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VIDEO GAMES: THEIR EFFECT ON SOCIETY AND HOW WE MUST MODERNIZE OUR
PEDAGOGY FOR STUDENTS OF THE DIGITAL AGE

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of Fine
Arts at Virginia Commonwealth University.

by

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Abstract

VIDEO GAMES: THEIR EFFECT ON SOCIETY AND HOW WE MUST MODERNIZE OUR PEDAGOGY FOR STUDENTS OF THE DIGITAL AGE

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Virginia Commonwealth University, 2014

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This thesis aims to explore how video games have become an extremely beneficial tool in regards to education, art, medicine, psychology, economics, and beyond. Chapter 1 focuses on how ubiquitous video games have become in America, and what makes video games such a uniquely enjoyable experience to warrant such popularity. Chapter 2 explores how video games have become instrumental in various fields. Chapter 3 discusses the role that video games now play in the world of education; specifically how we, as educators, must adapt a modern pedagogy best suited to students who have grown up with video games, which have influenced how they learn. This is the thesis' primary contention and purpose. Chapter 4 dissects the two most studied controversies which surround video games as a medium: video game violence and video game addiction.

CHAPTER 1: A NATIONAL PHENOMENON

The Prevalence of Video Games in the U.S., and Who Plays Them

The stereotype has long persevered that video games and those who play them are part of a ‘fringe minority’. Many people imagine gamers as an eclectic group of individuals who do not make up a noteworthy portion of the population, and video games themselves are often treated as a childish recreational activity. As I hope to illustrate, these notions could not be further from the truth, and in this ever-evolving age of digital media and the internet, would be dangerous positions to maintain, particularly in regards to education. Gamer demographics have shifted rapidly over the years, to the point (now in 2014) where considering gamers a ‘fringe minority’ is to be woefully uninformed. In addition, the video game industry has become one of the world’s fastest growing economic successes, and shows no signs of slowing down.

Simple video games were technically created as early as the 1940s, as the field of artificial intelligence was being expanded upon. These ‘games’ were nothing like what we know today, and were mainly intended to serve as logic puzzles, military strategy engines, and mathematical computations. Any notion of these games becoming a commercial success was out of the question. The technology was extraordinarily expensive, and far too large to be considered for the average consumer. It would take more than 30 years of inventiveness and research before computers solely designed for gaming would become a viable option. (Kent)

In 1972, visionary Ralph Baer released the Magnavox *Odyssey*. Baer’s system was both the first legally identified home console and actual video game. The original legal definition for a

video game console was: “an apparatus that transmits a video signal to a television receiver for the purpose of generating images that can be manipulated by individuals to play a game.”

Unfortunately, retailing for approximately \$100.00, the *Odyssey* was expensive and resulted in poor sales. (Kent)

Major commercial success of home consoles and video games came later in the form of the *Atari VCS* (*Atari Video Computer System*, later renamed the *Atari 2600*), released in 1977 by Atari. Atari, Inc. was a company created in 1972 by pioneers Nolan Bushnell and Ted Dabney. The *Atari VCS* and games like *Pong* and *Pac-Man* would revolutionize the interactive entertainment industry throughout the 1970s and ‘80s. Bushnell, who would eventually be known as the “father of electronic gaming”, has expressed that his role as an innovator and entrepreneur was begot by a simple concept: having a good idea. He says, “Everyone who's ever taken a shower has an idea. It's the person who gets out of the shower, dries off and does something about it who makes a difference.” (Bushnell, *Video Games: The Movie*)

Though video games may have come from humble roots, 50 years of technological evolution and the influence of companies like Nintendo, Sega, Sony, and Microsoft has led to video games becoming one of the most important industries of the modern world.

The Entertainment Software Association (or ESA) is the trade association of the video games industry in the United States, and conducts all significant research about video games and those who play them. They represent the some of the world’s largest and most important video game companies, such as Microsoft, Disney Interactive, Sony, Nintendo of America, Electronic Arts, and Warner Bros. Interactive Entertainment. As of the ESA’s *2014 Sales, Demographic, and Usage Data Essential Facts about the Computer and Video Game Industry*, the following video game statistics show that games are a more prevalent part of Americans’ lives than ever.

Perhaps the most important question, then, is: statistically, who plays video games? The numbers might be surprising. The ESA's 2014 research concludes:

- 59% of Americans play video games.
- There are an average of two gamers in each game playing U.S. household.
- The average U.S. household owns at least one dedicated game console, PC, or smartphone.
- 51% of U.S. households own a dedicated game console, and those that do own an average of two.

According to the United States Census Bureau, the population of America as of 2013-2014 is approximately 319,193,700 individuals. Considering this, we can estimate that around 188,324,283 people in America alone play video games. To put this into perspective: it is now more probable than not that any stranger you might meet - on any given day - plays video games.

Even more important than the amount of American gamers is the makeup of said population. In the 1980s and '90s it was fairly accepted knowledge that video games were predominantly a medium enjoyed by children and adolescents, but as video games have gotten older, the people who grew up playing them have too. Because of this, gamers consist of a much different demographic than they did 20 or 30 years ago. Today, in fact, only 29% of gamers are under the age of 18, while 32% are between the ages of 18 and 35, and individuals 36 years or older make up the largest percentage at 39%. Furthermore, adult gamers have been playing for an average of 16 years, with adult men averaging 18 years and adult women averaging 13 years. As Jason Allaire, associate professor of psychology at North Carolina State University stresses, "People of all ages play video games. There is no longer a 'stereotype game player', but instead a game player could be your grandparent, your boss, or even your professor." (ESA 2)

Another misunderstanding often asserted is that the video gaming demographic is made up mostly of a male population. The gaming world is often thought of as a “boy’s club”. Again, the truth might be surprising. As of 2014, 52% of gamers are male, while 48% are female. In addition, women age 18 or older represent a significantly greater portion of the game-playing population (at 36%) than boys 18 or younger (at 17%). Learning and literacy professor/researcher James Paul Gee helps illustrate how a perceived cultural shame of women playing video games seems to be fading away:

I was recently talking to a sixth-grade class in an urban area about their interest in games and what they thought about games and learning. All the girls in the class were avid and eloquent gamers. At the end, I told the class that people often said to me that “girls didn’t play video games.” One girl stood up, indignant, and demanded to know who had told me that. (Gee 14)

With the evolution of the internet (particularly ease of access), video games have transformed from a primarily single-player experience to one of the most social medias in the world. The advent of Massively Multiplayer Online games (in addition to casual games played on smartphones or tablets) has allowed gaming to become an internationally communal platform. 62% of gamers play games with others, either in-person or online. 77% of gamers play with others at least once a week, and 47% of gamers play social games. In addition, a majority of gamers play games with their friends and family: 14% play with their spouse or significant other, 18% play with parents, 32% play with other family members, and 42% play with friends.

