

ARE WE STILL IN THE GAME?:
CONSTRUCTING CONSUMER VIRTUAL REALITY
THROUGH THE LENS OF ARTIST AND INDUSTRY
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TABLE OF CONTENTS

Chapter 1: Introduction	1
The Rise, Fall, and Reemergence of Virtual Reality Devices	3
Money, Form, Function	3
Max Settings: Graphics and Motion Controls	7
Facebook and Oculus Rift: Not Just for Games	12
Technology as Epistemology	14
Preview of Chapters	19
Chapter 2: Men of Integral Awareness	23
Cautionary Tales	25
Ready Player One: The Illusion of Reality	25
eXistenZ: Escaping Reality	28
Avalon: Anxiety	32
Proceed With Caution	36
Chapter 3: To Game or Not to Game	39
Sony and Project Morpheus	41
Facebook and Oculus Rift	47
Gaming and Beyond	53
Chapter 4: Towards a Media Conscious Society	56
The Politics of Virtual Reality	58
Educating with Virtual Reality	62
A Virtual Society	67
Preventing the Wreckage	71
References	77
Notes	98

INTRODUCTION

My first experience with virtual reality gaming occurred in the summer of 1995 with the release of Nintendo's Virtual Boy. Advertising touted the console as having the first "truly 3D graphics" and offering a new form of virtual reality. As further encouragement, Nintendo ran a promotional campaign in coordination with Blockbuster where renters would receive a coupon for \$10 off the purchase of a Virtual Boy after returning it to the store. Using this promotion and my upcoming birthday—a mere week after the release of the Virtual Boy—to my advantage, I was successful in convincing my mother to rent the console with the intention of purchasing.

It did not take much time with the device before I realized I needed to find a new birthday present. Before even turning on the system, Mom informed me that I would have to stop playing every 15 minutes per the hardware instructions to avoid possible eye injuries. As a boy who grew up in the arcade business, I considered long periods of gaming to be normal. Stopping every 15 minutes seemed ridiculous. However, upon finally turning on the system to play *Mario's Tennis*, I quickly understood why the 15 minute break was necessary. Steve Woita, a programmer who worked on games for the Virtual Boy, explains that each eye of the device contains 224 separate red LEDs that spin 50 times per second in order to render the image (McFerran, 2010). Each eye's rendering is a separate image, such that "if the images match the disparity that you are used to seeing in real life, then you perceive a sensation of depth related to the disparity between the images" (McFerran, 2010, para. 13). This is similar to how red-cyan 3D glasses work and is quite stressful on the eyes if the device is not adjusted properly. Aside from the physical pain of playing the Virtual Boy, the games did not live up to the expectations that had been set by Nintendo's marketing. Golf, pinball, and boxing were the three games I rented and each one was

dismal. The harsh red visuals and a complicated viewing experience led my birthday present to be delivered three weeks later in the form of a Sony Playstation. Perhaps I was too young to really comprehend the Virtual Boy; nonetheless, it shaped the way I viewed virtual reality gaming until recently.

The initial flat response to Playstation 4 and Xbox One in the market suggests that players are looking for something more out of their gaming experience (Hruska, 2014; Kain, 2014). Meanwhile, the Facebook acquisition of Oculus Rift has sparked renewed interest in the potential of using virtual reality devices as a gaming platform. Steve Tilley (2014) of the *Toronto Sun* suggests that “[virtual reality] technology that used to seem like a sci-fi pipe dream is now ready for prime time” (para. 3). Adi Robertson (2014) of *The Verge* maintained that the immersive experience she had at E3 “turned an abstract game gunfight into something that felt like it could genuinely affect my body” (para. 3). Even though consumers are once again interested in virtual reality, researchers have been studying the technology for quite some time. Jim Blascovich and Jeremy Bailenson’s (2011) book *Infinite Reality: The Hidden Blueprint of our Virtual Lives* highlights much of the work in the field of VR over the years. Along with explaining how virtual reality technology works, the two researchers describe experiments performed within virtual reality that suggest a virtual experience can be just as meaningful and real to a person as an experience in grounded reality.

Virtual reality head-mounted displays are on the brink of reemerging as a video gaming device. It seems that this reemergence has been predicted by writers of film, television and novels. Many of these artists portray virtual reality devices as having transformative power that can alter how we understand the human experience, offering a glimpse into a perceived future.

These texts also serve as cautionary tales regarding the effects that these devices could have on our daily lives. Marshall McLuhan (1964) quoted Wyndom Lewis stating that an artist is “engaged in writing a detailed history of the future because he is the only person aware of the nature of the present” (p. 65). The inference is that artists have the ability to make observations about the impact of technology that other observers may lack. When considering the wide variety of media texts about virtual reality and the reemerging VR video game market, McLuhan’s observation of the artist’s project may be more prescient than ever before.

The following chapter will unfold in three parts. The first section will outline the relationship between virtual reality and video gaming, beginning in the late 1980s and ending with contemporary iterations of virtual reality. The second section is an overview of the development of media ecology over the past five decades, followed by a look into the critical perspective of Marshall McLuhan. Finally, an overview of the projected chapters for the final thesis will conclude the chapter.

The Rise, Fall, and Reemergence of Virtual Reality Devices

Money, Form, Function

Released in 1989, Mattel’s Power Glove marked the first piece of VR gaming hardware to be available to a consumer market (Engler, 1992). An argument could be made that the light gun produced by Nintendo, which popularized the game *Duck Hunt* (1985), is a form of VR, but an important distinction can be drawn based on the technologies employed. The Power Glove was placed on the user’s hand and tracked their movements through a carbon-based flex sensor, which were then visually represented on the screen (U.S. Patent No. 4542291 A, 1985), while the light gun used phototransistors to detect where the gun was being aimed at the screen (U.S.

Patent No. 4813682 A, 1989). The key difference is that the Power Glove tracked the user's movements through the device itself, rather than working in conjunction with the screen. In other words, the player's actual movements were being tracked by the device and represented on the screen. Despite the criticism the Power Glove received due to difficult controls and lackluster responsiveness, the technology inspired manifestations of virtual reality years later in the form of Nintendo's Wii, Sony's Move, and Microsoft's Kinect.

While the Power Glove was on the market, Jonathan Waldern was working on VR technology with the backing of the IBM Research Laboratory. His company began as W Industries and worked on head-mounted display units, graphic systems, 3D trackers, and other exoskeleton-type designs into which the user was placed. In other words, W Industries was developing wearable VR systems. Waldern's work began in 1985 and culminated in 1990 when his VR technology was introduced to industry professionals. Some of the original purchasers of Waldern's device included IBM, Mitsubishi, and Ford—most of whom are still using VR today (King, 2014). Shortly after debuting in 1990, W Industries shifted their focus to creating immersive VR gaming experiences and changed their company name to Virtuality. It is unclear as to why the company made the change to gaming experiences, but Waldern's business objective was unambiguous: "money, business, technology" (Davies, 1993, para. 24). Although Waldern felt that VR technology was wasted as an amusement medium (Davies, 1993, para. 26), yet this did not stop Virtuality from developing the first mass produced virtual reality gaming machine.

Virtuality released the CS1000 in 1991, coincidentally around the same time video game arcades were experiencing a renaissance (June, 2013, para. 32). The machine, however, came

with a lofty price tag of \$60,000 (Knight, n.d.) and the machines usually needed an attendant to help the player situate themselves within the harness. Virtuality had two different cabinets that used a head-mounted display (HMD) dubbed the Visette. The HMD contained two LCD screens running a display of 244x756 resolution, four speakers and a microphone built in (Virtuality Group, 1994). The difference between the two models was whether the player was standing or sitting down in the machine; Virtuality demarcated the machines by including SD (sitting down) or SU (standing up) in the model number. Expectedly, the SD unit was better suited for driving-type games. Two joysticks, a steering wheel, or an aircraft yoke was fixed in front of the player's seat depending on the game the unit was set up to play. The Visette was intended to make players feel as if they were in a cockpit of a giant robot, a race car, or an aircraft. The SU unit was quite different. The players stepped inside a magnetically charged waist-high ring that tracked the movements of the Visette and a free-moving joystick. The joystick and HMD contained a receiver that communicated with a magnetic source in the ring, tracking the player's movements (Virtuality Group, 1994).

Unfortunately for the company, only about 120 Virtuality machines ever made their way into the US. The high price tag and suggested dedicated attendant did not fare well on the market, and production was stopped on the units in 1994 after roughly 350 were made. Failure or not, Virtuality's devices suggested the potential of immersive gaming experiences. Computer Gaming World stated that the machines had "all the necessary hallmarks of a fully immersive system," but noted that the low resolution and lack of software support probably contributed to their demise (Engler, 1992). Whether players stepped inside the ring or sat down behind the wheel, Virtuality's machines aimed to provide players the feeling of being inside the game. The outside world was no longer in their peripheral vision—players could effectively tune out the

real world and participate in a virtual one. Tracking technology made it possible for the player's body movements to become a part of the game. This extension of the human body inside of the game could be seen as the early stages of McLuhan's (1967) prediction of the "technological extension of consciousness" (p. 58). He wisely stated that new forms of media make it easier to translate ourselves into information (p. 57), and virtual reality is the manifestation of his prescient statement. When inside the magnetic ring head, hand, and foot movements were recorded and replayed back to the player—a visual, data rendered translation of the self.

Nintendo's Virtual Boy came onto the market a few years after Virtuality halted production on their units; however, the extent to which Virtual Boy is an actual virtual reality device is arguable. In our earlier discussion of the technology behind the unit, you might have noticed the lack of any sort of data tracking involved in the system. Nintendo's advertising of the device portrayed it as the next evolution in gaming and as a form of virtual reality, even though, as it turns out, it was neither. Nintendo used a HMD to isolate the player from the real world, then projected 3D images to immerse the player in the game world. Unlike Virtuality, there was no data tracking technology that allowed the player to control their avatar. The Virtual Boy's concept of virtual reality was a HMD with 3D graphics. Around the same time SEGA had released 3D glasses for the Master System. The glasses accomplished the same thing as the Virtual Boy by providing a 3D experience, but without a fully encapsulating HMD. Ultimately both units failed, but not before the Virtual Boy's deployment of a HMD strengthened the possibility of having virtual reality experiences in the home. The cost of technology was going down, thus the potential for expanding into a home based market was becoming more real for the gaming industry.

After the Virtual Boy's disappointing debut, VR fell into a niche that only die-hard technophiles were exploring. New devices were released intermittently, such as Sony's Glasstron, Victormaxx's Cybermaxx, or VFX-1 by Forte, but never truly succeeded in becoming a force in the market. Instead, VR remained a novelty of theme parks and arcades. New companies have been producing simplified versions of what Virtuality had done years prior. Rather than a fully immersed experience, the games typically only simulate one aspect of reality. For example, *Beach Head 2000* by Global VR used a head-mounted display and motion simulating technology that allowed the player to look up and down as well as spinning in 360 degrees. While arcades were dabbling with VR-like devices, the gaming industry focused on advancements in the quality of graphics and home consoles. These continued attempts suggest a persistent desire to create immersive VR experiences even when met with repeated failure.

Max Settings: Graphics and Motion Controls

Examining console generations by analyzing their graphical power provides useful insight into the importance of graphics in video gaming. Following the release of each new console, players are bombarded with advertisements that demonstrate the power of the system. Usually this is done by highlighting large game franchises available only on one particular console and showing off the graphical power of the system via that game. The ad campaign for *Call of Duty: Modern Warfare 3* (2011), for example, places two real-life players (not avatars) into a game-like situation. This approach suggests that the game harnesses all of the graphical power available and that playing it is akin to actually being in the game—a common theme in video game commercials. This same technique is demonstrated by advertisements for games such as *Halo 3* (2007), *Halo: ODST* (2009), *Tom Clancy's Ghost Recon Future Soldier* (2012),

and *Metroid Prime 2: Echoes* (2004), to name just a few. Rather than focusing on wearable gaming devices, the industry, until recently, focused on creating more powerful consoles that could produce better graphics.

Graphics quality in gaming consoles continues to progress but increasingly more slowly with each generation of technology (D’Orazio, 2013; Hillier, 2013). It almost seems as if graphical advancements have come to a halt in the gaming industry. The release of the Xbox 360 and PlayStation 3 (PS3) provided the last time graphics were improved dramatically; the current generation of consoles has been criticized for barely improving on their predecessors (D’Orazio, 2013).

At a time when Microsoft and Sony were battling over superiority in graphics, Nintendo’s Wii took a different approach—changing the way you play. The motion controls of the Wii are clearly inspired by previous VR devices and use similar technology for tracking player movements; WiiMotes are even being used as controllers for the upcoming Oculus Rift device, a gaming head-mounted display (Kogelnig, 2013). Although it was never marketed as a VR device, the Wii primes users for virtual reality. Nintendo gave players bodily control over their avatar as opposed to being constrained by a wired controller; the players’ movements are recreated in game by their avatar. It was nearly four years before Microsoft and Sony introduced their own sort of motion sensing peripherals for the Xbox 360 and PS3, and both the Xbox Kinect and PlayStation Move were shaped by the same basic goals as the Wii. All three companies wanted players’ physical movements to be translated into the game without lowering the quality of the game play experience. These devices thus mark the resurgence of virtual reality hardware in the gaming market. Instead of releasing VR device after VR device, each one clunky

and poorly executed, the gaming industry switched to slowly releasing well-executed virtual-reality-like devices.

It would seem that the gaming industry noticed that, eventually, graphics would not be enough to carry their games, hence the decision to move toward motion tracking controllers. The reemergence of full-on virtual reality devices was hinted at throughout the years by the big three gaming companies, yet the current landscape of VR has ended up being shaped by an independent company funded through crowdsourcing.¹ While the major companies were priming players for what was to come, others were more interested in bringing virtual reality technology to market more immediately.

OculusVR is the company behind Oculus Rift, currently the most well-known name in virtual reality gaming devices. The idea for the company came from Palmer Luckey, a twenty-one-year-old savant, who spent his teen years building PCs and fixing iPhones (Purchase, 2013). Luckey had a passion for VR that would lead him to collecting the largest private collection of head-mounted displays in the world. Luckey was also an avid gamer who was fed up with the poor quality of most HMDs and the direction of VR in the market (Purchase, 2013).

Although Luckey was not born in the time of the Power Glove and he is, likely, too young to really remember the Virtual Boy, the idea of virtual immersion clearly resonated with him. After developing several Oculus units in his garage, he took to Kickstarter to bring his vision of VR to the market. In a way, Luckey and the 9,522 contributors who pledged over two million dollars are a direct result of years of lackluster attempts at VR by the gaming industry. Nintendo, Sony, and Microsoft were not moving fast enough, so enthusiasts took matters into their own hands.

