers and college faculty confirm they use computers regularly to research and plan their classes (Russell, Bebell, O'Dwyer, & O'Connor, 2003; Cuban, 2001), yet when it comes to actually implementing, and I would argue addressing, technology in their classrooms, they either failed to do so all together or did so unevenly and infrequently (Cuban, Kirkpatrick, & Peck, 2001). Often times, when technology was used, it was in

relation to low-level tasks such as using the newest software, developing isolated skills such as word processing or creating flashy PowerPoint presentations. Educators stopped short of harnessing the essence of technology to help students grow intellectually (Zhang, 2009; Ertmer, 2005; Cuban, 2001).

Politically driven initiatives to wire all schools and train educators are a good first step, yet one must consider the capitalist intent behind them, which is to prepare workers for production in a radically changed world. These neoliberal ideals fail to capitalize on technology for the betterment of humanity and society. One solution can be found in a critical theory of technology for schooling, which is grounded in an understanding of the relationship between the State and education.

Schooling and Capitalist Production

The seminal writing in Samuel Bowles and Herbert Gintis' *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life* (1976) sheds some light on the relationship between schooling and capitalism. The main tenant of their theory is that capitalist production is also a form of social production achieved through the values schooling instills such as learning for external versus internal rewards in the form of grades as opposed to personal fulfillment. They argue that education is even hostile to students' needs for personal development. For Bowles and Gintis, successful school reform cannot happen without calling into question the basic structure of property and power in economic life. Additionally, an educational system can be egalitarian and liberating only when it prepares youth for fully democratic participation in social life and an equal claim to the fruits of economic activity.

In order to understand education policy as Bowles and Gintis see it, one needs to look at the objectives of dominant classes, which are "the production of labor power and the reproduction of those institutions and social relationships, which facilitate the translation of labor power into profits" (Bowles & Gintis, 1976, p. 129). The virtual world in which parallel and simultaneous lives are lived is the latest arena where institutions and social relationships are being reproduced. Technology brings with it hope for new models of freedom and equality, yet there continues to be problems with their realization.

The work of Carlos Alberto Torres (1989) sheds additional light on educational policy formation in capitalist states. His theoretical work on the political sociology of education argues that in order to understand education policy and practices, we must understand a theory of the state including issues such as domination, power, rules and political representation. For Torres, when one looks at the determinants of policy-making, "one must also concretely identify the institutional apparatus of the State and who directly controls it" (p. 86). In the case of the United States, there continues to be a rather longstanding tradition of neoliberal educational policies largely focused on quantifying the unquantifiable and using the results to shape education policy, practices and even the learning process itself (VanHeertum & Torres, 2011; Torres, 2005). This has been evidenced by the various state and federal programs enforced during the last two presidential administrations. The Bush administration's *No Child Left Beh*ind and the Obama administration's *Race To The Top* initiative, value added teacher evaluations, and the continuation of standardized testing are not only neoliberal in their philosophy but also provide a great deal of big education data (Hancock, 2012), a point discussed later in this chapter.

Each of these policies uses the façade that the programs are designed for the betterment of society, yet much of it is based on the false dichotomy of positivism. Evidence based policy making is creeping its way into the education culture through intense competition. In response, there is a push for evidence-based accountability manifested through the student learning outcome process, student evaluations, and other measures of "student success." In many cases, these assessments have been designed to crunch numbers that are then fed back to students, instructors, departments, districts, and states as measures of their competence.   In turn, such assessments become a reward and punishment mechanism that impacts the institution in the form of ranking, funding, and autonomy. The crunching and dissemination of all this data is pushed further through unit planning and accreditation requirements. As in the manufacturing process of goods and services, education uses knowledge discovered in data to make predictions and discrimination about teacher competence, student learning and fiscal efficiency. Today, this analysis process is focused on the political economy of big data, tomorrow it may be cloud based real time data feeds (Hardy, 2012), which could quite rapidly undermine education's legitimacy.

Children and educators are left with rushed and standardized curriculum, rote memorization, and uniform teaching styles leaving little room for the humanity of teaching and learning as well as for the development of education for virtualized democracy. This includes schooling that upholds its ethical ideals by allows for the development of the whole person as a socially responsible citizen as John Dewey observed, "A curriculum which acknowledges the social responsibilities of education must present situations where problems are relevant to the problems of living together, and where observation and

information are calculated to develop social insight and interest" (2009, p. 126). This

necessitates schooling that values the Deweyan ideal that education should be

"transformative not conformative" (p. 41). Dewey's progressive education model pushes

for avoiding treating learners like automatons by allowing them to develop their

individuality, "but the voice of nature now speaks for the diversity of individual talent and

for the need of free development of individuality in all its variety" (p. 61). Neoliberalism in

education leaves little room for students to realize Dewey's vision for developing

individually, openly and freely. Rather, the thinking, values, and practices of users are being

manufactured, similar to what Bowles and Ginitis theorized, and consistent with Torres, to

benefit those in power in terms of maintaining classical forms of inequity and oppression.

The State's role in manufacturing students, teachers, and administrators identities is

class warfare of a new kind with a divide between those trained to be technologically

conscious and those subjected to virtualized manipulation. The class warfare I am referring

to extends beyond the ability to crunch raw data. It includes subject-object positions as

they relate to manipulators vs. the manipulated through the cultural codes of digital online

culture. As Manuel Castells notes,

The new power lies in the codes of information and in the images of representation around which societies organize their institutions, and people build their lives, and decide their behavior. The sites of this power are people's minds. This is why power in the information age is at the same time identifiable and diffused. We know what it is, yet we cannot seize it because power is a function of an endless battle around the cultural codes of society. Whoever, or whatever, wins the battle of people's minds will rule (2010, p. 425).