Indeed, gaming has become an important tool for connecting and socializing between children and their parents. 42% of parents whose children are gamers play computer and video games with their children at least weekly, while 58% play with their children at least monthly.

56% of all parents say video games are a positive part of their child's life. Katie Salen, executive director of the Institute of Play, illuminates why these statistics are so important:

Games provide a wonderful platform for intergenerational play and learning. Kids often take the lead in showing their moms what they know how to do in the game – they are the experts! This gives both moms and their children a chance to interact and learn together, which we know from a developmental perspective has great benefits. (ESA 9)

The video game business has also become one of the fastest growing industries in the world, and is still quite young: roughly only fifty years old. In 2013, the total consumer spending report on games and gaming accessories in America amounted to approximately \$21.53 billion dollars. In comparison, the box office gross for film (an entertainment medium that has existed for more than a century) was approximately \$10.94 billion dollars (according to website Box Office Mojo), almost half as much as video games. According to consulting firm PricewaterhouseCoopers, the global video game market in 2011 was around \$56 billion dollars, and they expect that number to rise to \$82 billion by the end of 2015. (Cross) This has been a boon to the economy. From 2005-2009 the industry's real rate of growth was more than seven times the real rate of growth for the entire economy. (ESA)

Even single games are breaking economic records. Among the seven Guinness World Records it set, the video game *Grand Theft Auto V* (released in September of 2013) became the fastest entertainment property to gross \$1 billion dollars, and generated the highest revenue for an entertainment product in 24 hours.

Finally, gamers have collectively spent 5.93 million years playing the popular Massively Multiplayer Online Role-Playing Game (MMORPG) *World of Warcraft*. It may seem hard to believe, but it's true; if you combine all of the hours that gamers worldwide have played the

MMORPG since 2004 (when the game was released), it equates to just over 50 billion collective hours – or 5.93 million years. This means we’ve spent as much time playing *World of Warcraft* as we’ve spent evolving as a species. (McGonical 52)

What do all of these statistics tell us? The words ‘fringe minority’ simply cannot apply anymore. Video games have become an extremely significant part of most Americans’ lives. From attempts at video game integration in various scientific and medical fields, to video games now being seriously studied as an art form and scholarly pursuit, we are beginning to understand not just why video games are so beloved, but what we can do with that passion. For too long people resisted to acknowledge video games as relevant, dismissing them as a mere waste of time. Kurt Squire, associate professor of Games, Learning, & Society at the University of Wisconsin-Madison offers up some perspective as to why, saying “...Probably because of the size and cultural influence of the baby boom generation, video games are regarded by many as a fringe medium, and some still argue that games are trivial. This position is baffling, given the social, economic, and cultural impact of games.” Fortunately, as we have expanded our research, the benefits of video games and gaming have become clearer than ever. Michael D. Gallagher, president and CEO of the Entertainment Software Association, sums it up eloquently:

Our industry has a remarkable upward trajectory. Computer and video games are a form of entertainment enjoyed by a diverse, worldwide consumer base that demonstrates immense energy and enthusiasm for games. With an exciting new generation of hardware, outstanding software, and unmatched creativity, technology, and content, our industry will continue to thrive in the years ahead. (ESA 1)

What Makes Video Games a Unique Medium

Though video games were initially not much more than simple puzzle games, due to technological advances we have reached a point where modern gaming graphics, sound design, and storytelling are on par with the best that film and television have to offer. Just as film and television have become visually and audibly more sophisticated (with things like HD video and sound), video games have followed suit. Many critics within the entertainment industry even claim that games have become equally as or more advanced than the CGI movies created by monolithic studios like Pixar and DreamWorks. (Lehri) That being said, visuals, sound design, and storytelling are obviously not unique to gaming. So what makes them so interesting and important to consumers?

The answers are: interactivity and re-playability. As far back as the early days of gaming with titles like *Pong* and *Donkey Kong*, the interactive quality of playing a video game versus watching a show on television set them apart as something the world had never experienced before. When playing a game, you are an *active participant*; not a *passive spectator*. When watching TV, as long as one doesn't choose to turn off a television, the story will continue to unfold in front of them, and the audience can make no decision about how the story unfolds. Because video games allow player decisions to affect what takes place on the screen and within the story, games have the potential to be a different experience every time. Cliff Bleszinski, former design director of the video game company Epic Games, stresses that this is an important distinction, saying that "Video games are a lean forward experience, whereas film and television are a lean back experience". (*Video Games: The Movie*)

This also means that many gaming consumers feel they get much more ‘bang for their buck’ when purchasing a video game. (ESA 4) If a gamer purchases a \$10.00 game online and spends 60 hours playing it over the course of two months (a common experience), for example, the gamer feels satisfied that it was a sound investment.

Compare this to the experience of purchasing a DVD, or ticket to a film. When one goes to see a film, they may spend as much as \$10.00 to \$15.00 (comparable to many video game prices) for a two to three hour experience that they cannot experience again without paying more money. Even though DVDs and Blu-rays allow consumers to relive their experience with the media after the initial purchase, the experience will be the same. Watching the movie again months later will not technically offer the viewer anything new. And, again, a movie only offers the viewer a passive spectator experience. Would it not be marvelous to be an active participant when experiencing some of our favorite films? Actor Wil Wheaton certainly thinks so:

Can you imagine if you were redoing Star Wars, and you get to Empire Strikes Back, and Vader says ‘Join me.’? And you, as Luke Skywalker go “... Ok.” And then the rest of the movie and all of *Jedi* are completely different because you made that choice. And that is where I think video games fundamentally and vastly differ from every other kind of nerd media that I love. (*Video Games: The Movie*)

As the visuals and audio have evolved (in addition to technology allowing even more in-depth interaction and elongated storytelling), the immersive experience games offer players has only become heightened. It is no surprise, then, that such popular stories told in famous films (from *Star Wars* to *The Godfather*) have been translated to the video game format, whereupon players can experience alternate outcomes than what they saw in the original films.