Luckey's device, the Oculus Rift, followed the traditional form of VR with a head-mounted display. This is the most practical way to encapsulate a person into a VR experience, but also speaks to an understanding of how immersive VR works. If the goal of virtual reality is to mimic reality, then the user must be disconnected from reality to be fully immersed (Blascovich & Bailenson, 2011). A study conducted by Blascovich & Bailenson (2011) has shown that the brain can only be focused on being in one place at a time; therefore, a HMD works to redirect our attention to the virtual experience—it helps the user forget they are in grounded in reality when they are cut off from it. That is to say, when our mind is dialed into a virtual experience, it does not matter if the body is grounded in the real world. If technology is the extension of man as McLuhan has famously suggested, one could assert that virtual reality is the extension of our mind and consciousness. It allows us to remove ourselves from the present situation and enter a new situation by way of virtual reality. Our body is still present but our awareness and understanding is placed elsewhere.

Luckey spent most of his teen years tinkering with different HMDs, only to find that they did not live up to his expectations. Deciding to build his own, Luckey's goal was to create a HMD with little lag between head movements and the rendering of images, as well as having a wide field of view. He wanted players to feel like they were “inside the game, not just looking at screen strapped to your head” (Parkin, 2013). The device itself is reliant on not just one technology working, but the successful operation of several integrated technologies. Oculus Rift's screen runs at a resolution of 640x800 in each eye and measures seven inches with a field of view of 90 horizontal degrees and 110 diagonal degrees. This allows the device to have a slight overlap between two projected images while also enclosing the eyes within the device, effectively blocking out the real world. The overlap is an effort to mimic normal human vision,

essentially tricking the brain into thinking it is not looking at a screen; blocking out the view of the real world acts to usher in a sense of being in the game world. The firmware that tracks movements is a 1000 hertz adjacent reality tracker; it operates using 3-axis gyros, accelerometers, and magnetometers. Essentially, the adjacent reality tracker is a computer board that is fast enough to track movements and render them for the player without any drift—the lag between the movement and what a player sees. Previously, VR devices were held back by computers that could not render images quick enough to eliminate drift. Luckey recognized that the drift between moving, tracking, and rendering images has always been a hurdle for VR devices; thus tackling this obstacle was a priority for his company, OculusVR.

John Carmack, creator of the *DOOM* series and longtime video game developer, is the chief technologist for Oculus Rift and spearheaded the push for the adjacent reality tracker. Successful tracking and rendering is critical for VR HMDs for numerous reasons—an important one of which is preventing nausea. If users experience drift when they are engaged with a VR device, it can throw off the balance in the inner ear which can lead to feeling sick (Forsyth, 2013). Eliminating drift is also imperative for effective VR since low latency tracking assists in creating a sense of immersion for the players (Forsyth, 2013). If the device is rendering a player's movements at the same time they are physically moving it creates a seamless connection to the device; the effect is that the player forgets that they are hooked into a machine. What, then, can we make of the experience players are having in an immersive virtual world?

In a study conducted by Yee and Bailenson (2007), the researchers found that users experience what they dubbed the *proteus effect* when inside virtual reality environments. Users experiencing this effect perceive themselves the way that their avatar is portrayed within virtual

environments. We can imagine that an immersive experience, such as that provided by Oculus Rift, could provide very real experiences that elicit real behavioral changes in users in contrast to what McLuhan describes as narcosis, “a syndrome whereby man remains as unaware of the psychic and social effects of his new technology” (McLuhan, 1969). Instead of falling in love with the extensions of ourselves in the form of technology only to become numb to their effects, the proteus effect suggests that virtual reality can instill real change, awareness, and understanding of the self. Perhaps it was due to the proteus effect that Facebook purchased OculusVR in March 2014 in a deal that was on the table for less than 2 weeks.

Facebook and Oculus Rift: Not Just for Games

Throughout the years different gaming companies have introduced VR devices to the marketplace with varying levels of success. The motivations here are obvious—gaming companies are looking for different ways to bring content to players. Facebook’s acquisition of OculusVR, however, sends a different message about the potential uses of virtual reality. Facebook is the world’s largest social networking website, whose main objective is to deliver users to advertisers in order to increase their revenue (Ritholtz, 2014; Carlson, 2010). Facebook CEO Mark Zuckerberg has gone on record stating that VR is the next big thing in computing after mobile, and he wants to be on top of it because “whoever builds and defines [new technology] ... will shape the future and reap the benefits” (Parkin, 2014). Zuckerberg has also mentioned uses for Oculus Rift outside of gaming, such as education, healthcare, shopping, or watching sports. These are lofty plans that some suggest are reaching too far. Gaming or even immersive experiences, such as sporting events, will likely do well. However, fully connected

virtual experiences, such as visiting the doctor, is something people probably are not ready for (Metz, 2014).

What we are ready for and what we are going to be given are two different things, of course. As Zuckerberg suggested, those who build and deliver technology define the technology. Facebook's acquisition of OculusVR tells us that virtual reality is seen as having the potential to be more than a gaming device. Yet Facebook has also made it clear that OculusVR would continue to operate as a part of the gaming industry, which suggests that Facebook recognizes gaming as a crucial gateway for introducing VR to the consumer market. VR has been closely linked to gaming since its inception in the late 1980s. A generation of consumers already has an understanding of VR through the lens of gaming, which could thus make the transition to more socially oriented VR smoother by tapping into an already engaged audience.

Mark Zuckerberg has speculated on the different types of applications Facebook has in mind for Oculus Rift, but as of this writing, the only application that we are sure of is video gaming. Zuckerberg has asserted that Oculus has "the potential to be the most social platform ever" and while social networks today are about "sharing moments," the social networks of "tomorrow will be about sharing experiences" (Delo, 2014, para. 3). The chief financial officer of Facebook, David Eberman, has stated that there is a "financial and strategic upside" in areas such as communications and entertainment, while in the same statement he justified the \$2 billion acquisition of OculusVR on the basis of just its gaming potential (Delo, 2014, para. 12). It is clear that Facebook has intentions of turning Oculus Rift into a platform that goes beyond gaming. It would seem that they are interested in social applications that could be possible in VR

environments, and in turn, how VR environments can deliver their user base to their advertisers more effectively.

Technology as Epistemology

The medium is the message. The pithiest and most popular of Marshall McLuhan's aphorisms is the foundation of media ecology research. In the very first and uncharacteristically lengthy chapter of *Understanding Media*, McLuhan (1964) details the way a technology can transform human affairs depending on the cultural situation in which it operates. The example provided is of automation: machine technology, according to McLuhan, created a new pattern of human association that tends to result in job loss (p. 7). McLuhan goes on to explain that it is not the machine itself which eliminates jobs, but the message that was inferred from the technology—that humans are no longer needed to do certain jobs. Contingently, this reinforces his notion that the “content of any medium is always another medium,” while the message is the “change or scale or pace that is introduced to human affairs” (p.8). In this case, the message is that people are no longer needed, while the job they once held becomes the content. While extending his argument, McLuhan suggests that this is able to take place due to users being unaware that the old medium is now the content of the new medium (p. 18). In order to become aware of the pervasive nature of new technologies, we must take into consideration the “cultural matrix” in which they operate (p. 11). Neil Postman's book *Amusing Ourselves to Death* (1985) uses the emergence of the television to discuss this “cultural matrix” as an epistemology.

Neil Postman, a student of McLuhan, suggests that the medium is a metaphor (1985). Although his line of thinking is rooted in the teachings of McLuhan, Postman delivers a cogent explanation of what he means by his play on the original aphorism by differentiating message

from metaphor. According to Postman, a message “denotes a specific, concrete statement about the world” (p. 10). Metaphors, on the other hand, are not as explicit as they are “working by unobtrusive but powerful implication to enforce their special definition of reality” (p. 10). Postman suggests that new technologies change the way we think rather than just sending messages regarding society and human affairs; with a change in thinking comes a change in the content of culture. As a result of metaphors operating on the power of suggestion, they “[fix] a conception in our minds that we cannot imagine the one thing without the other” (p. 13). He elaborates further that every medium of communication has resonance. Thus, no matter what the original use of a new technology may have been, it “has the power to fly far beyond that context into new and unexpected ones” (p. 18). By doing so, new technology changes our way of thinking and integrates itself into our experience; it is able to “impose itself on our consciousness and social institutions” (p. 18). Postman illustrates this by juxtaposing oral and print cultures and their relationship with truth-telling, specifically how the spoken word was once adequate but now truth must be codified and verifiable.

Both McLuhan and Postman offer a high-level view of what they believe a medium communicates, a message or a metaphor. Although Postman contends that there is a difference between the two, the conclusions of the two scholars offer the same insight: a medium has a more profound effect on the human experience than its content does. This insight has largely been left intact over the years and is considered the starting point for media ecology research. However, it is important to consider how the media landscape has transformed since the early days of the field. For example, the steady advancement of computing hardware has engendered communication media that allow for the instantaneous spreading of messages and ideas (Vinge, 1993). Furthermore, many forms of communication technology, such as cell phones and the

internet, have lowered in price and become readily available to a large portion of US citizens (Internet Live Stats, 2014; Rainie, 2013) who are using the devices for nearly six hours a day (Global Web Index, 2013). With such advancements of the media landscape in mind, Gitelman (2006) offers a definition of the media environment of today:

media as socially realized structures of communication, where structures include both technological forms and their associated protocols, and where communication is a cultural practice, a ritualized collocation of different people on the same mental map, sharing or engaged with popular ontologies of representation (p. 7).

She admits the definition is muddy, but it does, indeed, offer insight to understanding the nuances of technology as a communicative medium. The technological form refers to the form and function of a device, while the protocols consist of a complex web of interrelations between “social, economic, and material relationships” (Gitelman, 2006, p. 7). Gitelman’s insight is a modern perspective on McLuhan’s (1964) assertion that technology cannot be viewed in isolation of the “social complex” (p. 19). In other words, social, political, and economic protocols influence the meaning of a technology. McLuhan goes on to maintain that each new technology that is brought to market causes a shock to individuals and to society due to a fundamental change in communication (1964, p. 51); McLuhan refers to this as autoamputation. He explains that this shock is due to the technology replacing or enhancing a piece of the human body—eyeglasses correcting poor vision, for example—thus, individuals must adjust to what life is like with a new technology.

Paul Grosswiler (1996) maintains that McLuhan, while illuminating the effect technologies can have on a society, also offered an “early warning system” by way of the artist (para. 30). Grosswiler suggests that a deep understanding of media environments interacting (social, political, and economic protocols) reveals a hidden landscape that can assist in preparing for a new technology. Grosswiler equates this to Marxism’s concept of the critical consciousness, which says that a deep understanding of a situation allows for social and political contradictions to be revealed and action taken against them (Mustakova-Poassardt, 2003). However, for McLuhan, “it is the artist rather than the revolutionary who helps raise critical consciousness in the masses” (Grosswiler, 2006, para. 29).

While a great deal of the literature on media ecology focuses on the impact of new technological devices, Marshall McLuhan (1964) devotes one chapter in *Understanding Media* to the role that artists play in “preventing undue wreckage in society” (p. 65). McLuhan holds artists in much esteem due to what he sees as their ability to predict and raise awareness of the power of new technologies. That is to say, McLuhan believes that artists have the ability to predict the implications of technology decades before any transforming impact might occur. This ability of artists to “grasp the implications of [their] actions and of new knowledge in [their] own time” makes them people of “integral awareness” who can anticipate the otherwise unforeseen consequences (McLuhan, 1964, p. 65). He further argues that society and cultural forces are in play to weaken the observations made by artists. This is done by proclaiming that art should be “appreciated” rather than understood as advanced knowledge (McLuhan, 1964, p. 66). This argument suggests that because art is seen as a form of entertainment, whether it be film, television, books, paintings, etc., it is not taken as a seriously form of inquiry; therefore, the prescient observations of artists go unseen and unheard.

McLuhan believes that technology has a profound effect on the consciousness and sensory balance of an individual, and these effects are met with no awareness or resistance in most people (Grosswiler, 1996, para 31). However, because artists are “expert[s] aware of the changes in sense perception” (McLuhan, 1964, p. 33) they have the ability to produce work that allows consumers to cope with these changes. Grosswiler (1996) explains that “[technology] affects people because [technology] is human extensions; however, it is possible to assess the effects before [technology] is introduced to society, thanks to the artist” (para. 31). While McLuhan championed examining the medium as the message, it would seem that the content produced by artists is just as important to understanding the environment that engenders a technology. If we were to take the work of artists seriously as social commentary, it could reveal the possible effects of future technology decades before its arrival (McLuhan, 1964).

The purpose of this thesis is to demonstrate the relationship between artists and the emerging industry of virtual reality video gaming. Over the past two decades, media texts in the form of film, television, and novels have focused on virtual reality devices and what it may be like to live in a world dominated by them. Lately, the emerging virtual reality industry seems to be following a path that has been predicted by artists, as McLuhan suggested, decades before any transforming impact had occurred. McLuhan (1964) also suggested that the work of artists could serve as cautionary tales that “correct the sense ratios before the blow of new technology has numbed conscious procedures” (p. 65). Thus, the depictions of VR in entertainment media play a role in influencing what we come to expect of VR devices and how they could affect us.

Lastly, it is important to note the working definition of virtual reality used throughout this thesis. The general definition is as follows: “a computer-simulated environment that can simulate

physical presence in places in the real world or imagined worlds” (Google, 2014). A wide definition such as this, however, can be problematic when attempting to write at length about specific aspects of virtual reality. While simulated virtual environments, indeed, play a role in the larger discussion throughout this thesis, the main focus here is on the devices in development to deliver these worlds for gaming applications. What this paper will not be is a discussion of morals and philosophy regarding concepts of virtual reality such as Phillip Zhai’s book *Get Real: A Philosophical Adventure in Virtual Reality* (1998) or Packer and Jordan’s *Multimedia: From Wagner to Virtual Reality* (2001). Instead, this paper will consider virtual reality devices (head-mounted displays in particular) as a communicative medium that has come to be understood as an analogue to games.

Preview of Chapters

Virtual reality has the opportunity to use gaming as a form of understanding when it reemerges on the market. The specific form and functions have evolved over the years but by and large, the typical VR device looks much the same as it always has: a head-mounted display coupled with a controller of some sort. This is what we have come to expect from a virtual reality device and how the gaming industry has decided to simulate the human experience. We can wear a HMD, isolating our minds from the real world, and venture off into a simulated world that we may hardly be able to distinguish from real life (Blascovich & Bailenson, 2011).