The cultural codes of digital online culture are a complex set of symbols, practices

and norms that influence values and behaviors. This can be found in practices of the open

source movement, the symbols behind activist groups operating online such as Anonymous

and Wikileaks, and the new norms around transparency. Those whose minds are most

vulnerable to the influence of these new artifacts are users who are not active agents in their creation and who are not trained to understand them. Those especially vulnerable are traditionally underserved groups such as the poor, ethnic minorities, and the under-educated, as they have historically been the groups to receive the lowest quality and quantity of education as well as have the least amount of technological cultural capital.[15]

Schooling and Subject-Object Positions

After over forty years of neoliberal control, contemporary schooling is implicated in keeping students in the object position as a result of the larger cultural shift to virtualization, the systematic loss of public funds, and their new reliance on corporations for capital. This is illustrated in several educational practices designed to save time and money often requiring teachers to use proprietary software and web platforms to upload, store and disseminate curriculum, syllabi and course assignments. In doing so, students are also prompted to engage with these systems as part of functioning in the school environment. In higher education, this includes requiring students to use school accounts to register for classes, file paperwork, to more fully utilize the library services, and to access their individual class content such as grade books and study guides. From these requirements, we see two phenomena first that students are inculcated to become users from the start of their educational experience and second multiplying collection mechanisms able to harvest their personal education data. I see nothing inherently wrong with using technology to help institutions and students. However, the problem lies in the fact that students are left without training in how to become conscious virtualized actors

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[15] This is evidenced through the plethora of research on the digital divide

and thinkers. Furthermore, it enables the collection of vital private teaching and learning data. Whether it is an elementary school, high school, community college or tier one research university, schools are pushing teachers and students to become "users" while simultaneously using KDD as a form of evaluation, resource allocation and so on.

Current technology based educational reform models reflect the societal contradictions about how to best address these omnipresent technologies as they relate to educating society. Recent attempts to re-imagine schooling in light of technology appear to be altruistic, yet when examined more carefully, they continue to be trapped in the neoliberal values of "knowledge production and training assisting in the maintenance and proliferation of a system premised on capitalist accumulation, profit maximization and market ethos spreading to all areas of political, economic, and social life" (Olmos, Torres, & Van Heertum, 2011). This point is illustrated through an analysis of two contemporary educational experiments, MOOCs and Khan Academy.

The Globalizing World of MOOCs

One of the fastest growing higher education movements today is the use of crowdsourcing technology in massive open online courses (MOOCs) where elite universities across the U.S. are experimenting with offering free non-credit courses. Daphne Koller, the co-founder of Coursera ("Coursera | About Us," n.d.)[16], extols MOOCs for their potential to provide a quality education to global citizens free of charge. A distinguishing feature of such courses is their massive enrollments of thousands of students across the globe. In a 2012 *Ted Talk*, Koller elaborates on how quality teaching

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[16] Coursera is a company that partners with top universities in the world to offer courses on line free of charge.

and learning is achieved through harnessing technology to grade quizzes and papers. In this environment, concerns over the subjectivity of grading papers are addressed by using a modified form of the peer review process as a strategy for providing reproducible grades. Most interesting is Koller point that, "because the data that we collect here is unique. You can collect every click, every homework submission, every forum post from tens of thousands of students. So you can turn the study of human learning from the hypothesis-driven mode to the data driven mode, a transformation that for example, has revolutionized biology" (2012). Two areas of immediate concern that I will explore further here are the use of students' enrolled in these courses as a free labor force and the ability to capture personal learning data.

Although these courses have proven to be widely popular, and are praised by technophiles like Thomas Friedman (2013), with the enrollment of the first such course taught by Stanford professor Sebastian Thurn attracted 160,000 students in 190 nations (Lewin, 2012), there is another side to them. Christopher L. Eisgruber, Princeton's provost, noted that Princeton's primary goal in offering MOOCs was to find ways to improve education at Princeton and thus will not offer a certificate program or credit for such courses because the college does not want to mislead the MOOC students into thinking these courses are equal to Princeton courses (Lewin, 2012). Despite Eisgruber's sentiments, more and more elite universities are moving forward with MOOCs. This is no surprise given the fact that universities have much to gain at very little cost to them.

Crowdsourcing technology in large-scale online courses presents a new opportunity for artificial intelligence researchers to apply KDD to the classroom. Supporters like Daphne Koller argue that information gleaned from "the crowd," can be used to help

students by personalizing education and scaling high-quality tutoring via online engagement (Weld et al., 2012). Additionally, crowdsourcing combined with data mining has been argued to provide students with several advantages. For example, the different perspectives of students who use a rubric and peer assessment can be combined to achieve a higher quality evaluation tool than that of a single instructor who typically has limited time and a single perspective (Weld et al., 2012). Algorithms can be employed to measure student competence on multiple dimensions including confusion detection, curriculum optimization, question routing, and other functions. The information gleaned can then help to match struggling students with peer tutors (Weld et al., 2012; Koller, 2012). These are certainly exciting possibilities; however, they should be balanced with consciousness about some potential problems.