Why Good Video Games Make Us Happy

To analyze why video games (or games in general) offer players so much more than just an ‘escape’, we must turn to the field of positive psychology, a field that has grown more popular as we’ve entered the 21st century. At its core, positive psychology attempts to explore what makes people happy, by analyzing how people think, feel, and react in certain situations. By identifying happiness or creativity triggers, positive psychologists believe we can more closely determine how to structure environments (from the office to the classroom) in order to allow people the best possible chance of feeling focused, optimistic, and strong. This varies from traditional fields of psychology, which typically aim to treat mental illness, rather than expand upon the positive mental states most humans already regularly experience.

Hungarian born psychology professor Mihaly Csikszentmihalyi is a revered pioneer of the scientific study of happiness. Born in 1934, Csikszentmihalyi was deeply affected by the Second World War, like many of his contemporaries. As a child, he was locked in an Italian prison. Here, among the feelings of misery and loss of family and friends, Csikszentmihalyi discovered a sense of optimism whilst playing chess. In an interview, he explained, “I discovered chess was a miraculous way of entering into a different world where all those things didn’t matter. For hours I’d just focus within a reality that had clear rules and goals.” (Pursuit-of-Happiness)

Later in life, during a trip to Switzerland, Csikszentmihalyi heard Carl Jung speak, and this sparked in Mihaly a deep interest in psychology. He moved to America to study the creative experience of the artist, and discovered that the journey towards the end product (a piece of art, for example) seemed more important than the end product itself. He eventually ended up coining this as the “flow” state – a term now widely accepted and used in the fields of psychology and

learning. In this state, an individual is completely absorbed in an activity, especially one which involves their creative abilities. During this “optimal experience”, they tend to feel “strong, alert, in effortless control, unselfconscious, and at the peak of their abilities.” (Pursuit-of-Happiness) Csikszentmihalyi insists that happiness does not simply just ‘happen’. Happiness must be prepared for and cultivated by each person, via setting personal challenges that are neither too demanding nor too simple for one’s own abilities. (Pursuit-Of-Happiness) As Csikszentmihalyi himself states, “The best moments in our lives are not the passive, receptive, relaxing times... The best moments usually occur if a person’s body or mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile.” (Csikszentmihalyi 3)

Specifically, Csikszentmihalyi suggests that the following traits are integral aspects of achieving a state of ‘flow’ whilst completing a task: (Csikszentmihalyi 4)

- There are clear goals every step of the way.
- There is immediate feedback to one’s actions.
- There is a balance between challenges and skills.
- Action and awareness are merged.
- Distractions are excluded from consciousness.
- There is no worry of failure.
- Self-consciousness disappears.
- The sense of time becomes distorted.
- The activity becomes an end in itself.

If we accept that being in a state of ‘flow’ has positive effects, and the above traits are often what define a state of flow, then the question of why there is such adoration of video games and the

gaming experience becomes abundantly clear. Jane McGonigal explores this in her book *Reality is Broken: Why Games Make Us Better and How They Can Change the World*:

In a good computer or video game you're always playing on the very edge of your skill level, always on the brink of falling off. When you do fall off, you feel the urge to climb back on. That's because there is virtually nothing as engaging as this state of working at the very limits of your ability – or what both game designers and psychologists call “flow”. (McGonigal 24)

If we apply the standards of successfully entering ‘flow’ to video games, the aforementioned list encompasses exactly what makes a ‘good’ video game in the eyes of both developers and players. Responses might look something like this:

- There are clear goals every step of the way.
 - Good games make the player's role and goals clear from the beginning, and update or add new goals as the player succeeds throughout their journey.
- There is immediate feedback to one's actions.
 - Good games offer immediate feedback in numerous ways. Most obvious are audio and visual clues (“You've leveled up!” appearing onscreen, with a sound cue), but gamers often ‘feel’ the feedback as well. If I am playing a game whereby killing zombies I gain experience points, and can use those experience points to, for example, upgrade my health, the player feels stronger by unconsciously noticing that it might take more ‘hits’ before their character falls in battle.
- There is a balance between challenges and skills.

- Good games offer players challenges, particularly ones designed within a system that the player can become more familiar with over time. As the player begins to understand how the system works, the player develops skills to overcome those challenges, typically through both becoming more deft with the controls and learning how the intricacies of a system can be used to ‘beat’ said system. In essence, players learn. By tackling smaller challenges, players understand how to overcome larger ones.
- Action and awareness are merged.
 - Considering we’ve discussed the interactive nature of a video game experience (they are a “lean forward” experience versus “lean back” experience), good games always make sure the player is both an active participant and fully aware of their role/goals.
- Distractions are excluded from consciousness.
 - Similar to how good stage plays ‘draw their audience in’, good games create an immersive experience which draws an extreme focus out of the player, to the point where distractions do not break this focus.
- There is no worry of failure.
 - ‘Failing’ is different than ‘not succeeding’. Failure implies a complete stop. Good games may offer challenges where players do not initially succeed, but players know that by ‘learning’ the game they can eventually complete their goals. This, in addition to the fact that ‘losing’ in a digital world has no real-world consequences make playing video games an experience to be had with no fear of failure.

- Self-consciousness disappears.
 - Good games allow the player to identify with their character (or avatar), to the point where we assimilate many of our character's 'feelings' within the world of the game. Because of this, players are not conscious of themselves whilst playing, but rather the experience that their character is having. This is perhaps no clearer than in Massively Multiplayer Online Role-Playing Games, where gamers who might feel self-conscious in real life (perhaps about their appearance, their beliefs, their financial standing) feel equal to other people they are playing the game with.

- The sense of time becomes distorted.
 - Good games immerse players to a point where they are only conscious of what time means in the world of their game, and how it might affect their tasks and goals.

- The activity becomes an end in itself.
 - Good games might strive to offer satisfying endings to a journey, but the journey itself is by far the most important aspect of a successful game. Essentially, if the act of playing a certain game does not warrant the attention of the gamer to finish, then the ending becomes meaningless. Good games hook the player by offering satisfying and valuable activities, apart from games' finales. Unlike watching film or television, if the player chooses to stop actively participating, the story will halt.