VR has a long history with universities, the military, and corporations, who use it for research, training, and product testing. However, Facebook’s acquisition of OculusVR sparks the imagination of what, exactly, consumer VR could end up being—for better or for worse. Mobile computing is where many tech companies are focusing their efforts, but Facebook is looking

beyond smartphones and tablets. It has been made clear that Facebook sees value beyond gaming for virtual reality and they are interested in bringing the first successful head-mounted VR unit to market. By doing so, Facebook is able to influence what we, as a society, come to expect from virtual experiences. Although bringing the first successful HMD to market may help Facebook's bottom line, it does not necessarily mean they can control the evolution of the platform. Once a device is available to inventors or entrepreneurs, the limits of the platform will be pushed and new iterations will be introduced. The history of gaming VR illustrates this cycle. Gaming VR began with a Power Glove, evolved into an arcade machine, then head-mounted displays entered homes with the Virtual Boy, and the Wii released us from wires connected to a system and incorporated our bodies into game play. All of these milestones have been important to understanding VR, its trajectory, and how we have arrived at our current iteration.

If we are to subscribe to McLuhan's faith in artists' ability to act as augers, looking back at the commentary of artists through their scripts and novels could provide insight into the trajectory of VR in the years yet to come. That is to say, this thesis will examine the observations of script writers, filmmakers, and novelists who offer prescient commentary about the state of virtual reality gaming years before the technology reaches a consumer market. The following thesis will unfold in three remaining chapters that will explore the media texts produced by artists and the emerging virtual reality video game industry.

Chapter two will examine the work artists have done in order to provide a critical consciousness for virtual reality, focusing on the observations that reveal an impending imbalance. This chapter will provide a rhetorical analysis of three media texts that represent different major themes that appear in a range of media involving virtual reality. These themes not

only reveal the artists' vision of the future in general, but also the profound impact that an immersive technology such as virtual reality could have on our lives. From Ernest Cline's *Ready Player One* (2011) to the wildly successful anime *Sword Art Online* (2012), virtual reality has been subject to less than appealing depictions that warn us about the possible adverse effects of the devices. Whether it is the questioning of reality, the ability to escape the banality of daily life, or the anxiety that virtual worlds could cause, artists have envisioned effects on daily life and uses for VR that seem to be becoming a reality.

If we are to give careful consideration to the artist as a person of integral awareness, the observations examined in chapter two warrant additional discussion of the economic and political interests behind bringing virtual reality to the consumer market. Chapter three will explore these interests through the lens of Sony's Project Morpheus and Facebook's acquisition of OculusVR. These two companies manifest two different intentions for virtual reality and offer a compelling dichotomy worthy of study. Sony is a longtime gaming industry leader with its PlayStation brand and has recently announced plans for a VR device for the PlayStation 4 console. Sony has made no indication of their plans for the device beyond video gaming and has been touting the technology as the future of gaming. In contrast, one of the first statements released by Facebook concerning virtual reality championed its potential to go beyond gaming and be used for other purposes.

The fourth and final chapter will explore the trajectory of virtual reality, not only as a gaming medium, but beyond. Artists have provided a blueprint for what they believe will become of the medium once it is universally adopted; meanwhile, the current consumer VR industry seems to be following a path that is not unlike the artists' visions. If this is, indeed, the

case we can begin to explore how to approach this new technology on a political, educational, and social level.

MEN OF INTEGRAL AWARENESS

One of the foundational tenets of media ecology is to consider the entire media environment in which a given medium operates (McLuhan & McLuhan, 1988; Mumford, 1966; Postman, 1993). In other words, understanding the cultural situation that technological devices arise from can illuminate how or why they may have developed a certain way. Marshall McLuhan insists that artists play an important role in this process. McLuhan quotes Wyndham Lewis when discussing the role of artists when it comes to technology: “The artist is always engaged in writing a detailed history of the future because he is the only person aware of the nature of the present” (1994, p. 65). He continues by suggesting that artists are individuals of “integral awareness” and have the ability to view and correct the social consequences of a new technology (p. 66). This chapter discusses the way in which artists, particularly filmmakers and writers, have imagined virtual reality gaming in their work.

The work of science fiction writers has long offered commentary on technology and its profound effects on society (Hope, 2014; Stockton, 2014). For instance, one of the earliest science fiction stories was Johannes Kepler’s *Somium seu Astronoia Lunary* (1634), and told of creating space vessels that could travel to the moon (Lombardo, 2005). Jules Verne dreamed of submarines and lunar landings in the 1863 work *Paris in the Twentieth Century*—nearly a century before either would exist. Arthur C. Clarke’s *2001: A Space Odyssey* (1968) portrayed an iPad-like device called the “Newspad.” The prescient observations of science fiction artists can be seen throughout history.

Similar to McLuhan’s testament to the artist as a visionary, the work of sociologist Stuart Hall asserts that media representations play a part in the shaping of ideology and culture. Hall has offered in-depth analysis of media representations’ ability to “[make] things mean” (Hall,

1982, p. 64). Hall suggests that media does not just reflect our society and culture, but “implies the active world of selecting and presenting of structuring and shaping; not merely transmitting of an already existing meaning, but the more active labour of making things mean” (1982, p. 64). Thus if the artist is a visionary, as McLuhan suggests, than Hall’s assertion speaks to the influential power of the artist’s work.

The past four decades have engendered specific tropes in the entertainment industry regarding virtual reality. For instance, it is not uncommon to see protagonists “jacked in” to a virtual world such as Neo in *The Matrix* (1999), or, more in line with the modern manifestation of virtual reality devices, donning a head-mounted display as John Spartan does in *Demolition Man* (1993). *TRON: Legacy* (2010), on the other hand, transports the entire physical beings of Sam and Kevin Flynn—not just their consciousnesses—into a video game. As Hall suggested, the repetition of these tropes brings forth cultural expectations regarding virtual reality and its accompanying devices. That is to say, the repetitious nature of these tropes is actively creating cultural meaning for virtual reality. The popular understanding of virtual reality is one example of how media representations create meaning. A survey of movies and TV shows starting in the 1980s, executed by Critical Commons, reveals an “inscription and reinscription of standard tropes of VR—[as] complex technological apparatuses that deliver ‘safe’ experiences that we may be denied in everyday life” (n.d.). In other words, the concept of virtual reality and the devices that are used to deliver virtual reality are not mutually exclusive in popular culture. Regardless of the type of virtual reality being portrayed—“jacked in,” HMDs, or being inside a computer—it is both the device itself and the virtual environment that is understood as virtual reality. In many cases, the current wave of VR devices are not distinguished as a VR device, but

simply as virtual reality (Karol, 2014; OculusVR, 2014; Smith, 2014; Segall, 2014; Schnipper, 2014).

This chapter aims to discuss how artists have portrayed virtual reality gaming in their work by fusing McLuhan's concept of the artist as a visionary and forecaster and Hall's assertion that media representation affects cultural expectations. This will be accomplished by discussing three prominent themes that are common among texts involving virtual reality gaming: reality versus virtual reality, escapism, and anxiety. In order to uncover these themes several texts were analyzed: *Sword Art Online* (2012), *Ready Player One* (2011), *.hack//Quantum* (2010), *Avalon* (2001), *eXistenZ* (1999), *Nirvana* (1997), *Evolver* (1995), and *VR.5* (1995). In the interest of focus and clarity, three of the eight texts have been chosen as illustrative examples to discuss the aforementioned themes. With regard to the disengagement a player may experience from reality while participating in virtual reality, I will employ Ernest Cline's 2011 novel *Ready Player One*. For the purpose of exploring the themes of escapism, David Cronenberg's film *eXistenZ* will be engaged. Lastly, the 2001 Japanese/Polish film by Mamoru Oshii, *Avalon*, will evoke the dark side of virtual reality gaming as I discuss the fears and anxieties portrayed in the film.

Cautionary Tales

Ready Player One: The Illusion of Reality

Ernest Cline's novel *Ready Player One* is a *New York Times* best seller (*New York Times*, 2011) that takes place in the not-so-distant future of 2044. *New York Times* writer Janet Maslin suggests that not only will like-minded people enjoy the book—she alludes to people who identify as geeks or nerds—but so would “people who like books without pictures” (Maslin, 2011). The novel follows Wade Watts, a poverty-stricken teenager, who escapes his miserable daily life by playing a virtual reality game known as OASIS. *Ready Player One* is littered with

references to video games, virtual reality, 1980s pop-culture, and “geek heroes such as Gary Gyx” (Maslin, 2011, para 1). The driving narrative of *Ready Player One* takes place within a virtual reality world that many of the players find more enticing than the dystopian reality that they are living. Thus, the main characters are dealing directly with the struggle between the paradise that is OASIS and the struggle of living in 2044 America. This allows for the novel to explore themes of conflict and confusion about what is a real experience.

Ready Player One takes place in an America where resources are scarce and the economy has been in a “great recession” for a number of years. Most citizens live in poverty and reside in trailer parks known as “the stacks,” due to stacking the mobile homes on top of each other as a consequence of lack of space and overpopulation. Wade Watts, narrator and protagonist, lives in the stacks and is a player of OASIS, a virtual reality game with a head-mounted display created by game designer James Halliday. OASIS is not only a game, but also a virtual environment—much like *Second Life* (2003)—where players can socialize, go to school, watch sporting events or concerts, play other video games, and so forth. That is to say, it is an all-encompassing world where players do not have to level up or complete quests like traditional massive multiplayer online roleplaying games (MMORPG), but can simply exist in a virtual world without ever participating in the game aspects of OASIS. Interestingly, most people participate in OASIS through head-mounted displays, but as the story unfolds you learn that players can purchase full-body haptic suits which mimic physical sensations. In other words, players can wear a suit that allows them the sense of touch in the virtual environment.

Early in the novel we learn that James Halliday has left a quest scheduled to activate upon his death: a race to decipher three clues that unlock an Easter eggⁱⁱ in the game. The first player to decipher and find all three clues will become the heir to Halliday’s fortune. Wade is a

“gunter”—short for “Egg Hunter”—who devotes all of his time studying Halliday and the possible location of the clues. With his knowledge of Halliday and the help of his OASIS friend Aech and his OASIS love interest Art3mis, Wade sets forth to decipher the three clues and unlock Halliday’s Easter egg.

OASIS is presented as a device that was originally intended for gaming, but eventually turned into a full-on virtual world where gaming is just one of many things that a player can do while logged in. In fact, the OASIS world is so large, engrossing, and flexible that a player can enter a virtual video game arcade and play classic arcade games such as *Joust* or *Pac-Man*. As a consequence, players no longer have to travel to an arcade or obtain a gaming console in reality because they can access them virtually inside OASIS.

Because of the complexity and richness of OASIS, a large part of the novel is spent in the non-game-oriented part of the world. It is not until our protagonist begins his quest for the clues that we learn more about OASIS as a game, rather than an auxiliary reality. The ubiquity of virtual reality becomes clear when we learn that OASIS has even integrated itself into actual society. For instance, children can attend virtual school; the OASIS monetary system, known as credits, has an exchange rate to US dollars allowing for physical goods to be purchased with virtual currency; and some players own their own virtual houses where they socialize with each other instead of meeting up in real life. Indeed, it would seem that for many people OASIS is more convenient than real life, and thus the virtual begins to replace the real in terms of how people go about their daily lives.

In the latter half of the novel, this idea is illuminated by how Wade chooses to live his real life after he comes into a great deal of money by being the first player to unlock the first of Halliday’s clues. Wade moves into a small apartment that has nothing but a bed, shower, and an

“immersion rig”—a chair that works in conjunction with a haptic suit which is meant to induce full immersion, or the feeling of being inside the game. Aside from sleeping and eating, Wade spends every waking hour inside of OASIS; he orders food, pays his bills, falls in love with Art3mis, and even owns his own planet. Meanwhile, in reality, he is living in a cramped apartment and has next to no contact with the outside world. In effect, life inside OASIS is more important to Wade than his physical existence. At one point, he even refers to himself as a nobody in real life, while being a “world famous gunter and international celebrity” (Cline, 2011, p. 297) inside OASIS. For Wade, OASIS is more real than reality. His livelihood, social network, and purpose for living—finding Halliday’s Easter egg and, eventually, meeting Art3mis in the real world—stem from the game. In the real world, Wade could never have escaped the stacks, had his own apartment, or fallen in love with Art3mis. Without OASIS, Wade would have continued living in the poverty and hardship illustrated in the early chapters of the novel.

Ready Player One offers a glimpse into what VR gaming could become as it matures as a medium. Cline’s rhetoric suggests that VR could go beyond being just a gaming device—it could become a substitute for reality. Players can view movies, watch or even participate in sporting events, play other games, and meet new friends in a world that is in many ways nearly indistinguishable from real life. The immersive nature of OASIS causes the players to lose themselves in a virtual world that becomes just as meaningful as the physical world. In many cases, the virtual world ends up replacing many of the real world activities that a player would normally participate in, causing OASIS to become a reality of its own.

eXistenZ: Escaping Reality

David Cronenberg is known as a filmmaker who pushes the limits of his work with each film he produces, even as far as being called “the most audacious and challenging narrative

director in the English-speaking world” (Hoberman, 2005). Indeed, his film *eXistenZ* (1999) is challenging and, perhaps, borders on being a horror film more than science fiction. Like most of Cronenberg’s filmography, *eXistenZ* offers a commentary on technology in relationship to the human body (*Geek’s Guide To The Galaxy*, 2014); however, themes of escapism and being able to leave the confines of the physical world appear throughout the film. Like most of the texts examined for this chapter, *eXistenZ* could be used to discuss any number of the major themes that appear in works dealing with virtual reality gaming, but Cronenberg’s unique perspective offers particular insight regarding escaping into a virtual world.

eXistenZ is a complex film that, at times, is difficult to follow. However, the driving narrative is focused on Allegra Geller, world famous game designer, and Ted Pikul, marketing and promotions trainee. During a focus group of Allegra’s newest game, aptly titled *eXistenZ*, she is attacked by a member of the realism movement, a group dedicated to ridding the world of virtual experiences. After Geller is shot, Pikul assists her in escaping the scene and becomes tasked with bringing her to safety. Throughout the film, Pikul is shown as having an aversion to virtual reality, yet he goes as far as having a “bioport”—a port in the lower spine of a person that allows the VR device to connect to the player—installed in his body so he can play Geller’s game. While the two are playing *eXistenZ* together, they go through various scenarios which seem to be very game-like. For example, certain characters in the film do not respond to conversation unless they are approached or spoken to in a specific way. However, as the film progresses we learn that *everything* we have seen has been inside of a game. The end of the film reveals that Pikul and Geller are merely game characters who are representations of two individuals playing a virtual reality video game called *tranCendenZ*. It is important to note that *tranCendenZ* renders its game world based on the motivations, emotions, and mental state of the

person playing it. Thus, it is creating a game based on what the players are yearning for rather than being predesigned.