Consistent with my arguments that under the paradigm of "free" users are paying in the form of giving their data (i.e., identities) which is then used to create a product for their consumption, free online courses come at a cost. In the past, crowdsourcing was accomplished by paying participants such as with Amazon's Mechanical Turk ("Amazon Mechanical Turk | Welcome," 2013), a crowdsourcing Internet marketplace for work that requires human intelligence. Free online courses provide a self-selected crowd of fairly skilled users[17] whose online participation in the form of discussions, comments, likes and test performances are used freely to solve problems associated with large-scale online enrollments. It seems that the elite universities are not as benevolent as we would like to believe, as this information can also be used to track individual students' skills and abilities

[17] Skilled crowd refers to people who have a basic skill set and have met prerequisites for the online course in which they are enrolled

to help improve the university's system. It also allows for an indelible record of students'

learning processes can be kept and potentially used in unforeseeable ways. Furthermore,

these students are also being used as free labor through the practice of peer review grading

which eliminates the need to pay experts for this service. Thus, free university classes are

implicated in free labor and personal privacy infringement the very practices that a college

education is supposed to equip students against.

I would like to recognize that in theory MOOCs have a noble goal which is to

"establish education as a fundamental human right, where anyone around the world with

the ability and motivation could get the skills that they need to make a better life for

themselves, their families and their communities" (Koller, 2012). Unfortunately, there is

already evidence of capitalist uses of user data. *The Chronicle of Higher Education* reports

that one revenue source for MOOCs is to sell its match making service to potential

employers who, with the students' permission, will receive information about high-

performing student both in terms of grades and online "helpfulness" per their involvement

in classroom chat areas (Young, 2012). Even though the system allows students to "opt-in"

one student rightfully expressed concerns over opting in, yet not completing a class, which

may reflect negatively to future employers. Another point to consider is that the MOOC

match making services will inevitably contribute to the globalized poaching of talent. This

has the potential to further place top tier universities at the service of tech corporations.

The larger question to consider is the role tech corporations are increasingly playing

as it relates to societal power, domination, and control. These establishments have already

reached their apex of revenue with most valued in the billions, yet they continue to push

for more control of users via their data. It is of little surprise that they are now turning

their attention to schooling. This reality is demonstrated through another tech reform

model Khan Academy and the practice of flipping the classroom.

Data Centric Teaching and Learning, Khan Academy

Harvard graduate Sal Khan's free web service, Khan Academy, has gone viral by

building an online following of over four million students worldwide ("Khan Academy |

Learn almost anything for free," 2013). Khan Academy uses a rather simple online format,

yet its students are made to feel like they are sitting next to a real time tutor working

through a lesson specifically tailored to them. The popularity of this model is no surprise as

I outlined in the chapter three, the web is becoming increasingly tailored to individuals so

that they come to expect specific and personalized service, which extends to one's learning

environments. It is also not surprising from a Rousseauian perspective, as it recognizes the

individuality of the learning process. Furthermore, Khan Academy embraces the open

sources ethos with its non-profit status and mission to provide a free world class education

to anyone from anywhere. It even embraces the spirit of Silicon Valley start-ups who are

allegedly driven not by profit but by the task at hand.

The national education system is in a scramble to maintain competitiveness in this

technologically saturated society evidenced most recently by the U.S. secretary of

Education, Arne Duncan, calling for an end to the printed textbook in the classroom

(Lederman, 2012). It comes as no great surprise that Kahn Academy software is now

entering the education establishment as a pilot program in several Silicon Valley schools.

Sal Kahn maintains that his collection of videos does not provide a complete education of

any one subject; however, these pilot classrooms are replacing textbooks and direct

instruction with Khan academy videos. The term "flipping the classroom" has been used to

describe this schooling experiment where the night before class students watch videos related to the next day's lesson. Students arrive to class ready to complete modules related to the previous night's video. The role of the teacher in this scenario is that of a helper and facilitator rather than a skilled knowledge disseminator.

As Khan admits, his ideal is for students to use the academy for working at their own pace and mastering subjects. The teacher is then able to focus direct instruction tailored to small struggling groups as well as organize the chaos of different students working on different lessons by monitoring progress from a classroom computer. Khan asserts that his approach takes passivity out of the classroom by requiring students to interact with it. Eric Schmidt, Google's CEO extols the Academy as a game changer by building a platform that could completely alter American classrooms. Along the lines of the open source philosophy, Khan argues he will never put a price on his service, which is why his company is non-profit. He has also been clear about not wanted to change schooling rather he wants to fundamentally change how people learn around the globe (C. Thompson, 2011).

As a former hedge fund manager, Khan comes from a very data-centric reality so it is only logical that his Academy's paradigm includes what Khan refers to as arming "the teachers with as much data as possible" so they can make their interactions with students as productive as possible (Khan, 2011). The obvious is that the same data used to track students' progress can also track teacher performance. Teacher effectiveness, for instance, could be mapped through the analysis of students' scores as they move from one learning module and one class to the next. Its practice and use of data collection and analysis is consistent with my discussion of KDD in the previous chapter, as Khan academy gathers

data from every Khan academy user around the world given the fact that millions of

students are using the site every month watching 100,000 to 200,000 videos a day (Khan,

2011). This is providing the Academy with a massive dataset to be mined in all types of

imaginable and unimaginable ways. Furthermore, Khan intends to mine data about how

people learn and where they get stuck to discover previously invisible learning patterns

with the goal of creating customized lessons that are perfectly keyed to each students'

learning style. It is no surprise that Khan is now considering starting his own private school

(C. Thompson, 2011).

MOOCs and Khan Academy are helping students gain access to privileged knowledge

that was once limited to Ivy leagues and the affluent, but they do not help them to progress

beyond "user" status where their data is freely collected, used and possibly sold. More

problematic is the fact that they are moving toward what Hans Magnus Enzensberger

called "…a fully industrialized educational system…In that process, education will become a

mass media, the most powerful of all, and a billion-dollar business." (1974, p. 6). These

education experiments seem to point to a new schooling model based on the industrialized

economy where education will become analogous to an assembly line. Instruction would

become a standardized commodity produced for a mass, global market. The fact that

MOOCs have the capacity to enroll hundreds of thousands of students in a single course

confirms it as a mass media product that education is becoming.