Both game developers and players have expressed that these are the things that make a 'good' game. (Martin) As positive psychology continues to evolve as a field, and as more psychologists

seek to understand ‘flow’, game developers have attempted to offer their players the ideal experience which allows for flow to occur. Though there is much debate as to whether or not video game addiction might lead to feelings of depression (which is discussed more in Chapter 4), many scholars assert that video games can offer players enough flow to circumvent oppressive or negative feelings. Jane McGonigal, Director of Game Research and Development at the Institute for the Future believes games can help treat depression if appropriately introduced to the sufferer. She says, “When we’re depressed, according to the clinical definition, we suffer from two things: a pessimistic sense of inadequacy and a despondent lack of activity. If we were to reverse these two traits, we’d get something like this: an optimistic sense of our own capabilities and an invigorating rush of activity.” (26) Later, she continues, by stating that:

When we’re playing a good game – when we’re tackling unnecessary obstacles – we are actively moving ourselves toward the positive end of the emotional spectrum ... All of the neurological and physiological systems that underlie happiness – our attention systems, our reward center, our motivation systems, our emotion and memory centers – are fully activated by gameplay. (28)

It therefore seems naïve to dismiss video games as no more than an ‘addictive form of escapism’. Just as accomplishing tasks in real life (playing sports, gardening, creating art) can lead to a state of flow, accomplishing tasks in a good video game can offer the same experience. Considering the statistics related to who plays video games and how much they play them (mentioned in the beginning of Chapter 1), it seems more and more people are experiencing the emotional benefits of video game ‘flow’. Looking to the future, it’s important that we attempt to harness this desire to experience flow via gaming. As Chapters 3 and 4 hope to illustrate, many fields already are.

CHAPTER 2: THE ROLE AND BENEFITS OF VIDEO GAMES WITHIN VARIOUS FIELDS

Medicine, Rehabilitation, Learning Disabilities, and Treating Depression

As video games have grown in popularity, professionals working within the fields of medicine, rehabilitation, learning disabilities, and therapy have become interested in the possible ways video games might be uniquely suited to assisting those in need. Numerous studies have been done, resulting in an increased belief in the viability of video games as not just an entertainment medium, but as useful tools in enhancing the lives of people with physical and mental disadvantages.

In November of 2012, scientists at The University of Texas Medical Branch at Galveston conducted an experiment to see who could perform better virtual surgery – high school gamers, college gamers, or medical residents. Players were tasked with completing a series of activities on a device that replicated real surgeries. They were then measured in 32 different skill categories, including hand-eye coordination, pressure on the controls, and timing.

The high-school sophomores, who played an average of two hours of video games a day, substantially outperformed both the college gamers (who played an average of four hours of video games a day) and the medical residents (who only played games infrequently). In a separate study, it was found that surgeons who played video games for at least three hours a week experienced 37% fewer mistakes during laparoscopic surgery. (Guarini)

In 2013, researchers in Berlin conducted a study wherein adults with a median age of 25 were asked to play the *Nintendo 64* game *Super Mario 64* for 30 minutes a day over the course of two months. A separate control group did not play video games at all. They examined the

brains of the two groups using an MRI machine, and found that the gaming group had a rise in gray matter in the cerebellum, right prefrontal cortex, and the right hippocampus; areas of the brain responsible for things like memory formation, strategic planning, spatial navigation, and fine motor skills.

Simone Kühn, senior researcher in the study, stated that, “While previous studies have shown differences in the brain structure of video gamers, the present study demonstrates the direct causal link between video gaming and a volumetric brain increase. This proves that specific brain regions can be trained by means of video games.” Kühn and her colleagues concluded that video games have the potential to be used as therapy for patients afflicted with mental disorders that cause brain regions to alter or shrink. Among the diseases included were post-traumatic stress disorder, schizophrenia, and Alzheimer’s. (MPG)

Another study done in 2013 at the University of Iowa discovered that healthy individuals ages 50 years or older could stall the natural decline of certain cognitive skills by up to seven years by playing just 10 hours of a specially designed puzzle video game (created for the study). The experience in the video game was meant to mimic the difficulty older drivers often have when having to process information from multiple points of view at an intersection. Jason Allaire, associate professor of psychology at North Carolina State University in Raleigh (who was not involved in the study) noted that:

“Whether it’s a specially manufactured game or something like *World of Warcraft*, games are cognitively complex and require mental energy and abilities to play them... Whenever you do anything that requires mental energy, you’re exercising your abilities – it’s just like if you exercise your muscles, you get stronger.” (Guarini)

Research done by Debbi Rand of Tel Aviv University discovered that playing video games could be extremely beneficial in helping stroke victims recover. For the purposes of the study, individuals who had a stroke one to seven years prior were assigned to one of two groups. The first group implemented traditional rehabilitation exercises, while the second played video games on *PlayStation 3*, *Xbox 360*, and the *Nintendo Wii*.

Rand, an occupational therapist, saw distinct advantages in using video games as a means of rehabilitation. While both groups improved in things like grip, the group of video gamers continued to show improvement in hand strength. Not only could the gamers perform double the number of arm movements during each session, their movements were “goal-directed”, and not simply repetitive exercises. Rand stated that “When individuals plan their movements and move deliberately in order to accomplish a specific goal, it is likely to have a positive impact on brain activity.” (Imas)

A study from the University of Padua aided in combatting the idea that video games are bad for the brains of young children. In 2013, the Italian researchers discovered evidence that playing fast-paced games improves the reading skills of dyslexic children. Children ages 7 to 13 were separated into two groups, one of which played a game with a slow tempo, while the second played an action game called *Rayman Raving Rabbids*. Afterwards, the reading skills of the children were tested. Those who played the action game were capable of reading quicker and more accurately. The study’s authors hypothesized that kids playing action games might increase their attention spans, a skill considered vital to reading. (Bower)

In 2012, researchers from New Zealand created a new way to treat teenagers suffering from depression. They designed a video game called *SPARX*, the content of which was meant to offer therapy to kids in a more fun and active way than traditional counseling. *SPARX*, an

acronym, stands for “smart, positive, active, realistic and x-factor thoughts” – all strategies typically used to fight depression. *SPARX* is a fantasy game where the players created personal avatars to destroy “gloomy negative automatic thoughts”, and subsequently restore order in the game world. Each level would teach the players fundamental facts about depression, relaxation techniques, and useful strategies for dealing with intense negative emotion.

168 teens with an average age of 15 (all of whom had previously struggled with depression and sought assistance for it) were included in the study. Half of the group was given traditional treatment, which customarily consisted of one-on-one counseling over the course of five sessions. The other half played *SPARX*. The results were quite encouraging, as almost 44% of the game-playing group recovered completely from depression, while only 26% of the control group no longer felt depressed. (Guarini)

Economics

Many video games, chiefly Massively Multiplayer Online Role-Playing Games, employ a complex financial system in which players harvest game currency by completing missions, battling enemies, and selling items to in-game stores. In addition, many video games offer entities known as “auction houses”, where players can place particularly rare or unique items up for auction. This allows other players to use in-game currency they’ve acquired to purchase hard-to-get items without having to do the legwork typically required. Most of the time these auction houses are set up similar to *eBay*, wherein players must place bids and compete with each other, while time ticks down on a “bidding clock”. Just as on *eBay*, the player who offers up the highest sum of money before time runs out wins the item.