Even though the viewer does not learn that Geller and Pikul are themselves avatars in a game until the very end of the movie, the way in which their players' gaming device works seems to operate on the highest level of escapism. That is to say, if video games are inherently escapist (Calleja, 2010) due to their ability to let players pretend to be other people or simply get away from their daily lives (Nature World News, 2013), a game such as tranCendenZ goes even further by tapping directly into the subconscious of the player. During the course of the film, we are led to believe that Geller and Pikul are on the run from the realism movement; however, we learn that they are actually members of the movement sent to kill the game designer of tranCendenZ. In other words, the tranCendenZ gaming device created a scenario based on the fantasies of the two main characters. It is worth noting, furthermore, that tranCendenZ does not require any controllers or head-mounted display. How the device functions is never explained, but it would seem that the device puts the player in a trance-like state, such that the game takes place in and is controlled by the player's mind. The physical body of the player is there, but the mind is occupied by the game world. In a sense Cronenberg's envisioned device is the ultimate form of escapism, as it requires no physical connection to the outside world—such as a controller or head-mounted display—and the game is tailored to the exact experience the player desires.

Aside from how the device operates, throughout the film Geller and Pikul consistently comment on the escapist qualities of virtual reality. Geller often refers to being “stuck in the real world” and would rather act upon her desires in the game world. In one scene the two experience an involuntary moment of passion, until Pikul gathers his composure exclaiming that he would never do such a thing in real life. Meanwhile, Geller shows no remorse for her actions and insists

that it is just a game and there is no point fighting the urge. In another scene, Pikul proclaims that he has the urge to murder somebody and Geller pleasantly states “you won’t be able to stop yourself. You might as well enjoy it.” It would seem that the game world is a place where you could do anything without any repercussions, which is obviously quite different from the real world. Pikul’s aversion to the escapist quality of the virtual environment is likely due to him being less familiar with games than Geller, since he admits to never having played a game before. This juxtaposition of someone who embraces the escapist tendencies of games and another who is wary of it provides interesting insight into how an experienced player and an inexperienced player might interpret the perceived freedom of a virtual reality game.

Gas, a side character in the narrative, offers an example of how even the most mundane jobs can be more appealing in virtual reality. Outside of the game, Gas—whose real name we never learn—is a gas station attendant. Coincidentally, he also operates a gas station inside *eXistenZ* as well. When Geller and Pikul arrive at his gas station, he immediately recognizes Geller as the world famous game designer and begins to explain that her games have changed his life. Curious, Pikul asks what his life was like before playing Allegra’s games. Gas goes on to explain that he was a gas station attendant on the “most pathetic level of reality.” Gas’s comment suggests that being a gas station attendant in the game is somehow better than being one in real life. Whether it is because he is free from the other constraints he might face or because he also has the exciting and potentially lucrative side employment of being a black market bioport installer, the game affords him a way of escaping his wretched real world situation.

Escapism does not necessarily mean that the players are unaware that they are in a game. In the case of *eXistenZ*, the characters are fully aware even though the audience is not. The game becomes an outlet for the players to knowingly participate in what they may be prohibited from

in the real world. While seemingly harmless acts are “just a game,” these acts could become problematic for the characters when they are no longer sure if they are in a game or not. This becomes strikingly evident in the final moments of the film. After Geller and Pikul awake from the game of tranCendenZ, they reveal that they are members of the realism movement and proceed to murder the designer of the tranCendenZ. As they begin to calmly leave the building, they come across a bystander near the door and aim their guns at him. Showing uncertainty rather than fear, the bystander exclaims “You don’t have to shoot me. Just tell me the truth, are we still in the game?” As discussed in the previous section, here the blurring of reality via VR gaming becomes potentially troubling when coupled with escapism. VR gaming provides a space that is unrestrained and allows players to get away from the mundane or even bleak reality that we inhabit. While the film itself offers a dim look at VR gaming, the characters themselves speak volumes regarding the appeal of the escapist nature of the device.

Avalon: Anxiety

Mamori Oshii is an acclaimed Japanese animation (Anime) director known for *Ghost in the Shell* (1995), *Ghost in the Shell 2* (2004), and *Assault Girls* (2009). *Avalon* (2001), released after his critically acclaimed anime *Ghost in the Shell*, is one of his rare live-action films. Oshii’s work has gone on to inspire filmmakers such as the Wachowskis while they were working on *The Matrix*, and James Cameron who stated that *Avalon* is the “most artistic, beautiful, and stylish sci-fi film” (Watanabe & Oshii, 2001). Oshii’s film is based around an illegal virtual reality game called Avalon. The protagonist, Ash, is widely considered one of the best players in underground circles, but constantly struggles with the stress of being a part of illicit activity. Thus, the film depicts a darker side of virtual reality gaming quite explicitly.

Avalon is set in what seems to be a dystopian Eastern bloc country. Avalon, a virtual reality shooting game where the object is to kill as many enemies as possible, is illegal and players must travel to secret locales in order to play. The game was made illegal due to the addictive qualities of the game which caused players to become “unreturned.” Being unreturned is a catatonic state where a player’s consciousness has been transferred into the game while their body is left in a vegetative state. A former teammate of Ash, Murphy, has become unreturned. Ash becomes convinced she can bring Murphy back to reality by accessing a secret level in Avalon and finding his consciousness, thus beginning her journey.

Avalon’s larger narrative is mostly concerned with the question of “what is reality?” Yet throughout the film virtual reality gaming is depicted as something dangerous that can be a detriment to a player’s life. For instance, the state of being unreturned renders the human body useless even while the player continues to exist in the game. The film shows hundreds of unreturned players in a special facility, much like a rehabilitation center, where doctors are merely watching over the catatonic bodies. At one point, Ash is brought to this facility by Stunner, a former Avalon teammate, to see for herself that Murphy is, indeed, unreturned. When they arrive, Stunner refuses to enter the facility and states “it is too real for me.” Stunner’s reaction, coupled with the depiction of unreturned bodies, suggests that virtual reality gaming can cause players to become disconnected from reality. Rather than choosing to live in the virtual world—as they do in *Ready Player One*—unreturned players have no choice. They have become so enthralled by the virtual world that their physical existence has been rendered useless.

While Avalon is deemed illegal in the narrative of the film, it is not clear as to why, other than the game having addictive qualities which are never fully explained. However, from watching the film there are inferences that link playing Avalon to illicit drug use. For instance,

the locations where Avalon can be played are in large, dingy warehouses. Inside the warehouses, players can rent small, dark, dirty rooms that house a head-mounted display that looks like a medieval torture device and a single chair. Ash is consistently portrayed undressing before entering Avalon, and once she does enter the game it seems that she falls into a euphoric state. In one scene in particular, Ash disconnects from the game prematurely and has a violent bodily reaction to the experience. Afterwards, Ash apologizes to the Game Master, a being who is only ever seen on screens in the warehouse and who supposedly created the game, for getting sick in his room. The unsettling scene seems to correlate the experience of disconnecting from virtual reality gaming with the aftereffects of overdosing on illegal drugs.

Perhaps related to the idea of addiction (Wolffgramm & Heyne, 1995; Recovery Connection, 2012; Discovery House, 2014), isolation is also a prominent theme in *Avalon*. As mentioned, players rent private rooms from the warehouses where Avalon can be played. While inside the room, players are isolated from the outside world—the only people they have contact with are others playing Avalon. Ironically, Avalon is a shooting game whose goal is to kill as many enemies as possible. That is to say, players are hunting the very people with whom they could potentially communicate, thus further isolating themselves. Though players do have the ability to work as a team, it is suggested that these are limited groupings who generally only interact with each other while in game. Thus the isolation carries over to the real world. The head-mounted display that players must wear further cuts the player off from the real world. The device covers nearly the entire head and seems to lock onto the player's cranium. The intricacies of the device are never explained, but it is, indeed, an unnerving contraption.

Outside of the game, isolation is an evident theme in Ash's everyday life. She lives alone in a small apartment and has very little interaction with people outside of the game world. Even

while at home, Ash spends most of her time browsing websites that are in some way related to Avalon. Up until Ash comes into contact with Stunner she has almost no interaction with people outside of the game. Fitting the theme of isolation that runs throughout the film, Stunner has become homeless and isolated from his friends and family. Stunner's homelessness furthers the theme of isolation, as the homeless population is regarded as isolated or even exiled from the rest of society (Kirklin, 2012). The unreturned players could also be considered isolated, as they are stuck inside of a game and have no contact with the outside world. Their physical bodies are merely shells of who they once were and have no way of communicating with the real world. Being unreturned could very well be the ultimate form of isolation. While Ash's isolation is not completely social such as Stunner's or the unreturned, her struggle with isolation comes in the form of losing the ability to tell the difference between the real and the virtual world. Effectively, she is on the brink of becoming unreturned.

Ash's struggle with understanding what is real comes to a head in the final scene of the film. While searching for Murphy inside Avalon, Ash advances to "Class Real," the secret level to the game which supposedly causes players to become unreturned. Ash is informed that this level is very different than any level she has previously experienced in Avalon, as she is not allowed to kill anyone except her target—Murphy. To expound the difference between Class Real and the rest of Avalon that has been depicted throughout the film, there is a complete aesthetic change in the movie: colors are vivid opposed to muted, there are civilian families out walking a cityscape as opposed to dusky desert towns, and there are no obvious enemies waiting to be shot down.

As Ash begins navigating Class Real, she realizes that she is unsure whether she is in Avalon anymore. She begins to believe that this is now reality and she is being used as an

assassin to hunt down her friend. Despite her uncertainty, she continues on her mission until she finds Murphy. Her struggle with what is real comes to a head when she is forced to decide if she is going to kill Murphy or not. Originally, she wanted to free him from being unreturned but now she is no longer certain that the world she thought she knew was real. She had become so engrossed in the game, isolated from reality, that she can no longer tell the difference between the real and the virtual.

Avalon portrays VR gaming as an addictive and isolating experience that causes the player to lose touch with reality. Even though Ash has a purpose—finding and bringing Murphy back from being unreturned—she is held back by the isolating and addictive nature of the game which ultimately makes her question what is real. The addictive nature of virtual worlds is a topic that has been long studied (King, Delfabbro, & Griffiths, 2013; Chiu, Lee, Huang, 2004; Hauge, Gentile, 2003), thus Oshii is commenting on a fear that is already prevalent in society (Spencer, 2007; AAP, 2012). The immersive quality of virtual reality gaming is exacerbated in *Avalon*, and shows a world where those who are enthralled with the game may no longer be able to function as contributing members of society.

Proceed With Caution

This chapter has explored three of the themes found across a representative sample of texts, while one text has been used to illustrate one theme. Worthy of note is that each of the eight texts examined explored all of these themes and, in many cases, the themes converged on one another. That is to say, that each theme—realism, escapism, and anxiety—is connected with the others to send a specific message about virtual reality gaming. Artists are not exploring these concepts as solitary entities, but as forces that comment on a technology that may have great communicative influence.

McLuhan (1950) stated in a book review that “the artist is an expert in the training of perception” (p. 46), which closely reflects Hall’s assertion that media representations influence culture and society. If the novel and films examined have influential power over the perception of virtual reality gaming, it seems that there may be a warning to proceed with caution. Repeatedly, virtual reality gaming is shown as a place where the player can become lost in the virtual, forgetting about the real. It is a place where we can do anything, be anyone, and live how we want to live. We can escape to our own world of fantasy and do nearly anything we please. But we must keep in mind that there is a physical world, a world that requires our attention. We mustn’t isolate ourselves from the real world, but rather keep in mind that there is only so much that can be accomplished in the virtual realm.

In the closing chapters of *Ready Player One*, we learn that Wade has installed lockouts on his OASIS device that do not allow him to log in until he has exercised, eaten, and taken care of other real world functions. This depicts Wade realizing that there is more to life than OASIS and he needs to be mindful of that. In the end, Wade meets Art3mis and they share a real life moment together for the first time which he describes as a “strange new sensation” (Cline, 2011, p. 372)—in other words, a sensation that he would never been able to have inside of OASIS. Wade goes on to state that now that he is with Art3mis (whom he refers to by her real name, Samantha) in reality, he has no desire to log back into OASIS. Thus, the real world has affordances that the virtual simply cannot match. Wade experienced all of the themes discussed in this chapter during the course of his adventure in *Ready Player One*, but in the end comes out realizing that reality is a place in which he needs to spend more time.

This is not to say that virtual reality gaming is something we should be frightened of, but rather that the work of Cline, Cronenberg, and Oshii offer tales of caution and ways of

understanding the technology. We can lose sight of reality due to the escapist nature of games, and because of that, we must be concerned with the potential for isolation, addiction, and other consequences of losing ourselves to the virtual. Yet these virtual worlds also offer a fantastical place where we can be a superhero, a crime fighter, or a world famous gunter.

TO GAME OR NOT TO GAME

Until recently virtual reality has been confined to niche communities and brief demonstrations at trade shows such as E3. However, since the acquisition of OculusVR by Facebook in March of 2014, virtual reality has emerged into the consumer and industry spotlights. For instance, several trade shows for fans and industry leaders are being held this year including the first International Conference on Virtual Reality and VR is making appearances at widely attended conventions such as the Consumer Electronics Show (CES) and the Penny Arcade Expo (PAX). Meanwhile, companies such as Facebook, Sony, Google, and Samsung have been working toward releasing their own virtual reality devices. Samsung, for example, has recently placed its Gear VR inside select Best Buys for consumers to experience before purchasing (Fingas, 2015).

While companies may have been working on virtual reality devices for quite some time, it was not until Facebook announced their acquisition of OculusVR that VR reemerged into the consumer spotlight. Around the same time as Facebook's \$2 billion purchase, both Sony and Samsung announced plans to release VR devices of their own. Somewhat surprisingly, Microsoft has opted to stay out of the discussion stating that they want to "see how the VR space evolves" (Orland, 2014). Google, on the other hand, was already experimenting with augmented reality, the supplementation of the real world with computer-generated inputs such as sound, graphics, or video, in the form of Google Glass.