As Julian Assange writes in the introduction to his book *Cypherpunks: Freedom and*

the Future of the Internet, "within a few years, global civilization will be a postmodern

surveillance dystopia, from which escape for all but the most skilled individuals will be

impossible. In fact, we may already be there" (Assange, Appelbaum, Müller-Maguhn, &

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Zimmermann, 2012, p. 1). As I have just outlined, inequalities are taking new forms and it is

the State's responsibility to help level the playing field. This simply cannot happen without

serious efforts to break free from neoliberalism, whose policies and practices prevent

creative and critical thinking about social justice in light of the digital age. A critical theory

of technology for schooling would provide new and expanded skills for identifying and

responding to these new forms of struggle.

Toward a Critical Theory of Technology for Schooling

Schooling of the contemporary era has the potential to radically help society adjust

to technology's evolution, yet scholars and entrepreneurs alike have not harnessed it in

ways that address technology's multifaceted reach. Following the argument presented by

Best and Kellner, we are moving to an era of posthumanism where technology is becoming

more human and the human species is becoming more technological. Turkle takes a similar

position when she identifies cyberspace as an emancipatory agent where machines and

humans are becoming more alike than different and where people are provoked to

consider postmodern ideas about the instability of meaning and the lack of universal and

knowable truths. These prognostics serve as the rationale for introducing a critical theory

of technology for schooling to argue that schooling must become a more active mediator of

the RL-VL and human-machine mergers for social justice and democratic ends.

As the struggle between hegemonic forces and counter-hegemonic movements

become more imbedded into technology, the battle moves into these mergers. As part of an

introduction to Andrew Feenberg's broader philosophical critical theory of technology,

Veak noted that, "power is concretized through technologically mediated organizations that

prevent their citizens from meaningful political participation" (2006, p. xiv). In essence, we

are heading into a struggle by proxy, in the mist of cyberculture, the domination and

manipulation over our digital lives is gradually mutating into deeper layers of

representation. Feenberg illustrates this point when he notes,

I call those aspects of technological regimes which can best be interpreted as direct reflections of significant social values the 'technical code' of the technology. Technical codes define the object in strictly technical terms in accordance with the social meaning it has acquired. These codes are usually invisible because, like culture itself, they appear self evident. For example, if tools and workplaces are designed today for adult hands and heights, that is only because children were expelled from industry long ago with design consequences we now take for granted. Social regimes reflect this social decision unthinkingly, as is normal, and only scientific investigation can uncover the source of the standards in which it is embodied. (Feenberg, 1991, p. 88).

It is within this new arena that our core values have to be safeguarded and

entrusted into the hands of the official knowledge acquisition and dissemination body that

schooling represents. Schooling has not fully recognized that it is entangled in this

neoliberal, technological and identity dynamic. As discussed in chapter three, the

multiplying of our identities resulting from the expansion of technology in our lives is

altering who we are as humans. Given the fact that the schooling environment is the site

where, for most, identity formation is broadened and crystallized, it is worth analyzing the

intersection of schooling with identity and technology.

Figure 5.1 is designed to aid in mapping the intersection of schooling, technology,

and identity. The model's open three-dimensional rectangular shape (a.k.a. orthogonal

parallelepiped), encased within an open cylinder, represents schooling practitioners. These

practitioners are comprised of four types, each of which represents a different actor within
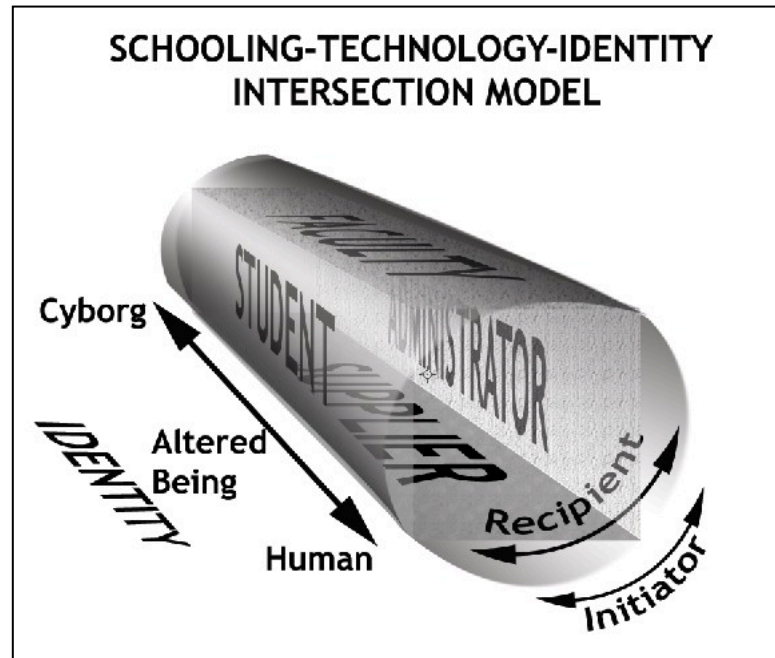
the schooling environment.