In certain cases, however, games operate with a real currency exchange, allowing players to spend actual money to acquire in-game currency. Games like the space-themed *Eve Online* include this feature. With more than 400,000 players (more people than the population of Iceland) exchanging real and fictional currency in the game's financial system over many years of community engagement, a complex virtual economy formed. Players build their own spaceships, traversing a galaxy of over 7,500 star systems. They speculate on commodities, and form trade coalitions and banks. They buy and sell raw materials, creating their own fluctuating markets. It's a sprawling economy where inflation, deflation, and even recessions occur.

In situations like this, game developers often turn to economists for assistance. The hope is that by applying appropriate real-world principles to their virtual economy, nothing becomes so imbalanced that certain players (especially those who don't have enough real world money to 'buy a leg up' in the game) feel that the potential for growth is impossible.

Over the years, however, the relationship between video game designers and economists has become symbiotic. In the case of *Eve Online*, the game's developers (CCP Games) asked economist Eyjólfur Guðmundsson for assistance. From his office, Guðmundsson and a team of eight analysts pour over nearly infinite amounts of data in order to make sure *Eve*'s virtual economy runs smoothly. "For all intents and purposes, this is an economy that has activity equal to a small country in real life," Guðmundsson claims. "There's nothing 'virtual' about this world." He continues, stating that "It's so much more compelling and much more interesting and much more in-depth than I ever imagined." (Plumer)

Many academics believe that the ability to experiment on such a massive scale like this might revolutionize economics. *Washington Post* columnist Brad Plumer elaborates, saying:

Just as video game designers are in dire need of economic advice, many academic economists are keen on studying video games. A virtual world, after all, allows economists to study concepts that rarely occur in real life, such as non-fractional-reserve banking, a popular libertarian alternative to the current banking system that cropped up in *Eve Online*. The data is richer. And it's easier to run economy-wide experiments in a video game — experiments that, for obvious reasons, can't be run on countries. (Plumer)

In June of 2012, Greek economist Yanis Varoufakis left his position at the University of Athens and was hired by revered video game company *Valve*. Varoufakis had become famous for his rigorous analyses of Greece's debt woes and the Euro crisis. Gabe Newell, chief executive of *Valve*, decided to recruit Varoufakis for assistance in creating a shared economy between two of their games. Varoufakis was surprised at how much economists could learn from complex virtual economies in games like *Valve*'s. He believes it might be the future of economic study, stating, "Economic theory has come to a dead end — the last real breakthroughs were in the 1960s, but that's not because we stopped being clever. We came up against a hard barrier. The future is going to be in experimentation and simulation — and video game communities give us a chance to do all that." (Plumer)

Art

One of the most hotly debated topics involving video games is the question of whether or not video games can be considered art. This is a very complicated question, as one must first define what constitutes 'art', and then must decide what actually defines a 'video game'. It is a question that deserves a thesis of its own, and because of this it is a question I choose to avoid attempting to answer at length. However, it should be stressed: to discredit video games as non-

art also discredits the thousands of hours of artistic work put into crafting them (especially modern games). All of the design decisions, painting and drawing, modeling, scoring, sound design, voice acting, scriptwriting, rendering – and so much more – that are, on their own, considered art by most people. It seems illogical that separately they might be considered art, but when put together they are not; as if ‘the whole is not the sum of its parts’. Because this is such an elusive question, this chapter will instead detail how two reputable museums (the Smithsonian in Washington, D.C. and the Museum of Modern Art in New York) have already established installations about the art of video games.

On December 17th, 2013, the Smithsonian American Art Museum announced that it would be adding two video games to its permanent collection: thatgamecompany’s experiential game *Flower*, and Ed Fries’ *Halo 2600*, a side-scrolling de-make of the popular Xbox shooter *Halo*. In a statement released the same day, the Smithsonian said that “These acquisitions build upon the museum’s growing collection of film and media arts and represent an ongoing commitment to the study and preservation of video games as an artistic medium.” In addition, the Smithsonian’s curator of film and media arts Michael Mansfield added that it would be “just the beginning” of the museums work to preserve video games worthy of record for the future. (SAAM)

Prior to this, they had also established a traveling exhibition called *The Art of Video Games*, which saw a national tour over 10 cities from March 16th to September 20th, 2012. The exhibition featured the work of some of the most influential artists and designers during five different eras of game technology, from early pioneers to contemporary developers. Eighty games were presented through video footage and still images. The galleries also included video interviews with twenty separate developers and artists, and certain historic game consoles.

In 2011, the Smithsonian had asked the public to assist in voting on which games should be included in the exhibit. Between February 14th and April 17th, more than 3.7 million votes were cast by 119,000 people in 175 countries. The museum openly embraced video games as an important form of modern art, stating “In the forty years since the introduction of the first home video game, the field has attracted exceptional artistic talent. An amalgam of traditional art forms – painting, writing, sculpture, music, storytelling, cinematography – video games offer artists a previously unprecedented method of communicating with and engaging audiences.” (SAAM)

The Museum of Modern Art (MoMA) has also readily accepted video games as an important form of artistic expression. On November 29th, 2012, MoMA announced that it had acquired 14 games spanning a 30 year period of gaming history to be added to its collection, with hopes to reach 40 in the near future. Though MoMA has openly stated their belief that video games are art, they differed from the Smithsonian slightly by focusing on video game design, saying:

Are video games art? They sure are, but they are also design, and a design approach is what we chose for this new foray into this universe. The games are selected as outstanding examples of interaction design—a field that MoMA has already explored and collected extensively, and one of the most important and oft-discussed expressions of contemporary design creativity. (Paola)

In truth, many gamers and game designers have grown tired of the question about whether or not video games constitute art. Particularly exhausting to gaming enthusiasts is the assertion that video games are “just fun”. *The Guardian*’s Keith Stuart believes video games have become a form of communication and expression the same way creative writing, film, and television have – and have become so much more than “just fun”:

The greatest artists, you see, want to communicate in the most popular media of the time, they want to be heard. That's why Shakespeare wrote for the lice-ridden but packed theatres of London, that's why Bertolt Brecht collaborated with Fritz Lang to bring his theories to Hollywood, that's why Dickens and Dumas had their novels serialized in magazines. Why aren't games just fun? Because video games are now a language and language is a tool of expression and change. A bit like art, yes? (Stuart)