A year after this landmark acquisition by Facebook, virtual reality devices are on the brink of wide-scale release to the consumer market. Facebook's Oculus Rift and Sony's Project Morpheus are in the tail end of development. Both devices have been making appearances at trade shows and conferences around the country and are slated to be released sometime in 2015.

Samsung managed to release Gear VR in December of 2014 and the device is currently available directly from Samsung's online store. Google has withdrawn Glass from the market but recently announced that they will be working with Mattel to reinvent the children's toy View-Master as a VR device (Lanks, 2015). Microsoft has continued to eschew virtual reality and has opted instead to pursue an augmented reality headset known as the HoloLens (Statt, 2015), which seems to be a more advanced version of Google Glass. Lastly, Panasonic has announced their own entrance into the VR market with a pair of goggles that they claim will be ready for release at the Tokyo Olympic Games in 2020 (Langshaw, 2015). The aforementioned are just a few of the major players in the VR market, and this summary does not account for the numerous independent projects in development.ⁱⁱⁱ

While there are many VR devices in different stages of development, the potential uses for the technology varies. For instance, Facebook and Samsung have an interest in expanding virtual reality beyond gaming and into other areas of everyday life, such as watching sporting events, doctor visits, or watching live concerts (Russell, 2014; Reisinger, 2015). On the other hand, Sony's Project Morpheus has been clearly marked as a gaming oriented device, as it is a technological extension of their PlayStation 4 console (Latino Post, 2015). This range of potential uses allows for wider exploration of the potential direction of virtual reality as the technology moves forward. As discussed in the previous chapter, artists have envisioned virtual reality stemming from video gaming but almost always evolving into something more. It would seem that the companies with the ability to bring these products to the market have nearly the same vision.

For the purpose of this chapter, the relationship between virtual reality and the companies primed to bring VR devices to market will be explored. Although there are numerous companies

and devices being brought to the consumer market, Sony and Facebook offer a compelling comparison in that each company is using a similar means to a different end. Facebook has purchased OculusVR with the intention of extending virtual reality beyond video games, while Sony is developing Project Morpheus specifically for the gaming experience. Furthermore, Sony is a long established entity within the gaming industry as a game developer, publisher, and hardware producer. Facebook, while having provided a space for video games on their social networking site, is a new force in the video game marketplace whose financial stability comes largely from advertising (Shontell, 2014). Moreover, both Sony and Facebook are multibillion dollar multinational entities with a global reach that touches most of the developed world (Statista, 2015; Toro, 2011). The ubiquity of Sony and Facebook, coupled with their financial position, allows for them to be considered viable players in the virtual reality market. Thus, this chapter will canvass the context that each company has created for their inevitable virtual reality devices.

Sony and Project Morpheus

Sony's venture into video gaming began in 1994 with the release of the original PlayStation console in Japan, with the North American release following nine months later in September 1995. In 1988, Sony was working in conjunction with Nintendo in order to bring a CD-ROM-based gaming console to market; however, the two companies could not reach an agreement which led to Sony releasing the console on their own. Since then Sony has gone on to create the best-selling brand in the home console market. Their first console, PlayStation, was the first to ship over 100 million units (Giant Bomb, 2014). The next iteration, PlayStation 2, went on to become the best-selling home console of all time, selling over 150 million units as of 2013 (Sony Computer Entertainment, 2005; Takahashi, 2013); PlayStation 3 sold over 100

million units (Takahashi, 2013). Their most recent console, PlayStation 4, sold 1 million units in a 24 hour period, making it the fastest selling console in history (Sony Computer Entertainment, 2013). Furthermore, the PlayStation brand consists of more than just home gaming consoles. Over the years Sony Computer Entertainment, the subsidiary of Sony Corporation responsible for the PlayStation brand, has released handheld gaming consoles, televisions, mobile phones, and Android tablets, and recently announced the upcoming release of a virtual reality device with the code name Project Morpheus.

Project Morpheus is a head-mounted virtual reality display that will work in conjunction with the PlayStation 4 console and the PlayStation Vita, Sony's handheld gaming device. The Project Morpheus HMD uses an LCD screen that runs at 1080p, has a 90 degree field of view, and integrates with the PlayStation camera in order to track the player's movements (Sony Computer Entertainment, 2014). Sony Computer Entertainment president Shuhei Yoshida introduced Project Morpheus at the Game Developers Conference on March 18, 2014, less than a week before Facebook's purchase of OculusVR. The first public demonstration of Morpheus took place on *The Tonight Show Starring Jimmy Fallon* when Fallon played with the device at the E3 conference (NBC, n.d.). Since then, Morpheus has found its way to numerous conventions—such as New York Comic Con (Sliva, 2014) and the International Consumer Electronics Show—and into the hands of tech journalists across the web.

Since the initial announcement of Project Morpheus, Sony has made it clear that they are interested in virtual reality being the future of video gaming and their PlayStation brand. In the first press release regarding Morpheus, Sony explicitly stated that the device will take the “PlayStation 4 system to the next level of immersion and demonstrate the future of gaming” (Sony Computer Entertainment, 2014, para. 1). The release explains that the intention of the

device is to create a sense of presence for the player. Sony wants to create a “window into another world that heightens the emotions gamers experience as they play” (Sony Computer Entertainment, 2014, para. 3). Interestingly, there is no sense that Sony has any intentions for their VR device other than advancing their video game brand. This is hinted at when the press release makes note that the PlayStation 4 has sold over six million units, suggesting that it is a prime gaming system for which to create virtual reality content (Sony Computer Entertainment, 2014, para. 6). Sony is a conglomerate that not only produces video game hardware and software, but also has a stake in the film, music, and television industry. However, despite having all of these resources at their disposal, there has been no indication from Sony that they will create content based on television, film, or music for Project Morpheus. Instead, it is clear that their efforts have been concentrated on video gaming.

Accessibility and ease of use are often important factors that can drive consumer adoption of next technologies. Indeed, one of Sony’s main goals is ease of use. Richard Marks, senior director of research and development at Sony Computer Entertainment America, stated “you’re going to have to be able to go to the store, buy one, plug it in and [have it work]” (McWhertor, 2014, para 14). PlayStation 4’s are readily available in the homes of millions of consumers, thus Sony’s VR device has the potential to reach an already established market. Given that Morpheus is not slated to be a standalone device, the hope is that players who own a PlayStation 4 will purchase Morpheus and participate in a virtual reality experience. Given PlayStation’s track record of finding its way into consumers’ homes, Sony has a large audience that they could engage with their device. Sony has also made it clear, with statements regarding virtual reality such as it being “the future of video games,” that they intend to pursue virtual reality gaming as they move forward. With that being said, Sony is the only longstanding

member of the video game industry who is openly pursuing this technology. Microsoft and Nintendo are either taking a different approach (augmented reality) or no approach at all, while OculusVR/Facebook are newcomers to the established video game industry.

Even though Sony is in position to be an industry leader when it comes to virtual reality, reoccurring and recent events leave Sony in a precarious situation. The events in question are the repeated hacking of the PlayStation Network (PSN), the online infrastructure that connects the PlayStation console to the internet, and in turn, is the preferred delivery method for gaming content.^{iv} In other words, the security protocols put in place by Sony have been compromised several times in the past four years. The significance here is that the PSN contains the personal information for over 75 million PlayStation users, including credit card and home address information.

The first major breach of the PSN occurred in 2011, and is also considered to be one of the largest data security breaches in history (Chung, 2011). The breach resulted in over 77 million users' personal information being stolen, while Sony took over a week to inform the users that the breach occurred. The scale of the hack was so large that the US government expressed concern and began demanding answers from Sony as to how and why the hack occurred, as well as an explanation for the delay in informing Sony customers that their information had been compromised (Seybold, 2011).

The PlayStation Network was compromised again in 2013, when PlayStation owners began reporting fraudulent charges made on their credit cards to their PSN accounts. Though this attack seemed to be less widespread, the hackers were able to access PlayStation owner's credit cards and make purchases. Sony's response was to refund the funds in question and insist users change their PSN passwords (Clark, 2013).

Almost exactly a year later the PSN was targeted by hackers yet again. This time, however, the attack was directed at Sony and not the user base. Early in December the hacker group Lizard Squad rendered the PlayStation store—the online store that is accessible through the PlayStation console—offline (Trenholm, 2014). Less than a month later, the same group struck again and shut down the entire PlayStation Network (Totilo, 2014). That is, they shut down the online service that powers much of the PlayStation experience, thus preventing users from logging in and playing games or making purchases. Unlike the hackers behind the previous attacks on the PSN, Lizard Squad was quite vocal as to their intentions, and stated that they attacked the network to prove a point (Turton, 2014). Members of the hacker group went on to explain that companies such as Sony were taking advantage of their user base, forcing users to pay for services that these companies cannot properly provide nor protect (Hernandez, 2014). The tactics used by Lizard Squad are commonly called DDOS attacks, or Distributed Denial of Service attacks. In brief, this is an attack that renders a server or network unavailable to its users by flooding the server with access requests from multiple sources. Typically, such hackers use automated systems to repeatedly access their target's network which ultimately shuts it down as the network cannot handle this overflow of traffic (Digital Attack Map, n.d.). Lizard Squad's attack lasted several days and resulted in the PSN being down repeatedly, sometimes for as long as 14 hours (Turton, 2014). Users would sporadically be able to access the network but it would often go offline shortly thereafter. While service was being disrupted, Sony did use their social media outlets to keep users informed as to their progress in restoring service, but the level of frustration users experienced was hardly quelled (Bloom & Andreeva, 2014).

PSN was down yet again in February of 2015; however, this time was not due to hackers. The down time in February was attributed to Sony's own firmware update to the PlayStation

console (Sayers, 2015). An update that was meant to improve the hardware performance of the console caused users to be unable to connect to the PSN. Sony quickly put out a statement that stated that their network was still online (Thier, 2015), seemingly to halt any rumors that they had been attacked once again. In this case, the PSN merely experienced a disruption of service, which is typically a temporary inconvenience for someone attempting to play a game. However, without being connected to the PSN the PlayStation console is, for all intents and purposes, inoperable as many games require a connection to the PSN to play.

The repeated and persistent downtime events that the PSN experiences have caused some loyal PlayStation users to become fed up. One player, Tracey Chancellor, told CNN that she is considering switching to Microsoft's Xbox One to avoid as many problems. Chancellor went on to say "to not be able to unwind at the end of the night, it's just awful. I've just sunk so much money into this thing ... Sony made so much money off of the PS4. They could use some of that money to fix the problem with their network" (Pagliery, 2015). While Chancellor provides just one example of the frustration that PlayStation owners are experiencing, a search of Twitter's database using the keywords "playstation network" illustrates widespread frustration regarding the network's stability. For example, Twitter user @A1Perrico tweeted "is everyone's @PlayStation network down!? heated [*sic*]." Another user, @onebluejedi, expressed his frustration with Sony by bringing up Microsoft's Xbox Live Network "PS4 PSN is down yet again, If Xbox One can do maintenance with out [*sic*] going offline why cant [*sic*] PlayStation do the same." Twitter user @Mr_Jbo considered switching to an Xbox One due to the amount of down time the PSN experiences, "I honestly think I'm going to get a Xbox One...I'm tired of Playstation network always being down." And as a final example, @BSmoov83 tweeted about

his frustration with the frequency of PSN downtime, "...when @PlayStation Network goes down for the 30th time this month ☹️."

Sony has been a force in the video game industry for a number of years, consistently breaking records in sales and the number of homes that own a PlayStation console. It would seem that they are in a position to release a virtual reality device that is accessible and easy to use to a large and established consumer base. On the other hand, hackers have consistently illuminated the weakness in Sony's system: the PlayStation Network. This could be problematic for Sony as they proceed with Project Morpheus. With the functionality of the PlayStation console being reliant on the stability of the PlayStation Network, Morpheus's success will also be dependent on the PlayStation Network working properly. If the PlayStation continues to fall victim to hacks, attacks, and down time, consumer confidence and loyalty may wane for Sony and their new virtual reality device.

Facebook and Oculus Rift

The Oculus Rift head-mounted display began as a project in the home of Palmer Luckey, and eventually found its way to the crowdfunding website Kickstarter^v in August 2012. The project obtained its goal of \$250,000 in less than twenty-four hours, and reached \$2.4 million by the end of the month-long campaign (Kickstarter, 2012). One of the selling points emphasized repeatedly on the Oculus Rift Kickstarter page is that it is a device "designed for gamers, by gamers" and it is built "specifically for video games that will change the way you think about gaming forever" (Kickstarter, 2012). The comments section of the Kickstarter page was flooded with messages regarding the potential of the new gaming device. For example, a commenter going by the name Mordred said "I'm absolutely positive the Rift will be a paradigm shifter" (Mordred, 2013). Another commenter, Mario Basiola (2013), speculated about what we may

expect to use as a controller for the device in the future, such as “lightweight, high precision, tracking gloves.” Positive comments about the direction of OculusVR continued to flow until March 25, 2014, when the company was purchased by Facebook.

Shortly after the acquisition of OculusVR, Facebook CEO Mark Zuckerberg (2014) released a statement saying that immersive video games are only the beginning for Oculus Rift:

But this is just the start. After games, we’re going to make Oculus a platform for many other experiences. Imagine enjoying a court side seat at a game, studying in a classroom of students and teachers all over the world or consulting with a doctor face-to-face—just by putting on goggles in your home (para. 6).

This marked the beginning of a very different direction for OculusVR as a company. While they still intend to produce a virtual reality gaming device, the ultimate goal is now to produce a device that goes beyond gaming. Zuckerberg’s statement made it clear that there are bigger plans for OculusVR than just gaming.

The acquisition by Facebook led to vehement outcry from followers of Oculus Rift. Individuals who had preordered the device^{vi} voiced concern regarding Facebook using the device simply to collect personal data, which led to Reddit’s Gaming forum^{vii} to explode with posts on how to cancel a Oculus Rift preorder (Grandoni, 2014). One user, TenTonApe, cited the uncertain future for the device as his reason for canceling:

Despite the massive arguments going on in here, everyone SHOULD cancel their pre-order. Before this we knew the direction Oculus was going, now we don’t.

That simple fact is good enough reason to cancel your pre-order, and it’s not like you can’t just pre-order it again later. This isn’t a movie ticket, its [*sic*] not a

game, its [*sic*] a peripheral worth hundreds of dollars. EVERYONE should be cautious when throwing that kind of money around (2014).