Figure 5.1: Intersection Model

The student facet includes learners inside or outside the academic environment. This comprises individuals[18] as well as groups of individuals learning in a classroom, on their own, or through a physical or virtual platform. The faculty facet encompasses participants involved in schooling directly or indirectly as creators and diffusers of knowledge in the learning process. The administrator facet includes facilitators of the formal or informal schooling mechanism. The term supplier identifies individuals, groups and corporations that provide goods or services for the schooling process and are external to its structural framework. This involves physical suppliers such as textbook publishers as well as virtual

[18] The term individual is used as an indication of a singular entity human or otherwise.

ones such as designers of YouTube training videos. They are providers of schooling tools but are not involved in the schooling process itself.

The cylinder enveloping the schooling practitioners represents technology that they interact with either as initiators (i.e., participation in blogs, social media as well as programmers), recipients (i.e., those who passively engage with technology including social media lurkers and casual users) or alternatively both. The length of the cylinder symbolizes the merging transformation of the practitioners' identities: A continuum ranging from a human state to a cyborg state with various stages of technological fusion in between. The mid point of this graduation pinpoints the altered-being state where the individual is equally part human and part machine. The fully machine cyborg state indicated here includes both the physical (i.e. hardware, biomechanical body parts, virtual reality glass) and the virtual (software, cyberspace).

This model is intended to help visualize the various parameters involved in the merger of technology with schooling; it highlights how technology impacts identity and identity affect schooling. In essence, it shows the projection of a schooling environment where humans, altered-beings and cyborgs will either be students, faculty, staff or suppliers and even all of them intermixed.

In an age where we are spending more of our time in virtual spaces and our machines have moved from devices that help make our lives easier to devices that often think for us, schooling has an opportunity to guide the fusion between humans, virtualization and technology by balancing the rationalistic, structured logic of our machine[19] side with the authentic, emotional, creative intuition of our human side. As machines are taking a stronger position in our lives, our left-brain logic and right-brain creativity have been transposed to our present condition. They are no longer just convenient devices or support

[19] The term machine is used to refer to all technological representations, either physical or virtual.

tools rather they are becoming indispensable, almost an appendage to our practical daily routines.

Beyond the individual, society is increasingly relying on virtualization and other technological advancements to serve many of its primary functions. New cultural policies and practices have accompanied our normative, machine logic in the form of relinquishing individual autonomy and responsibility to make room for safety and protection. This process dictates that in order to be safe we must accept the conditions that ensure surveillance and transparency over freedom and privacy. The polarity between these forms is further played out in virtualized practices of obediently accepting "terms and conditions" required by much of virtualized culture versus challenging these gatekeepers and holding tech corporations accountable.

Despite the fact that the line between humans and machines continues to be debated, I argue that as the human-machine merger proceeds down its logical path, humans will need to hold on to their intuitive, authentic selves. This portion of our identities is defined by the values of freedom, liberation and openness, which enable our creativity to translate into problem solving, invention and aesthetics. These organic, chaotic and emotional qualities enable great thoughts, great inventions, and bold humanitarian actions.

A critical theory of technology for schooling argues for education to take an active role in the human-machine reality. This can be accomplished by providing suggestions for how "schooling users" can both embrace the logical, obedient machine part of their identity while preserving and fostering their free, unfiltered, open one. I will begin by first outlining the theory's constitutive elements followed by highlighting some areas where schooling can improve its stance as it pertains to its technological integration.

Constitutive Elements.

Since schooling rests at the nexus of these mergers, one of its first steps toward identifying its position is to recognize what constitutes its population's technological identity. We are now in a situation where the learning process already includes hardware, software, and digital tools of various kinds. Technology supplements us by reinforcing logical capacities as a legitimate part of our identity. Our technological characteristics, however, are not limited to the tangible. They also include the Internet, as it is the medium in which this side of us thrives. The web is a pure digital construct and naturally fosters logical processing better than intuitive thinking as evidenced by the fact that virtual representations are built on codes, structures and rules. This portion of our identity fits well with traditional schooling, as seen in practices such as the patterns of standardized curriculum, time management both in time allotted to discrete subjects and the breakdown of those subjects throughout the school day, as well as the grading structure and the classical pedagogical format. More recently some of these practices have been co-opted by the neoliberal schooling agenda that turns them into spectacles. Both faculty and administrators are transformed into accountants frenzied about keeping track of their students', establishments', and own performance ratings. The result is a complete quantification of schooling that distracts from what its purpose should be. Schooling has not yet harnessed individual agency within virtualization as a powerful cultural tool to break free from these damaging practices. Once we psychologically move past neoliberal spectacles, schooling can begin to embrace new potentials. The work of Paulo Freire and Herbert Marcuse sheds some light on how to manage this transition.

Although Paulo Freire did not theorize about the Internet, his teachings seem to apply to today's struggles. He observed that people are uncompleted human beings and through consciousness can become more whole. At the time of Freire's writing, he implicated the Brazilian education system as an oppressor. Today, schooling is still the oppressor only the forms of oppression have changed. In light of such realities, he argues for the development of one's power to critically perceive the way they exist in the world by coming to see the world not as a static reality but as a reality in the process of transformation (2000/1970, p. 83). The transformative process is applicable to today's schooling population, as they too must free themselves of their current psychological condition by seeing "the back of the show." The ideology, hegemony and control exerted over them through technology policies and practices as well as schooling's present neoliberal indoctrination must be made visible and challenged.

Another education philosopher, Herbert Marcuse, shows a path toward this end. He argued for new modes of realization corresponding to the new capabilities of society (1991/1964, p. 4). This includes the restoration of individual thinking that is now absorbed by mass communication and indoctrination, schooling itself follows such path as it has become an established neoliberal marketing tool. Drawing on Marcuse's work, a society trained to engage in critical and original thought might first learn how to harness its machine and virtualized attributes giving them ultimate control over their own minds. Schooling must lay the groundwork for the intellectual and emotional aptitudes to guide us through this task.