Edutainment and Video Games for Social Change

Though many video games are created with the overarching purpose of offering the player a source of entertainment and stimuli, video games belonging to a category often called 'edutainment' (education and entertainment) are becoming a growing part of the industry. These games are often created with the intention of being placed in a classroom in order to help students better connect and understand traditional subject material, like science, math, and history. A good example is the game titled *Mission US: Cheyenne Odyssey*. Created by developer THIRTEEN, the game is an interactive story which seeks to educate students about Native American history. Players take on the role of a character named "Little Fox", a Northern Cheyenne boy. Throughout the game's story, Little Fox's life is changed by things like the encroachment of white settlers, U.S. military expeditions, and the creation of railroads. Players persist in attempting to preserve Little Fox's culture while the nation transforms and conflict spreads. (THIRTEEN)

Educators have expressed that games like these can make a significant difference in how effectively the students learn, especially for students who might not be as familiar with American culture, history, or the English language. Scott Jackson, a teacher at Brooklyn International High

school, has seen the positive effect of edutainment games firsthand. He teaches 11th grade history to students who are all recent immigrants to the U.S. “We have kids from over 50 countries, speaking over 30 languages”, Jacksons says. “And not everyone has the same educational background. You need to be unconventional... I simply love it. And my kids love it.” (CBS) *Mission US: Cheyenne Odyssey* also won the 2014 Games for Change Award for Most Significant Impact.

Games for Change, created in 2004, is a nonprofit organization that hopes to organize developers, teachers, and gamers in order to create and distribute games meant to serve humanitarian and educational efforts. Though many video games promoted by Games for Change belong to the category of edutainment, they also develop and distribute games for the general gaming populace; games that raise awareness about worldwide issues. Many which explore topics like gender and race, human rights, sanitation, poverty, immigration, and culture. (G4C)

Examples that tackle these complex issues are games like *Darfur is Dying*, a free flash game found online, wherein the player chooses a member of a large Darfuri household. The initial goal is to run to a well where the character can harvest water to support their family and village. Along the way, the character must hide from Janjaweed militia. If caught, the player is informed what happened to their character; examples include rape, abuse, and murder – things that many Darfurians live in fear of every day. The player then must select another member of the family and try again, until they either succeed in bringing water back, or every family member is caught. The game has been played approximately 2.4 million times by over 1.4 million players worldwide. (MtvU)

Another excellent social change game is the indie-developed title *Papers, Please*. In this game, the player experiences the emotional toll of working as an immigration officer. The player must make decisions about who to let in or keep out of a fictional dystopian country called Arstotska. The game asks the player to make sure all prospective immigrants' documents are in order, and use an array of tools to keep smugglers, terrorists, and other unwanted criminals out of the country. If the player thinks an individual is lying, they can choose to interrogate a suspect or demand a full body scan. The player can even arrest a suspect, and the suspect might offer a bribe to the player to look the other way. Ultimately, the player must make the decision to stamp the individuals papers, either allowing them in or shutting them out.

Mistakes negatively affect the players' salary, but so does moving too slowly, especially with a long line of people that all need inspection. The game is meant to emulate the intense conditions many immigration workers find themselves in, and the pressure there is to move quickly yet accurately, even when dealing with the lives of real people. The game has won numerous prestigious awards, and has been purchased by more than 500,000 people. (Pope)

As video games have become such a common hobby for most people (similar to reading magazines or watching TV), developers have decided to utilize the medium as a means of communication. By bringing topical issues to an interactive digital medium that can be spread worldwide, many developers are seeing the potential for games that raise awareness. As of now, we've barely scratched the surface of how exactly games can change the world and address these topics. But one thing is certain: gamers are interested in playing these games and having these discussions.

Interactive Theatre

The world of theatre has long dealt with the conversation of how to stay relevant and interesting to audience members in the digital age. As people have become more accustomed to ease-of-access media like television and movie streaming (a la *Netflix*), youtube, video games, and social media, members of the professional theatre community have deliberated about how to get people out of the house to come their productions. Even one of theatre's most special qualities, being able to offer audience members a live and therefore unique experience, serves as a challenge in an age where almost everything else can be captured on video and re-watched. Perhaps the biggest problem is to how draw new audience members to the theatre; particularly, young people.

In place of rallying to keep the audience separated and passive while experiencing a show, many theatre companies are drawing inspiration from video games; that is, to make the theatre experience interactive. Immersive and interactive theatre have grown in popularity since the beginning of the 21st century, aptly aligning with the rising popularity of gaming. In his article *The Immersed Audience: How Theatre is Taking Its Cue from Video Games*, writer Thomas McMullan suggests that theatre and video games correspond more than one might initially suspect:

At first glance, theatre and games seem like opposing art forms – one steeped in hundreds of years of convention; the other technologically advanced and obsessively forward-looking. But beneath the surface there are many similarities; they can play with us in ways that film and TV cannot. And increasingly they are moving closer together.

British theatre company Punchdrunk has become particularly well-known, and their shows well-received; among them, their 2011 *Macbeth* reimagining titled *Sleep No More*, co-produced with

Emersive in New York. In creating *Sleep No More*, Punchdrunk acquired three empty adjoining warehouses in Manhattan's Chelsea neighborhood, and renamed it The McKittrick Hotel. They then filled the warehouses with a cemetery, an indoor forest, and hundreds of rooms, all designed with a 'Macbeth meets Alfred Hitchcock' aesthetic. As audience members entered the experience, they were handed Venetian-style masks to wear and were encouraged to take the experience into their own hands. Individual audience members could choose to either explore the massive warehouses on their own, or follow the 25 performers around as they enacted mostly silent scenes inspired by Shakespeare's play. Or, people could pick and choose, crafting their own unique experience. (Kennedy)

The similarities drawn between Punchdrunk's work and video games is not merely speculation. Felix Barrett, the company's artistic director, admits he finds inspiration from video games, and is interested in how games and theatre can unite even more in the future: "It's similar to how in [the video game] *Skyrim* you can follow a character and go on a mission, or you can explore the landscape, find moments of other stories and achieve a sense of an over-arching environment." He continues, asking "How can you take theatre and put it into games? What's the *Titus Andronicus* of computer games? That's the questions we want to be actively posing over the next 10 years." (McMullan). Thomas McMullan expands upon this statement, saying:

The gaps in the brickwork mean that theatre and games can peer at each other, but the lines between the two are still there. Theatre shouldn't necessarily try to be a video game, and games shouldn't try to be theatre, but, as Barrett suggests, there are things to learn, techniques to borrow... Standing in a room, whether in a game or performance, you still search for a story. You still have the same desire to explore.