Reddit users were not the only followers of Oculus Rift wary of the purchase. Acclaimed video game designer Markus “notch” Persson, creator of *Minecraft* (2009), took to his Twitter account to announce that he was canceling plans to bring a version of *Minecraft* to Oculus Rift because Facebook “creeps [him] out” (Persson, 2014a). On his blog, Persson elaborated on his comment stating that “Facebook has a history of caring about building user numbers, and nothing but building user numbers [and] their motives are too unclear and shifting” (Persson, 2014b). On the contrary, Facebook’s motives seem to be quite clear—to collect and deliver consumer information to paying advertisers.

To consumers, Facebook is a social networking site that allows connection with friends, along with the ability to watch videos, play games, chat, or just catch up on day-to-day items of interest. To brand name companies, making use of Facebook is a preferred marketing strategy. En route to becoming a \$200 billion company, Facebook has leveraged its users’ web browsing data against companies willing to purchase the information for targeted ads (Morran, 2014). Facebook has the ability to not only track clicks on their site, but they have access to their users’ entire web browsing histories (Morran, 2014, para. 8). This access becomes valuable information that they can then sell to advertisers who in turn make sure their ads are reaching specific demographics. For users in the United States and Canada, it is estimated that Facebook earns \$9 in advertising per user (Albergotti, 2015, para 8).

Much of Facebook’s growth is contributed to the rise of its mobile division. In 2013, mobile advertising accounted for 40% of Facebook’s total advertising revenue. In 2014, that number rose to 62% (La Monica, 2014), and analysts predict that this number will continue to

grow. In turn, as Facebook gathers more mobile advertising clients it will need to continue to provide space for advertisers (Albergotti, 2015, para. 28). As one analyst was quoted in an article by Reed Albergotti (2015) of the Wall Street Journal, “Facebook does not have a demand problem... they have a supply problem” (para. 26).

The acquisition of companies such as WhatsApp, Instagram, and OculusVR allow Facebook to provide more mobile spaces in which their clients can place advertisements. In terms of OculusVR, it would seem that Facebook is investing in what they believe to be the next devices that have the ability to offer advertising space. Repeatedly Facebook spokespeople have championed the possibilities of virtual reality—sporting events, shopping malls, concerts—all of which are spaces where consumers are bombarded with advertising. Imagine a user who has never been to Time’s Square in New York City, arguably one of the most expensive and heavily advertised spaces in America (Steel, 2014), traveling to a virtual Time’s Square. They could be exposed to ads that change every hour, perhaps every minute, and have an experience that they may not be able to have in the real world. Of course, real billboards have this ability to change their ad on a timer as well, but they cannot do what virtual reality can, which is to allow users to interact with the advertisements directly. Facebook could intrude upon space that they could never touch in the real world by recreating it in the virtual and making it far more interactive. Indeed, it would seem that the observations of Oculus Rift followers and Markus Persson are not unwarranted. While gaming provides its own advantages for advertising, Facebook’s need for space may result in loftier social goals for virtual reality.

One of the affordances of virtual space presented through a HMD will be the ability to record what, exactly, the user is looking at. Gaze tracking, sometimes called eye-tracking, is the recording of the position of the eye relative to the head. Researchers use multiple techniques to

track the movement of the eye, but the predominant form is video-based tracking. In this case, two cameras focus on each eye of a research participant as they view different images. As the participant views images, cameras record the data which is then fed through software which renders the movements into points of data, thus revealing where the participant's gaze is landing. Gaze tracking has been in use since the 1800s (Goodman & Paulson, n.d.) and has been continually used in fields of research such as cognitive science, psycholinguistics, human computer interaction, and market research. Furthermore, it is also a technology that would allow Facebook to collect data on their users as they participate in virtual environments.

As of writing, there are no announced plans to include gaze tracking into the Oculus Rift HMD, or Sony's Project Morpheus for that matter. However, Sony's technological innovation studio, known as "Magic Lab," is in fact working with gaze tracking technology in relation to video games (Fleming, 2014).^{viii} Meanwhile, a third party developer, Senso Motoric Instruments (SMI), is developing a gaze tracking upgrade for the Oculus Rift (Geuss, 2014, para. 3). That is, SMI is creating a kit that will enable Oculus Rift owners to install gaze tracking technology into their Oculus Rift HMD. SMI insists that gaze tracking technology would help clear the hurdle of motion sickness that a player may experience while using a virtual reality headset. They contend that motion sickness is caused by the interpupillary distance, the distance between a person's pupils, being inaccurately accounted for by the Oculus Rift:

To get a really accurate projection, the HMD needs to know the interpupillary distance of the wearer's eyes. In the Oculus Rift, the default distance is set at 64 [millimeters], which is the average for most humans, but many people have wider-set eyes or more narrow-set eyes. That distortion becomes even more complex because as you move around in the virtual space, 3D objects will distort

differently depending on how far apart your pupils are from 64 mm (Guess, 2014, para. 15)

By introducing SMI's gaze tracking, the device would be able to calibrate itself to an accurate distance between the user's pupils. The upgrade seems as if it could be a great tool in reducing or eliminating motion sickness for those who experience it. However, it is easy to see how the technology could also be used as a tool for collecting information on its users.

Many modern games and applications require an internet connection in order to function properly. The internet connection allows the game or app to send information back to a host server, which is usually owned or leased by the developer or publisher. The resulting data can be used for a range of purposes such as online leaderboards for games, user databases for social apps, or information used for marketing purposes (Facebook, n.d.; OnGuardOnline.gov, n.d.; Peck, 2013; Stackoverflow, 2014). When thinking about gaze tracking, virtual reality, and Facebook—it would seem to be advantageous for Facebook to use gaze tracking technology in their device in order to gather more information on its users. In turn, this information could supplement the already existing information that they have gathered through their social networking websites. That is to say, Facebook will have the ability to provide an advertising space that users can interact with, thus allowing Facebook to assess and monitor the effectiveness of advertisements through gaze tracking via a virtual reality HMDs. It is not uncommon for companies to ask or even require data reports on its users to be sent back to them automatically by their software; however, what a user is looking at could be revealed rather than just what or where they are clicking.

Again, imagine the aforementioned virtual Time's Square. An Oculus Rift user logs into the space—store fronts, billboards, street performers—and decides to enter an electronics store

that has established themselves in the recreation of Time's Square. After spending some time inspecting the virtual goods, looking at different items on display, and perhaps even virtually handling certain items, the user exits the store and is back in Time's Square. Things have changed though: now all the billboards are a reflection of items similar to ones the user just interacted with inside the electronic store. In fact, more electronic stores have appeared in Time's Square, replacing the other locations that occupied the space prior. While the user entered and browsed the store, the device was rendering and sending information back to Facebook servers that mined the data for information about the user. Nearly instantaneously, the application would be able to modify the experience based on what the user was looking at, how much time they spent in a space, or in what manner they interacted with objects. While it seems like something out of science fiction, this is a speculative representation based on the commodity which Facebook has based its business—user behavior. Through the information provided on a Facebook account and data browsing history, Facebook is already able to deliver ads that are highly targeted at the user. If VR allows for users to interact directly with specific objects or virtual store fronts, the type of information gathered by Facebook would be even more specific and, thus, more valuable. Currently, when a user has been browsing the web Facebook only knows what that person has clicked or what pages they have landed on. They cannot ascertain what, exactly, a user was looking for or what they were looking at; the level of interaction available through virtual reality could reveal these exact browsing patterns.

Gaming and Beyond

The virtual reality landscapes as advanced by Sony and by Facebook offer two distinct ways of approaching the concept. It does seem, however, that both entities believe that video gaming is the catalyst for VR technology to break into the consumer market. As discussed in the

previous chapter, Facebook's intentions seem to resonate with McLuhan's and Hall's observations of artists. That is to say, the texts examined in chapter two suggested that consumer virtual reality can and will reach beyond the realm of video games. At the same time, those very texts all consider virtual reality a gaming technology that, eventually, goes beyond the original intentions of the device. In other words, if artists are making prescient observations, Sony's intentions of VR being solely a gaming technology is out of their hands; developers will take the technology in directions that the company may not have imagined or intended.

Aside from perceptive stories about the future direction of virtual reality video games, artists have offered anecdotes that seem to have become reality. Recently, Sony has announced that it may exit the television and mobile phone hardware market in order to focus primarily on video games and entertainment, as well as expanding the PlayStation Network user base (Ando, 2015). Expanding and reinforcing the PSN in preparation for the upcoming release of Project Morpheus, whose success is dependent on the PlayStation 4 customer base, could help Sony to better protect their network from hackers. As Sony continues to develop the PlayStation brand, the PlayStation console is starting to become a home media device more than just a video game console. PS4 owners can use their consoles to access online videos, listen to music, display pictures, and much more. Clearly, Sony recognizes that there are uses for a "gaming" console beyond just games. Even though Project Morpheus is slated to be a gaming peripheral, it may take the same road that the PlayStation consoles have over the years and slowly transform into a device that goes beyond video games.

Facebook's user base consists of over one billion users (Kiss, 2014), and Chris Cox, Facebook's Chief Product Officer, has suggested that, eventually, everyone will have a VR headset (Alba, 2015, para. 8). With that in mind, Facebook has already begun creating their own

apps for Oculus Rift that will enable users to create their own virtual content—details on how users would do this were not revealed (Alba, 2015, para. 7). OculusVR has also launched the Oculus Story Studio, a team that is dedicated to producing films specifically for the Oculus Rift (Oculus Rift, n.d.). It has been suggested that Facebook may start a Rift movie streaming service that will operate somewhat like Netflix (Sun, 2015). Other apps are also being developed that have little to do with gaming. For example, Victory Motorcycles has developed an app that allows users to take a virtual ride (Victory Motorcycles, 2015), artist Steegmann Mangrané created a commissioned work for the New Museum in New York City that is viewed using a Oculus Rift (Chu, 2015), and another app, *Sunshine Observation Deck*, allows users to explore the surface of the sun as a meditative experience (Prescott, 2015). These non-gaming apps that are being developed for Facebook's Oculus Rift are just a few examples of VR extending beyond video gaming and into areas that are not necessarily aligned with gaming.

It would seem that the work of science fiction storytellers long foretold the rise of virtual reality gaming and how the industry could shape VR gaming devices. Artists have made suggestive claims about the direction and consequences of such devices in their work, whether it be a small anecdote that is relatable to a real life situation, a lofty assumption about the direction of virtual reality, or simply an illustration of how virtual reality could influence the human experience. As the current, real life VR gaming industry continues to push forward, it is interesting to see how the industry's collective direction aligns (or not) with the artists' assumptions. If McLuhan's observations of the artist being individuals of integral awareness holds any truth, perhaps it is time to begin taking the work of science fiction more seriously as it looks to become reality.

TOWARDS A MEDIA CONSCIOUS SOCIETY

In the popular anime *Sword Art Online* (2012), players anxiously await the release of the video game *Sword Art Online* which is playable on a virtual reality device called “NerveGear.” The device is a virtual reality helmet that triggers the user’s five senses through their brain, thus allowing the players to experience and control the game with their mind. Once the game is released and thousands upon thousands of fans begin to log in to the game world, they quickly realize that they are unable to log out. There is no way to exit the game. Panic begins to spread throughout the game world until all the players are ported to a central meeting area. At this point Kayaba Akihiko, the designer of the game, appears in the sky, almost as if he were a deity, and explains why they cannot leave his world. It turns out he has purposefully removed the log out feature and the only way to successfully exit was to reach the 100th floor of a tower in the game. Kayaba goes on to say that if a player were to die in the game, they would also die in real life due to the NerveGear sending an electric shock to the player’s brain. Furthermore, the player would also perish if someone in the real world attempted to disconnect the NerveGear helmet. After disclosing his heinous plot to the players, Kayaba transforms each avatar to look identical to the player in real life because *Sword Art Online* was “their new reality.”

After completing my initial research on the reemergence of virtual reality, the overarching narrative of *Sword Art Online* struck me as an allegory for dealing with new technologies, in this case, virtual reality devices. Throughout the series, the beta tester and player Kirito acts as a beacon for the players who surround him. As a beta tester, he has extensive knowledge of the world he is navigating, which allows him to bestow knowledge upon those who are willing to listen. Meanwhile, Kayaba has his own interest in locking players into his virtual world; later he insidiously presents himself as a fellow player who is also locked in the

game (Heathcliff) in an attempt to gain other players' trust. The rest of the 10,000 players either progress slowly or give up, resigning themselves to living the rest of their lives within *Sword Art Online*. Rhetorically speaking, Kirito, a headstrong, enlightened, and skilled player, is the manifestation of McLuhan's concepts of the artist. Like Kirito and as discussed in chapter two, it would seem that artists have foresight that others may not, thus providing the opportunity to prepare ourselves for the impending of release of new technology and the effects it may have. Kayaba is the embodiment of companies who have a vested interest in bringing technology to market. Heathcliff, Kayaba's alter ego, suggests the role of the video game industry as the platform being used to ease users into the VR experience. Like Kayaba/Heathcliff, Facebook and Sony have differing but nonetheless vested interests in bringing virtual reality to the consumer market, and are doing so via video gaming as illustrated in chapter three. Lastly, the 10,000 players who become trapped in *Sword Art Online* serve as the unquestioning consumers of virtual reality worlds. From this perspective it would seem that *Sword Art Online* is a visual representation of the ongoing struggle between artists, technological industries, and society. Having previously discussed artist and industry, I will close with what we, as a society, should consider as we move closer to the widespread release of consumer virtual reality devices.

This final chapter will explore the trajectory of virtual reality gaming based on the observations of artists and current state of the virtual reality gaming industry. As demonstrated in the previous chapters, over the past several decades artists have provided cautionary tales that seem to be manifesting in real life through the reemergence of video game virtual reality. If this is indeed the case we can use those stories to begin to explore how virtual reality technology will impact the political, educational, and social aspects of our society. Also, the observations of artists often result in fantastical and futuristic representations of virtual reality. This begs the

question—what *is* a realistic representation of these devices? Surely, this is a question that cannot be answered definitively, but predicting the nature of VR devices years to come is certainly possible, if we draw on existing technological information, industry expectations, and insights provided by artists.