In order to deconstruct cultural codes, schooling must impart new competencies and forms of literacy (Buckingham, 2008; Kellner & Share, 2007; J. S. Brown, 2002). Media

literacy, information literacy, and computational thinking skills top the list. Thus, a critical

theory of technology for schooling includes these skill sets. In an increasingly visual society

where users are barraged with a multitude of media images, an understanding of how such

images affect our values, attitudes, ideas, thinking and general ways of being is imperative.

Critical media literacy is not just about making distinctions between reliable and unreliable

sources: It is about understanding who produces media, how and why they do so, how

these media represent the world, and how they create meanings. It is also about

empowering citizens to effectively read media messages and produce media themselves so

that they can become active initiators and recipients (Kellner & Share, 2005, 2007; Kellner,

1998). I would like to broaden Kellner and Share's definition to include an understanding

of how our virtual environments and digital companions affect our values, attitudes, ideas,

thinking and general ways of being. The teaching of these expanded critical media literacy

skills would foster new aptitudes toward dealing with our layered and often ambiguous

mergers.

Another emerging skill is the ability to efficiently find quality information amongst a

sea of options. Information studies training in the areas of finding, organizing, evaluating,

storing and retrieving information is essential. The ability to use the language of machines

in the form of "tags" is critical to online life. A great majority of web activity is key word or

"tag" based necessitating training in how to use precise, specific, and narrow language that

helps us to better employ our machines toward democratic ends. The more specific the

language, the more users are able to find the data of experts whereas, the more vague the

language, the wider and often more general the results. People need to become digital

bricoleurs. For example, using a key word in a search engine brings a number of links to the

information related to this key word. At this point, the key word itself becomes a tool as it expands to build more and more information. Judgment is inherently critical to becoming an effective digital bricoleur. Bricolage in this case involves abilities to find something that can be turned into a tool when used to build something else (J. S. Brown, 2002). If access to information is key to democratic participation, tags and the language of search is one of the gatekeepers.

Finally, in response to Turkle's push for the general population to attain formal programming skills (see chapter two), I propose that training in computational thinking would be more appropriate. By computational thinking, I am referring to the "if, then" axiomatic thinking tradition that is characteristic of today's computer programmers. It would better equip students to problem solve when it comes to a machine's full affordances. Such thinking skills, however, can be taught outside of programming. Furthermore, the fostering of such cognitive skills is needed to more fully anticipate options within a machine-saturated world. It should be noted that computational thinking skills must also coexist with bricolage skills to maximize students' intellectual maturity as they face the digital age. Now that I have outlined initial thoughts on what constitutes a critical theory of technology for schooling, I turn to several contemporary areas of improvement where schooling can strengthen its position.

Some Concrete Applications.

This theoretical construction challenges schooling's normative practices by presenting alternative actions it can take to position itself at the forefront of the debates outlined in this dissertation. Furthermore, this theory fits nicely with four areas of improvement that can be achieved in the immediate future to bolster the institution's

readiness. Running through each area is the notion of ethical accountability in light of the realities outlined throughout this dissertation. Critical thinking literacy for digital online culture is one of the first improvements that begins school's shift in perspective by resetting its core values toward technological consciousness. Social justice battles still relevant today, also afflict our virtual society, constituting another area where schooling can improve awareness. The poaching of schooling data and its expansion demands drastic improvement by the schooling's regulatory body. The last area of improvement addressed here is for schooling to take a decisive role in the current virtualization and globalization of economic and social life by setting up a precedent of openness and transparency.

Discussions around training for virtualized democratic participation begins with challenging education's core mission, which per the U.S. Department of Education, is to "promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access" ("U.S. Department of Education | Mission," 2011). I have established that schooling is currently creating a labor force to reproduce capitalist institutions. I would like to recognize that there is some value to equipping students to participate economically within society, however this agenda is not balanced with the ethical mandate to educate for personal freedom, consciousness and democracy.

Contemporary schooling is caught between two strong opposite roles. On one end is the all-encompassing economic focus to create acquiescent workers and technology consumers, and on the other end, the development of active participants for humanity and freedom. This tension could be better negotiated if education where to reset its core values to foster the sparks of Freire and Marcuse's notions of consciousness. A newly established

core value system would allow every student to be trained for virtualized democratic participation by receiving instruction in how to consciously and critically participate. This includes systematic training in issues around domination and manipulation by using critical media literacy, information studies, and computational thinking skills to facilitate the interrogation of social justice realities as they relate today around friction, KDD, the repersonalization of identity, and surveillance. Schoolings' current level of technology integration and use does not move students beyond the status of users, and in the case of flipped classrooms and MOOCs, it uses them as free labor elevating a large corporation like Amazon above the universities, they at least compensate their "mechanical turks."

Virtualization has layered another environment in which the citizenry must be aware of continued social justice inequities in relation to gender, race, and class. Underrepresented groups' voices are especially silent in the areas of computer programming, interface designing as well as contributing to virtual discourses. The theoretical construct outlined here can be applied to the politics of virtual representation to better address the psychological barriers blocking their full participation in digital online culture. Wikipedia serves as one example of this problem's pervasiveness and persistence.