Even more importantly, Punchdrunk already collaborated with PlayStation. Carl Christopher-Ansari, head of sponsorship for Sony Computer Entertainment Europe, said that Punchdrunk had been on the company's radar for some time. (Arnett) In 2011, the companies worked together to create an immersive theatre event meant to coincide with Sony's at the time upcoming release of the video game *Resistance 3*. The theatre piece, titled *...and darkness descended* was placed beneath the railway arches at Waterloo station in London.

Audience members were given a torch and took the role of remaining survivors after an apocalyptic event. The interactive show included strong smells and creative use of sound in order to offer the most immersive experience possible. Tom Hoggins, writer and gamer, had the chance to take part in it, and immediately noticed the similarities to certain video game experiences:

As a lifelong gamer, I am virtually trained in exploring every nook and cranny, harvesting detail and information. I'm not disappointed. Ruffling through a wastepaper basket, I find a printed distress call. It doesn't mean anything to our task at hand, but it's there as part of a fuller picture. We're not in Kansas anymore. (Hoggins)

It's not just Punchdrunk that is seeing the potential for video game design to be integrated with theatre. In 2013, theatre company Rift staged an adaptation of Kafka's *The Trial*, in which audience members were cast as the protagonists. They then squeezed around an altered Shoreditch Town Hall. Though the audience was given an impression of exploratory freedom, they were eventually, like Josef K in the project's inspiration, inevitably led to an execution site. The 'level design' of the theatre experience was directly inspired from video games; one in particular. Felix Mortimer, Rift's co-director, explains that "Train, the level in [the video game] *Goldeneye 007* where you walk down one long corridor is utter genius. It's great at guiding the

player along a linear track. In *The Trial* we had a track which led our audience – but they would often challenge it.” (McMullan)

As the professional theatre world strives to evolve alongside a changing culture, immersive theatre events might be the answer to the problem of declining audience members. And, as companies like Rift and Punchdrunk have experimented with, integrating design or inspiration drawn from video games might be the best way to intrigue new audience members, and keep theatre fresh.

Broadway and Video Games Collide

The author is currently working with a team on a creative project; the hope being that the project will eventually come to fruition in the form of a new for-profit Broadway musical. In order to contextualize the author’s work and experience, this subchapter is written in the first person narrative form. All information in this section has been written with complete permission of the creative team.

In spring of last year (2014), while finishing up my second year of graduate school at VCU, I was introduced to director/actor Gabriel Barre by colleague of mine and fellow graduate student, Brad Willcuts. Gabriel was guest directing a production of *Arabian Nights* for VCU’s theatre department – a show in which Brad assisted with. I was not working on *Arabian Nights*, and had therefore not yet had the pleasure of meeting Gabriel.

In prior weeks, Brad and I had shared our mutual interest in gaming with each other, whereupon I explained my plans for focusing my thesis on writing about video games and education. At some point throughout the process of *Arabian Nights*’ creation, Gabriel had mentioned to Brad that among other future projects, he would soon be working with a talented

creative team on a new Broadway musical. As was explained, the story of the musical would focus on video games and gaming culture. Brad mentioned my thesis concept to Gabriel, and Gabriel expressed an interest in chatting with me. Brad relayed their conversation to me the next day.

Soon after, Gabriel and I met for lunch, and had a conversation about my experience with gaming, my thesis, and the tentative details of this new multi-million dollar Broadway musical, among other things. Gabriel suggested I Skype with the rest of the creative team, and that I might be able to assist with the project in some way. I was sent a draft of the script, and was asked to read through it and respond to it as a gamer. Gabriel and the team were interested in how authentic I felt both the use of gaming in the script was, as well as how gaming culture was portrayed.

Weeks later I was introduced to other members of the creative team through a video conversation, whereupon I met producer Ann McNamee, writer Hunter Bell, and orchestrator Stephen Oremus. We spoke for nearly two hours, and I offered up the best perspective I could in terms of making minor changes to possibly hone the ‘gamer’ quality of the script (though this was not a difficult task; gaming was quite wonderfully explored already).

Soon, Gabriel e-mailed me to inform me that the team was interested in bringing me on to assist. I’ve signed a yearlong contract (until June of 2015) to work as the team’s ‘video game consultant’ (we weren’t sure if ‘*game-aturg*’ was a thing), in order to continue offering an informed gaming perspective as the script continues its gestation.

The current creative team as of November 2014 (including brief credits for each) is as follows:

- Producer/co-composer/co-lyricist: Ann McNamee

- Music theorist, songwriter, and Professor Emerita at Swarthmore College
- Director: Gabriel Barre
 - Internationally acclaimed director and actor (Tony nomination for Best Actor in a Musical, *Starmites*)
- Book writer: Hunter Bell
 - Broadway writer and actor (*[titleofshow]*, *FOUND*, *Silence! The Musical*)
- Co-composer/co-lyricist/orchestrator: Stephen Oremus
 - Broadway musical director and orchestrator (*Avenue Q*, *Wicked*, Tony Award for Best Orchestrations for *Book of Mormon*). Grammy Award, *Kinky Boots*. Conductor, *Frozen*.
- Visual Design Consultant/Media Manager: Tim Hunter
 - Professor and Director of the Digital Media Center at the University of Connecticut.
- Co-composer/co-lyricist: Sammy James, Jr.
 - Vocalist and Guitarist for *Mooney Suzuki*. Grammy Award, *Kinky Boots*.

The script draft, tentatively titled *Other World*, pointedly focuses on the amazing social bonds that can be developed between gamers playing a Massively Multiplayer Online Role-Playing Game together. In particular, the story concentrates on individuals who might feel ostracized or marginalized in real life, and how they can find fulfilling, nonjudgmental companionship and a support system through online gaming. The script also explores the nature of self-actualization experienced via gamers in the way they might design and role play as their avatar in the digital world; especially in how they interact with others. Finally, being that it's a Broadway musical, the story is charming, funny, and exciting.