The Politics of Virtual Reality

The discussion of politics in terms of virtual reality goes beyond polling places and town hall debates, but all the same, it is still a discussion of power. Who holds the power? How do we gain power? And once we gain power, how do we maintain it? These are all relevant questions to the politics of anything, yet when it comes to virtual reality they are, for the most part, left unanswered. The renaissance that virtual reality devices are experiencing is still budding and has left several companies, developers, and designers all jockeying for influence over the medium. Indeed, it would seem that Facebook and Sony are in prime position to be powerhouses in the industry, while others will have to submit to the restrictions and limitations imposed by the dominant corporations; Law (1991) describes this relationship as the possession of influence. In other words, the dominant forces in the virtual reality industry will have the ability to decide the device's terms of usage and content. This assertion of power has been seen recently involving a game on the PC platform Steam, which is owned by the Valve Corporation.^{ix} The game in question is called *Hatred* (2015) and is described by its developers as “a game about killing people” (Schiesser, 2014). Without releasing a statement, Valve pulled the game from the Steam service. No reason had to be given nor did they feel compelled to give one, though we can assume that a game about murdering innocent civilians is not one that they wanted to promote. Steam is their service and they decide the content that will be available on it. However, after backlash from the *Hatred* community, Steam reversed their position and allowed *Hatred* back on

their platform but it was only after pressure from fans. Regardless of the ultimate outcome, Steam exercised their power over the game developers and made an initial decision about the content they would promote, and it would not be farfetched to assume that Facebook and Sony would play similar roles relative to the content they allow on their VR platforms.

For additional insight into the potential influence of a new medium, we can look at the struggle to gain and maintain power in American politics via the media. In the 1960s, John F. Kennedy harnessed the power of the television to win the presidential election. Against the advice of his staff, President Kennedy was the first president to effectively use television to speak directly to the American people. A poll conducted in 1961 indicated that over 90% of the people interviewed had watched President Kennedy on the television (John F. Kennedy Presidential Library and Museum, n.d.). His visibility and candidness with the American people assisted him in becoming the president with the highest approval rating to date (Gallup, n.d.). More recently, President Barack Obama used the internet in ways that no presidential nominee has ever done before. Not only did the Obama campaign use the internet's reach to collect micro-donations,^x but it also utilized YouTube as a free space for advertising. The campaign's rationale was that people would voluntarily share YouTube videos with their friends, rather than resenting having their television shows interrupted by political ads (Miller, 2008, para. 7). The strategy obviously worked as the campaign's videos were watched for a total of 14.5 million hours. To put this in perspective, 14.5 million hours of television advertising on broadcast channels costs roughly \$47 million (Miller, 2008, para. 8); the sharing of the videos cost the campaign nothing. Thus, if VR becomes a successful platform with a vast user base, we can expect to see it exploited by political campaigns.

A campaign being run in virtual reality is not hard to visualize. Individuals could virtually interact with nominees, attend town hall meetings without ever leaving their homes, and perhaps even meet face to face with a virtual representation of the President in the Oval Office. Furthermore, live streaming services^{xi} are poised to play a large role in American politics in upcoming elections. For the first time ever, candidates will be able to watch their opponents' political events in real time from thousands of miles away via live streaming services such as Meerkat and Periscope (Moody, 2015). Virtual reality, on the other hand, could allow opponents not only to watch these events, but even participate and ask their own questions without anyone knowing who is behind the avatar. The hacking of campaign websites and Twitter feeds is not uncommon in today's political atmosphere (Miller Z, 2013), but in the future, could we see virtual sabotage of political events? Beyond the maliciousness of the campaign trail, the door is open for cyber terrorism or simply shutting down events by enemy foreign countries, independent cyber terrorists, or a hacker simply doing it because they can. If we consider the repeated attacks on Sony's PlayStation Network, the idea of hacking a virtual campaign is not so farfetched. It would seem that hackers would not only be able to shut down virtual campaign events, but even, perhaps more dangerously, be able to obtain information on the individuals logging into the events. This would not be unlike the previous hacks on Sony where user information was compromised by Lizard Squad and other unknown hackers. I have focused this discussion on presidential elections due the year-long campaigning and visibility of the candidates that takes place prior to the election, though the discussion could be applied to any level of government.

It would be easy to disregard virtual reality as a gaming medium that would never have the political impact of the internet or television, but that would be to disregard the observations

that have been made by novelists, filmmakers, and screenwriters. Kennedy and Obama are two examples of the many presidents who understood the power of new technology and used it to their advantage. If virtual reality becomes as ubiquitous as we have been led to believe, the political system will have adjust to the new medium, just as it did with television and the internet.

The 1997 film *Nirvana* projects a government that is, it is implied, controlled by a gaming company: Okasama Star. Although not explicitly stated, it is assumed that Okasama Star rose to power due to the control they had over the most popular technology available: video games. By selecting, presenting, and releasing only what was in their interest, they were able to shape a message and elicit change in society. This is, indeed, an extreme example of the power of technology, but a prime example of social control through technology. Undeniably, there is a history of collusion between the media and the government (Davis, 2011; Rendall, 2013; Sirota, 2014). Thus, it is not a stretch of the imagination to envision VR being used to similar ends, to influence or persuade a populace under false pretenses. Indeed, Facebook's reach is not unlike that of Okasama Star, seeing that they have over a billion users worldwide. In North America alone, Facebook has over 100 million active users (Smith, 2015). This number is quite close to the number of people who turned out to vote in the 2012 Presidential Election: 129 million (Federal Election Commission, 2013). Keep in mind that these 129 million people need to be persuaded every four years to vote. Facebook's user base is connecting and engaging on a daily basis. Influencing the cultural change of a generation of people would not be difficult with carefully selected and crafted messages to a populace who is already invested in your services or products. In the end, those who control the medium control the message. Ultimately, our industry

leaders, such as Facebook and Sony, will have the power to decide which messages we receive through their devices.

Educating with Virtual Reality

Imagine a typical middle-school classroom. Inside this classroom there is a typical expectation of what we will find there: a teacher at the front of the room, posters on the wall, students occupying desks with books open in front of them. Now imagine a classroom with VR technology. Rather than the students sitting in front of books, they are wearing virtual reality head-mounted displays in order to explore the human body for a lesson in anatomy. Each student is immersed in their own virtual learning session. This exact scenario took place on October 20, 2014 in the Czech Republic. World of Comenius, an educational enrichment program, aims to enhance the learning experience through innovative technology and practices. One of their projects allowed the installation of seven Oculus Rift and Leap Motion^{xiii} devices in a Czech middle school. The chosen lesson allowed the students to virtually pick up and examine different human organs while being presented with information explaining the function of the organs they were handling (Mariančík, 2014). Many of the students had never used an Oculus Rift before, yet they were able to teach themselves and their peers how to use the device (James, 2014). Tomáš Mariančík, the director of World of Comenius, believes that Oculus Rift is the future of education: “Our goal is to make this educational platform available to everyone... We believe [the] goal to better life and society is access to information and helping people understand the world around them better” (as quoted in James, 2014). Tomas and World of Comenius are far from the only ones who believe that VR will revolutionize education.

Recently, journalists, researchers, and educators have reintroduced the discussion of virtual reality as an educational tool. One of the common proclamations is that virtual reality will

allow students to interact and engage, rather than passively “reading from a book or looking at a chalkboard” (Herold, 2014, para. 16). In an interview with Education Week, K-12 educator Mathieu Marunczyn, who is one of the first to be using Oculus Rift on a regular basis in the classroom, stated that it is visually stunning and “provokes and promotes a very imaginative response” (Herold, 2014, para. 21). Tech Journalist Kate Abrosimova (2014) proposes several ways that virtual reality will radically change education. The most convincing of her ideas is that students learn best “by doing or being” (para. 13). That is to say, students can take more away from a virtual experience than from a traditional lecture. This ties into another of Abrosimova’s assertions that virtual reality game-based learning increases student motivation (para. 18). By exploring a virtual world in a game-like setting, students are more engaged with the material that they are learning. Palmer Luckey has suggested that perhaps Oculus Rift devices could be provided to schools free of charge. In an email, Luckey stated that he wants “to get [Oculus Rift] into as many hands as possible, especially the people who are learning how to build the future” (Tweedie, 2014, para. 4). The idea that these devices may be given to schools has likely sparked much speculation as to what could be done with them, given that keeping up with technological advances has already proved a difficult task for public school systems.

Virtual reality’s reach does not stop at K-12 education. Uthervse Digital is working toward creating virtual experiences for college students. Indeed, while online college classes have risen in popularity over the years they still suffer from issues with student engagement (Pimpa, 2010; Lytle, 2011); Uthervse Digital plans to combat that. Applications are being developed that will recreate entire classrooms, including student and teacher avatars, that aim to combine the best aspects of real world classrooms and online courses. Students will be able to raise their hands, ask questions, and engage with other students. Teachers will have access to

virtual PowerPoint, video capabilities, white boards, private messaging, and more (Shuster, 2013). Utherverses' approach to the virtual classroom is very reminiscent of the school Wade Watt attends in *Ready Player One*. Simply donning a head-mounted display immerses him into a full recreation of a virtual school equipped with everything Utherverses intends on delivering. This is much of the same promise that the virtual world of *Second Life* promised as well, yet fell short of ever reaching. Interestingly, Linden Labs, the creators of *Second Life*, have announced that they will be releasing a new version of *Second Life* for Oculus Rift (Dredge, 2014). While the original version operated like a traditional computer game, Linden Labs has hopes that the immersive element of virtual reality devices will breathe new life into their world.

It would seem that, along with video gaming, virtual reality will have a place in the realm of education. The Czech classroom is supposed to be an example of the educational power that virtual reality has, which very well may be the case; however, we must also consider what we lose with these devices. Artists have woven tales of VR users becoming lost in their virtual worlds, forgetting what it is like to exist in the real world with real people. The Czech classroom offers an example of what this could look like, not in the future, but now. Students were gazing into their head-mounted displays, interacting in their own virtual worlds—not with each other. The experience becomes isolating as it does not allow the children to interact with one another while donning the HMD. Indeed, while these students will eventually remove the HMD and be back in the real world, we are still in the early stages of VR being introduced into the classroom. If the learning capabilities of the device are as great as they are expected to be, entire curriculums could take place inside a virtual environment—very much akin to Wade Watts' experience in OASIS. Students will lose much needed social interaction (Johnson, 2003) and replace it with virtual exchanges.

Neil Postman (1985) asserted that there was an antagonistic relationship between television and education, his main argument being that television's contribution to educational philosophy was teaching that education and entertainment were inseparable (p. 146). With this line of thinking we can begin to consider what virtual reality devices might contribute to educational philosophy. Perhaps the devices will instill a sense of autonomy in students, where they no longer need the physical presence of an instructor or peers. Conceivably, students may begin to connect their idea of reality to a virtual space opposed to actual reality. If the public school systems are, indeed, "agents of society, charged with transmitting the values and behaviors considered central to the maintenance of society" (Shimahara, 1972, p. 1) it would seem that virtual reality stands to transmit a very different set of values and behaviors than we have had in the past. If we are to consider artists as visionary forecasters, spending inordinate amounts of time in virtual worlds without real world social interaction could result in an inability to function in a real world society (Brown, 2013; Hall, 2014), thus virtual reality may prime students only to function in a virtual space with avatars, instead of a real space with people.

Even without consumer VR devices being readily available, there are extreme cases where video game players are already experiencing the powerful grip of virtual worlds. For example, there are numerous reported cases of players dying after going on gaming binges lasting for days without eating or sleeping (Hunt & Ng, 2015; Conti, 2015), or other cases of players neglecting real life responsibilities due to gaming (Strochlic, 2014). Certainly, these are extreme examples that deal specifically with video gaming and the likelihood of children going to these extremes with educational material is slim. Yet, it is important to consider the device and the pervasiveness of it. While consumer VR is being released for video gaming, Facebook has made it clear they intend on extending VR into the realm of a social platform; contingent on their

success, other companies may follow suit. By introducing immersive environments to students at a young age, we may be predisposing them to these effects.

How, then, do we reconcile the affordances of educating with VR devices with the implications? Perhaps using virtual reality as one tool for learning rather than an entire platform would be a starting place. One example is virtual field trips where students are able supplement their learning by virtually visiting places; if VR would allow a class to explore the ancient pyramids as a group, for example, rather than individually, with the instructor guiding their tour, it could be a great supplemental learning tool. Contrast that with each student being in their own virtual environment, by themselves, with only the program guiding and providing information. Supplanting the classroom with virtual reality could lead to the isolation and social implications previously mentioned, but integrating virtual reality in a meaningful way could allow for all the affordances while minimizing the implications. Furthermore, it is important to consider who will be responsible for delivering the content to classrooms. As it stands, Facebook is likely to be at the forefront of content delivery seeing as they have considered giving Oculus Rift units to public schools for free. As discussed in chapter three, Facebook's driving objective is to deliver user information to advertisers and then provide a space for said advertisements. What, then, would prohibit them from placing advertisements in virtual classrooms? Perhaps only Facebook-approved companies will be allowed to create educational applications for the device. Or maybe virtual field trips will be sponsored by the highest bidder. Or perhaps Facebook begins to create their own educational applications for the Oculus Rift. Just as is the case with Facebook's venture into virtual reality hardware, education is not Facebook's driving objective—profit is. It is hard to imagine that Facebook would offer its devices to schools without some way of monetizing the activity or promoting their other services. Indeed, the pervasiveness of virtual

reality devices would be highly advantageous for Facebook. That is to say, if students were using the devices both at school and at home, they would be spending even more time with the company's products and its advertisements. Overall, education and technology are interconnected with each other and to ignore the possibilities new technology engenders would be a mistake. Yet so would integrating the new medium into the classroom without careful consideration of the motivations of those behind the technology.

A Virtual Society

Market researchers project that the consumer virtual reality industry will be a \$2 billion industry with sales of nearly six million units in 2015 (Kzer, 2014, para. 8). Furthermore, projections indicate that by 2018 the consumer VR industry will be worth around \$5 billion with an active user base of around 50 million individuals (Kzer, 2014, para. 14). To put this in perspective, Sony's PlayStation 3 and Microsoft's Xbox 360, which have been on the market for nearly a decade, have sold an estimated total of around 150 million units combined (Bishop, 2013; Takahashi, 2013). If we are to believe the projections, then, it would seem that consumer virtual reality devices are on the fast track to becoming just as prevalent in the home as video game consoles. Indeed, the two major competitors in VR right now, Oculus Rift and Project Morpheus, are being marketed as gaming devices. Yet, what may be overlooked is the wider appeal that virtual reality will have in the years to come. While gaming consoles serve only the function of playing games,^{xiii} virtual reality devices are poised to move beyond the realm of games and to appeal to a much wider audience.