Wikipedia, one of the best examples of a massive, global collaborative effort toward knowledge construction and dissemination, represents the meritocratic ideals embedded in so much of digital online culture. Regardless of ones age, ethnicity, culture, socio-economic background, political ideology, or sexual orientation all contributions are welcome. Over 1.5 million people in practically every country have contributed to Wikipedia's 23 million entries; yet still, nine of ten Wikipedians are male (Gardner, 2013). This exemplifies the problem that despite widespread opportunities to be part of these

important cultural creations, certain groups still do not engage. It is expected such inequalities will enlarge along with our multiplying identities to include altered beings, cyborgs, and others who fall on the human-machine-identity continuum.

Another area in need of attention is the current practices in place to monetize schooling related data. Every student and educator should be protected from infringement as it pertains to their learning and teaching performance. The general population has yet to realize the pervasiveness of their personal data collecting as well as the monetary worth of these online actions. As discussed in chapter four, everything from likes, searches, to posts are collected, mined and traced. With the potential value of one's learning not yet fully tapped, we can expect myriad entrepreneurs racing to mine this digital gold ("SumAll | Analytics for Marketers," n.d.). National protection of our learning and teaching identities upholds the democratic promise that the State will be a defender of public interest. This should inspire the creation of national standards to protect electronic education records and transactions. Just as the United States HIPPA Privacy Rule ("U.S. Department of Health & Human Services | The Privacy Rule," n.d.) outlines national standards to protect individuals' medical records, students' learning habits, struggles and victories should be equally protected.

The last, but certainly not final, area to address is the cry for educational technology to allow for ubiquitous, free education access. The ability to manage high volumes of simultaneous interactions across the planet is enabling more open-access, free, high quality knowledge acquisition opportunities. However, not enough public institutions are seizing this opportunity in the interest of students. Initial reform endeavors such as MOOCs and Khan Academy, although far from ideal, demonstrate what is possible through the use of

the globalized network. Contemporary mobile technology in this case offers the ability to overcome low quality communication infrastructures as it pertains to third world countries. Schooling has the potential to better reach underserved groups including those from low-tech societies, those with limited Web access as well as those oppressed due to their race, gender, or social class. These current reform endeavors represent the globalized potential of education today. Mirroring Appadurai's –scapes (1996), schooling has illustrated its ability and interest to extend beyond local boundaries, thus enabling users to remedy problems of distance, time, cultural and language like never before. Societies seem to be ready for realizing Ivan Illich's dream for deschooling. Illich (2000/1971) argued for a new approach to incidental or informal education where an education system would "have three purposes; it should provide all who want to learn with access to available resources at any time in their lives; empower all who want to share what they know to find those who want to learn it from them; and, finally furnish all who want to present an issue to the public with the opportunity to make their challenge known" (p. 56). For Illich this would of course take place outside the control of technocrats and use "modern technology to make free speech, free assembly, and a free press truly universal, and therefore, fully educational" (p. 56). Schooling's effective and ethical harnessing of technology would present an opportunity to steer societies toward an Illichean dream.

Future Direction

The last twenty years has been marked by radical changes in technological inventions, yet the state of technology is still in its inception and we can expect more changes to come. The hardware, software, social networks and other virtual environments of today may be entirely different in the near future. This means technology is a moving

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target. Once institutions are wired and equipped they must be upgraded and transformed to address the next iteration followed by a period of training and adjustment. Schooling has faced this very challenge, and as I discussed earlier in this chapter, U.S. schools have done quite well in keeping up with infrastructure and equipment. However, I also demonstrated that it is time for school to elevate its consciousness, reassess its ethical stance, and shift its philosophy from an informational capitalist mindset to one of personal empowerment and freedom.

The most challenging aspect of any type of education reform is that change is often politicized around the political economy of schooling, is also slow paced, and often highly contested. Reformation in the name of technology, however, may provide a unique opportunity, as it is one of the few sectors where neoliberals, and other stakeholders, are open to experiment. Although their motives are often on the assumption of future profits, nevertheless, it may allow change to occur. Furthermore, policymakers are interested in keeping the country relevant and competitive within a digitized, global society and technology is uniquely positioned as an agent of change. With this in mind, I would like to turn to suggestions for future research related to further developing this theory.

Comparative Study.

I recognize the United States is not alone, as most countries are still conceptualizing their responses to digital online culture. Comparative research is needed to analyze various countries' current educational policies and practices related to how they are coping with technology's transformative challenges. In response to the globalization of this phenomenon, a starting place might be to comparatively analyze countries in similar

geographical contexts yet with different approaches to how they navigate and negotiate the schooling-technology-identity relationship.

In Latin American, for example, Brazil and Argentina could be evaluated in juxtaposition with Peru, Mexico and Venezuela, as they all have had strong governmental influence in the development of their Internet networks (Rivera, 2009). Europe provides a plethora of hyper technological countries to investigate especially in the technology leadership of the UK, Germany and France, as well as Sweden and Russia. In Asia, it would be interesting to compare North Korea, with its closed network with India, China and Japan, as they each represent opposing forms of technology expansion. Other continents such as Africa and Oceania present a disparity between countries, such as South Africa, Australia and New Zealand, each have technologically developed locations as well as rural ones with limited Internet access and infrastructure. Such studies should interrogate how these countries are addressing technology through their schooling systems.

Cross-cultural, comparative work in this arena acknowledges the collaborative, global nature of our world today. It could be used, in some cases, to begin a global dialogue around some of the issues I have outlined here and use the unique perspectives of each culture to further inform the debate. This future work might also benefit global educators, social scientists, critical theorists and scholars from other fields currently struggling to adapt to the individual and societal changes underway.

A Bill of Schooling Rights for a Virtualized and Hybridized Society.

As I close this chapter, the film *Blade Runner* (De Lauzirika & Deeley, 1982) comes to mind. Its megalopolis with the co-habitation of humans and a new population of replicants (i.e. cyborgs), made to be indistinguishable from humans, seems around the corner for us.