The works of novelists and filmmakers have depicted the reach of virtual reality, almost always, as going beyond video games. In such works, virtual reality begins as an extension of video gaming that eventually permeates daily life. For example, *Ready Player One* suggests that

virtual reality, while still being a game, is also a life simulation where players can go to concerts, visit friends' houses, and so forth. As discussed in chapter two, *eXistenZ* depicts a world in which VR has become so pervasive that it has engendered radical groups who rise against developers and designers in the name of preserving reality. As was mentioned in the beginning of this chapter, *Sword Art Online* proposes a world where players are completely living—eating, drinking, working, and sleeping—in the virtual world. Many of these narratives take these concepts to the extreme and it is unlikely that the spread of consumer VR will happen in such a way. Yet there is a common thread that weaves throughout the narratives that could shed light on how to deal with the implications of living with virtual reality.

The possibilities for virtual reality beyond gaming seem to be a selling point for Facebook and perhaps others who are interested in the technology but not specifically gaming. The activities that have been previously discussed—concerts, visiting friends, watching TV—could supplant these activities in real life, as new technology often subsumes old technology (McLuhan, 1972). In other words, virtual reality has the potential to replace activities that commonly take place in the real world. Users could log into a virtual world that would have the similar affordances as the real world. Furthermore, VR could allow users to visit places they never could before. A friend's wedding across the country or even across the globe, for example, would be easily accessible through a virtual reality head-mounted display. These affordances are exemplified repeatedly in texts involving virtual reality, and are usually the cause behind users becoming overly connected to their devices. Artists depict characters using VR to replace the real world with the virtual, yet, after dealing with their trials and tribulations, it seems that these characters always realize that they are missing something—human connection.

No matter how immersive or convincing the virtual reality is, artists consistently show us characters who long for a real connection with another person. This is not to say that friendships and bonds cannot be formed through technology; obviously they can be. However, they are not sufficient if they are the only form of interaction a person experiences. Mark Palmer (1995) suggests that “an inescapable and essential part of social life is the formation and maintenance of interpersonal relationships” (p. 277). Virtual reality has the potential to be revolutionary in terms of the ways it could enable individuals to connect with each other; however, it is not a replacement for real life human interaction (Cacioppo, 2009; Scott, Mottarella, & Lavooy, 2007; Wolak, Mitchell, & Finkelhor, 2003; Cummings, Butler, & Kraut, 2002). This seems to be a concern that artists have picked up on since the early days of depicting virtual worlds. The themes discussed in chapter two—reality versus virtual reality, escapism, and anxiety—all lead back to this idea of the human experience from which virtual worlds may distract us. That is to say, virtual reality can be used as a tool to escape the banality of the day to day life; however, users can become too immersed, too distracted by the virtual world and begin to ignore the real world. The user’s realization that this is occurring triggers anxiety stemming from the isolation and loneliness that stems from a lack of human interaction. In short, it would seem that virtual reality could induce an unhealthy sense of cabin fever in a user even if they are virtually connected to a community of others.

D. Rus, the Russian author who created the LitRPG genre,^{xiv} envisions a world where the government regulates immersive virtual reality games. In his book *AlterWorld* (2014), players have a daily limit on how long they can spend in VR MMORPGs. Once a player has reached their limit, they must exit the VR device but can continue playing on a traditional computer. The government has implemented these regulations due to players’ consciousness exiting reality and

fully merging with the game world during extended play sessions. In other words, players would die in real life and exist only in the game. Since the regulations have been put in place, some players attempt to circumvent the laws in order to escape the real world and exist only in the virtual world. Inside the game, they make new friends, become a part of a community, and often go on to lead happy lives. Rus's depiction of life inside of a game is not one of strife, torment, and longing for real human interaction. In fact, the virtual interactions they are having are real to those players.

If virtual reality is to become a part of daily life as we are led to believe it will, it may not be much different than how we experience technology now. Different people will have different uses for the technology and, in turn, have different experiences. Indeed, there will be the extreme users who begin to live their lives inside of the virtual environments, but there will also be the casual user who, perhaps, goes shopping virtually or just wants to chat with friends. Even so, regardless of the level of usage, individuals will be replacing activities that used to take place in tangible settings with their virtual counterparts. If VR is to become a viable and pervasive medium, it will be most interesting to see the generation that grows up with a VR device in every home. Millennials, those born between 1980 and 2000, are the first generation of digital natives who were brought up in a time of technological advancement and economic disruption (Goldman Sachs, n.d.). While they may be among the first generations to experience and embrace VR technology, it will not have the same result as those who do not know life without it. Indeed, there has been much discussion of the behaviors and habits of millennials, and much of that is discussion is fueled by their generation's access to life-changing technology such as the cell phone and internet (Thompson & Weissmann, 2012; Chang et al, 2013; Sharf, 2014). If virtual reality becomes the life device that Facebook projects it will be, the generation who does not

know life without VR in their home may cause another major shift in the habits and behaviors of our society.

Preventing the Wreckage

Consumer virtual reality devices will, most likely, live within the realm of video games for at least two or three years after the initial release. OculusVR's business plan is to push for widespread VR use by 2018 with the second and third version of the device (Orland, 2014). On the other hand, Sony has given no indication of using Project Morpheus for anything but gaming at this point in time. Regardless of its roots in gaming, it would seem that virtual reality could become the pervasive, widespread communication platform that artists forecast in much of their work. That is to say, in these fictional depictions, virtual reality begins with video games and, eventually, morphs into a device that radically changes the way we experience day to day life. These radical changes often lead to severe implications, yet we are rarely provided with guidance on navigating these implications. It would seem that artists are merely providing awareness as to what could happen, rather than proclaiming how to prevent it. Marshall McLuhan (1964) declared that artists teach us how to "ride with the punch" (p. 66) of new technology, suggesting that it is an oncoming force that cannot be stopped. How then do we deal with the dystopian predictions that that may become reality with the release of consumer VR devices?

Parsing the hyperbole that comes with fiction storytelling allows for a clearer picture of what life may be like with virtual reality. It is unlikely that we will spiral into a dystopian nightmare as predicted in most works of science fiction. What is likely is that the technology will fall into the grey area between the benefits and liabilities. The obvious benefits are ones that offer advances in "education, medicine, tourism, and games" (Maines, 2014). Meanwhile, the potential liabilities force us to question our sense of reality and what is important. For instance,

Patrick Maines (2014) poses questions regarding a cultural shift that values virtual reality over reality, or when avatars are more successful and beautiful than their real life counterparts.

Furthermore, Maines questions the effect of VR on real life issues, such as the environment or within the family, when people spend most of their time in cyberspace. If the business model mimics that of television, where generating profit is tied to user attention and usage, corporations behind the technology will strive to keep users attached to their devices as long as possible regardless of the implications.

Virtual reality devices allow the industries behind the technology access to consumers like they have never had before. While Facebook and Sony insist the technology is going to be either the future of gaming or the next great communicative platform, the driving motivation behind these advances is profit. Indeed, both companies would benefit greatly from their devices being found in every home. In the case of Facebook, the more units that are sold equals the more user information that can be gathered and sold to advertisers. While their intentions of creating the next great communication platform may be genuine, their underlying motivations to do so are rapacious. Meanwhile, Sony has been pandering to the video game industry. They have directed most of their efforts to focus overtly on games, while downplaying their broad reach in other industries such as television, movies, and music. Thus, Sony also has a vested interest in virtual reality taking the form of more than just a gaming device. The benefits and liabilities discussed by Maines (2014) would seem to be advantageous to the corporations behind virtual reality. That is to say, providing a virtual world that is more valuable to a person than the real world could lead to direct benefits, such as generating more revenue, to those leading the industry.

The themes presented in films and novels on video game virtual reality reveal their own narrative which sheds light on this cycle of technology. It is often suggested virtual reality

gaming begins as a mere form of escapism, players simply immersing themselves into a game to move away from the mundanity of real life. Consequently, the players spend more and more time within virtual reality. As players spend less time in the real world, they become more invested in the virtual. After an indeterminate amount of time, players begin to experience some sort of anxiety, usually due to not experiencing real world human interaction.

Online gaming offers a prime example of these anxieties playing out. In most cases, MMORPGs allow players to interact with others or, at least, feel as if they are a part of a larger community as other player's avatars are visible and, often, seen in a game's chat system.^{xv} If cases of death and neglect are already occurring in traditional—not played with a VR device—MMORPGS, the level of immersion that consumer VR promises may further a disconnect between other humans, the real world, and the player. Comparing this narrative to the budding narrative of the virtual reality industry is not difficult. VR video games are escapism, VR transforming into a communicative platform is the devaluing of the real world, and the anxiety fictional characters experience is the warning signs that artists have presented us with: ulterior motives, addiction, isolation, and the longing for real world interaction. How, then, should we combat these anxieties? To quote Neil Postman (1985), “in the first place, not everyone believes a cure is needed, and in the second, there probably isn't any” (p. 158).

American ideology is rooted in the idea that technological advancement is moving us toward a “preordained paradise” (Postman, 1985, p. 158), and because of that, we are encouraged to march blindly toward any new technology that presents itself. The case of virtual reality devices, however, is quite interesting. It has been a technology that has eluded consumers for decades. Until recently each iteration has failed or fallen short of expectations. But now, advancements in technology have led us to powerful hardware that could deliver immersive

virtual reality effectively and affordably. Industry leaders would lead us to believe that virtual reality devices will be freeing, allowing us to explore and interact in ways that were previously impossible. If we are to believe Facebook, Sony, or the writers who have predicted this for decades, we will be able to interact with a world that feels just as real as the one we actually live in. We will no longer need to physically travel or participate in activities—we can simply login and log out at our convenience. VR has been a technology that has escaped our grasp for years, and now it is on the brink of being a real, tangible, immersive, and most importantly, distracting device.

Indeed, this is a cynical view of the virtual reality technology, yet I believe it to be realistic. The approach we should be taking is one of education and informing the consumer base, not building hype and excitement around the devices' applications. The prospect of playing immersive virtual reality games or visiting friends across the country in a virtual space does, indeed, sound exciting; however, when we are not fully realizing the affordances and implications of a device we are doing more harm than good. We are simply doing as we are told with the technology by those who control it. Postman (1985) champions education as the only mass medium of communication that has the capability of turning our citizens into media conscious individuals. That is to say, educating individuals on technology, even on the most basic level, could lead to great strides in understanding the profound effect that communicative media have on our society and culture.

What, then, are the philosophical questions that we should be seeking to answer regarding new technology? Perhaps a starting point would be to consider what is being replaced by the technology. McLuhan (1964) called this concept autoamputation, the idea that technology becomes an extension of a person and replaces functions that we used to do manually. For

example, the wheel replacing the need to travel by foot. He went on to suggest that by replacing a piece of the self with technology, we begin to lose self-recognition. Indeed, new technology is intended to make our lives easier and, for the most part, it does, but it is not very often that we consider what we lose to the technology. In terms of virtual reality, it would seem that we are losing, at least, a piece of the human experience. Connecting with people may be easier than ever, but real interaction could be pushed to the side for the easily accessible virtual experience. Visiting with a friend would be as easy as donning a HMD and logging into a virtual world; traveling physically will no longer be necessary to connect with others. This makes for an interesting case for the idea of space and time. How will virtual reality manipulate that? How will we come to understand what it means to truly be with another person? These are all questions to which I do not have the answer, but they are indeed ones we should be exploring if we are to become a media conscious society. Rather than blindly accepting new technology, we should be questioning what we are losing and how it will affect us, not only personally, but as a society.

The final piece of dialogue in *eXistenZ* reflects this sentiment of technology diminishing self-recognition. Seconds before the credits roll, one of the characters looks into the camera and asks “are we still in the game?” The character lost sight of reality; he could no longer tell if he was in a game or having a real world experience. Virtual reality technology amputated a sense of reality from this player in *eXistenZ*. Self-recognition and constant awareness of ourselves and the technology we interact with appears to be the only viable solution to this problem. Science fiction writers have long been acting as educators of media consciousness, although their work is largely discounted as entertainment that is meant to be appreciated (McLuhan, 1964). As we dissect their work, however, we can see that they have made prescient observations on the

impact of virtual reality devices. Coupled with critical insight on to the surrounding atmosphere of virtual reality devices, we can begin to explore the how, what, and why of the technology.

These are the early steps to creating a dialogue that can inspire a media conscious society.

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ⁱ Crowdfunding is the process of obtaining funds from interested parties through websites such as Kickstarter.

ⁱⁱ An Easter Egg is an intentional hidden joke, message, or item placed inside of a game by the designers.

ⁱⁱⁱ Examples of independently funded virtual reality projects include: XG Virtual Reality Headset, Cyberith Virtualizer, Cmoar Virtual Reality Headset, M8D Virtual Reality Headset, HiFly, AirVR, vrAse, ANTVR, Viewbox, XCope, VSIR, Open DoVision, vcemo, and Atlas.

^{iv} Connection to the PSN/Internet is required to play multiplayer games, download new games from the PlayStation store, and download updates to games or the console's firmware. Without connection to the PSN, the PlayStation 3 and 4 are virtually unusable.

^v Kickstarter is a crowdfunding website that allows project creators to post a project on the website, set a deadline and a funding goal, then solicit money from the public. Money is not collected from the patrons unless the funding goal is met.

^{vi} Oculus Rift could be preordered after the Kickstarter campaign ended, thus allowing those who did not support the campaign to order a device.

^{vii} reddit is a forum based social networking and news website where registered users can submit content to different subforums. Reddit's gaming forum is a popular forum for gaming discussions of all sorts that is subscribed to by over 7 million users.

^{viii} Eye tracking being tested in Sony's Magic Lab allows users to control a video game's camera with their gaze.

^{ix} Steam is a computer platform that offers a large catalog of PC games that are available to download straight to a person's computer. Any developer or development team can submit games to be available on the steam platform, thus making it a very popular outlet for independent game developers.

^x Smaller donations from many people. This is opposite of the usual strategy of larger donations from fewer people.

^{xi} Content delivered live over the internet via web cams, audio tools, and so forth.

^{xii} Leap Motion devices use infrared technology to detect hand movement and render it into computer applications.

^{xiii} Gaming consoles such as the Xbox 360 and PlayStation 3 both offer other services such as streaming media content, but are not driving factors in the sale of the units.

^{xiv} Short for literature roleplaying game. A genre of science fiction that follows players as they play RPG games.

^{xv} MMORPGs allow players to chat with one another via a text chat system. Players do not have to see another player's avatar to chat, and it is usually broadcasted to a large area in the game.