In the near future, maybe classrooms will no longer look like they do today, they may even be non-existent or radically different. Perhaps, the student body will be composed of humans, hybrids (i.e., human-machines), or even full thinking and learning robots. Maybe, the professor will not even be fully human anymore. There is a never-ending array of possibilities for what the future holds, and even if we do not know exactly what shape it will take, we ought to prepare for what it could be. The future is seeping in, one invention at a time, either physical or virtual, they both quickly take new forms and soon smartphones will become a thing of the past and something else more immersive will latch on to our human identities.

Major tech inventions seem to set the tone of our era; the graduation of their impact is never quite visible at first. The first automobiles were more like carriages than twenty-first century vehicles, yet just a few versions later, they matured into what eventually stuck with society reshaping our culture along the way. Today, the digital revolution has been maturing into a sprawling network influencing everything in its path. I have taken you on this explorative journey ranging from understanding RL and VL as well as human-machine identity, as they present themselves today, to an analysis of future possibilities.

I have argued that schooling ought to be a role model for how to respond to the societal changes from technocratic developments and mediate its cultural implications. This will even have greater importance as we redefine what it means to be human. A mediator position implies that schooling, whatever future form it takes, ethically represents both sides of this reality. Schooling will invariably be faced with how to respond to these iterations of humanity as they manifest themselves among the student population and faculty. Social justice issues will arise related to fairness as it applies to

varying learning and performance capabilities depending on whether one has the money for and access to such technological enhancements.

A set of guiding principles for schooling is in order to addresses both technology initiators (designers, programmers, manipulators, distributors, creators) and technology recipients (users). Such guidelines would address issues around technology, identity, ethical responsibilities (political, social, and individual), as well as the morality of privacy and democracy. They would address values of freedom and rights when it comes to knowledge acquisition and dissemination. Finally, they would uphold the ethics of fairness and respect as it relates to these populations. Thus, the future direction for a critical theory of technology for schooling is to include a bill of rights designed to protect students and educators natural rights of liberty. More specifically, such a bill would outline schooling's responsibilities and help to better guarantee a number of personal freedoms including circumscribing tech corporations' influence, providing guidance for democratic, moral online living, and providing insight for how to fairly respond to the RL-VL and human-machine mergers.

Furthermore, in light of the new iterations and forms of social injustice, a schooling bill of rights for a virtualized and hybridized society would help education remain focused on upholding civil liberties, social justice and democratic ideals. These mergers have moved at such a fast pace that schooling has yet to take a definitive position on issues that impact identity construction as it pertains to these mergers. A bill of rights would help schooling to better clarify its position and responsibilities.

Final Thoughts

In this dissertation, I have sought to begin theorizing how schooling should understand, respond to and live the information revolution. In demonstrating the extent to which our identities are being altered by technological experiences, it was particularly concerning to reveal the level at which identities are manipulated and commodified. Common cultural practices around one's willingness to give up civil liberties in exchange for "free of charge" policies, and to open one's life to the web in general and tech capitalists in particular are becoming normalized. Most alarming is the fact that schooling is contributing to the problem rather than working toward protecting the citizenry from it. In response, I have argued for a critical theory of technology for schooling to remind education of what its quintessential mission should be; educating for freedom, democracy, consciousness and a good life while upholding the highest of ethical standards in both policy and practice.

This chapter sketched initial theoretical ideas to foster further scholarly developments. For that purpose, I have outlined future directions as a path for improvement on the subject. As we become more altered by our machines, virtual environments and technologies pervasiveness in our lives, it is critical to consider Manuel Castells observation that "power lies in the codes of information and in the images of representation around which societies organize their institutions, and people build their lives, and decide their behavior. The sites of this power are people's minds...Whoever, or whatever, wins the battles of people's minds will rule" (2010, p. 425).

The Internet as the world's largest structured web of people along with its open unregulated digital citizenry is the terrain where these battles of the mind are now being

fought. The conundrum lies in the fact that corporations are using cyberspace to control

virtual territories including the information on them according to their own terms all in the

name of an open, connected world. On the face of it, there appears to be little wrong with

local control. However, when this practice is scaled to meet the size of Facebook's

population, it becomes increasingly problematic. Despite the fact that tech corporations

are not yet at the helm of governments, the population's apathy in this area[20] results in

relinquished control over an ever-growing slice of their lives. Technocracy is seeping into

the virtual, pushing away democratic representation for its "virtual residents," who have

not yet developed a sense of digital citizenship. Schooling can help the public recognize the

importance of digital citizenship as it pertains to rights, responsibilities, and fair

representation to maintain a sense of virtual democracy.

Ultimately, technocrats would like for society to turn to technology as a method for

solving social problems. This solutionism ideology as Morozov (2013) puts it is, "an

intellectual pathology that recognizes problems as problems based on just one criterion:

whether they are 'solvable' with a nice and clean technological solution at our disposal" (p.

3) thereby reducing the hard work of thinking and acting for ourselves to a computer

program or application. A critical theory of technology for schooling is ultimately a tool for

preserving a harmonious balance between such perfectionist ideology and the imperfection

of human nature that still defines who we are. We are at a point where the lack of a digital

footprint in the cloud is becoming an impediment to our identity and subsequently to our

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[20] A recent *Atlantic Monthly* article reported that when Facebook users were asked to vote
on a new privacy policy, voter turnout was 0.038 percent (Madrigal, 2012).

citizenship. It is with this in mind, that schooling needs theoretical tools to help prepare for

the fundamental changes that are looming in the very near future.

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