The team made it abundantly clear that it was important to them that, regardless of their individual experience with video games as a medium, the show treats gaming with reverence. We want to avoid fallacious stereotypes and tired tropes of the ‘loser gamer’, and we want to make sure gaming culture is portrayed as genuinely as possible. The team recognizes that gaming is not just an important hobby to millions of creative individuals, but also serves as a valuable social experience for many of us. I asked our producer, Ann, what benefits she saw in being a gamer, inasmuch as she knew about gaming. Her response was inspiring:

Secondhand, when I see gamers like my niece/cousin, whose life (including daily wardrobe) revolves around gaming, I recognize that gaming gives her a social structure and outlet for her creativity. She has medical issues and body size issues. In her gaming world she is accepted for who she is (or presents herself as). The fantastical escapes provided by written literature, film, theater, etc. are found in gaming to an ever-higher degree.

Since joining the team, I’ve been in constant e-mail correspondence with everyone, answering any questions I can to help. In addition, I’ve already flown out to San Francisco to meet up with Ann, Hunter, and Gabriel while we attended GaymerX2 (the nation’s largest LGBTQ gaming conference). We discussed plans for the script, and absorbed as much as we could about gaming culture, particularly about gamers who already belong to a marginalized group.

I hope that by exploring gaming (rather uncharted territory in the Broadway musical scene) we might bring gamers to the theatre, and might even send theatregoers towards gaming. Director Gabriel Barre agrees, saying “We hope that a show like *Other World* can begin to do just that – in both directions; at least that is our hope. We need to beware of tropes and traps, and at the same time celebrate the iconic world of gaming and help an audience recognize and

identify with themselves.” Furthermore, when I asked him why the team wanted to write a Broadway musical about video games in the first place, he said, “The presence and power of the industry is undeniable, and the notion of a society that is more comfortable in, or at least enjoys living in, someone else's skin or body is really in many ways what the theatre experience is also about. Identification and seeing ourselves through the outside in.”

Though completion of the project is likely to be years away, the show’s potential is extremely exciting. Who would have expected video games and theatre to merge in the form of a prospectively multi-million dollar Broadway musical? Even as a theatre educator and lifelong gamer, I never expected it occur so soon; that being said, I could not be more thrilled. And I feel very fortunate to be a part of this project.

CHAPTER 3: A MODERN PEDAGOGY FOR THE MODERN STUDENT

Problems with Traditional Forms of Education

The traditional form of K-12 education, wherein students generally play the role of a passive ‘information sponge’, is actively losing its effectiveness. Some troubling statistics were released this year from the National Education Assessment of Progress: high school students scores have consistently been stagnant in science and mathematics and have dropped in reading. (Resmovits) There is debate as to why this has been the trend, but little argument to the notion that something must change. Arne Duncan, U.S. Secretary of Education responded to these statistics, saying “Despite the highest high school graduation rate in our history, and despite growth in student achievement over time in elementary school and middle school, student achievement at the high school level has been flat in recent years... Just as troubling, achievement gaps among ethnic groups have not narrowed.” (Resmovits)

Graduation rates aside, the greatest concerns seem to be about how much the students are actually learning, and how much they care to learn what they are being taught. Mark Schneider, vice president at the American Institute of Research, expresses this exact sentiment, saying “They have so much on their plates. Motivation has always been a problem – that’s the optimistic assumption.” He continued, saying, “...states and schools have lied about the rigor of their courses. ... Students aren't learning what they should be learning in high school.” (Resmovits)

We, as educators, can see these problems firsthand. Far from being ‘typical student apathy’, many students seem entirely disenchanted with the formal system of education. We have long known that students interested in not only what they are being taught, but how they are

being taught are much more likely to showcase motivation and knowledge retainability. In order to encourage better learning in our classrooms, this author asserts that we – the educators – must adapt new pedagogies suited to contemporary students. New pedagogies that utilize interest-driven education, and pedagogies that set up class environments which can take advantage of how students are already learning outside of school. The author suggests we look to video games (and more specifically, game-based learning environments in general) in order to effectively renovate our teaching methods.

Aspects of Game-Based Learning

As we have moved through the 20th to the 21st century, our nation has seen unimaginable technological advancements. Among them, video games have become a staple of most American's lives; particularly young people. Today, 99% of boys under 18 and 94% of girls under 18 report that they regularly play video games. By the age of 21, the average young person has played video games for approximately 10,000 hours – what many people consider the amount of practice hours needed to become an expert at something. Associate professor Kurt Squire explains why this information is so important, expressing “There’s a saying that we study the technologies we grew up with because they shape our basic experiences and expectations. Today’s graduate students are gaming and internet kids, and tomorrow’s may be the mobile generation.” (Squire 21)

Games are obviously an enormous passion for many students in this digital age. We explored in chapter 1 not only what makes video games unique, but also why they are beloved by so many individuals. In truth, video games have served a far greater purpose than purely recreation in young students’ lives. Good video games, ones that succeed in pushing their player

into a state of flow, teach students *how* to learn. The learning process might be a subconscious one, but the process is occurring. Because students are being taught how to learn from video games at such a young age (and continue to play games as they grow up), by setting up game-based learning environments we can make sure that how they are being taught in school coincides with how they are learning from playing video games. Some educators, researchers, and scholars have already been practicing this ‘gamification of learning’ (as it is sometimes referred), and believe it is the key to adapting a modern, effective pedagogy. (Kapp) Learning and literacy professor James Paul Gee clearly sees this, saying that:

... It turns out that the theory of learning in good video games is close to what I believe are the best theories of learning in cognitive science... If the principles of learning in good video games *are* good, then better theories of learning are embedded in the video games many children in elementary and high school play than in the schools they attend. (Gee 4-5)

Good video games (or games in general) offer principles of learning in a variety of ways:

1. Good games are interesting to their players via requiring active participation.
2. Good games always establish clear and manageable goals, and often times utilize over-lapping goals, so players are forced to integrate different skills and knowledge sets to achieve them.
3. These goals exist within a complex yet accessible system of rules which clearly define how the player must traverse challenges and what information is relevant to the players’ success.

4. When challenges are overcome and goals achieved, games offer immediate feedback to the player; this reassures the player to keep playing, even if they do not always initially succeed. It breeds motivation to continue learning the system.
5. Good games reward exploration and unconventional thinking, often times allowing players various means by which to achieve goals. This encourages the players to think and act creatively, and ultimately allows players to feel that they are strategic designers of their own success.
6. However, in the case that there is a specific way the game needs the player to navigate in order to reach a goal, good games explicitly guide the player and make sure the player understands why they are expected to follow a linear path.
7. Good multiplayer games not only inspire goal-sharing amongst several players, but also encourage peer-to-peer guidance. This allows players of various skill levels within the system to support each other, even if they might be pursuing different goals.

In order to better understand how these principles which constitute a ‘good game’ can be applied in the classroom, we will address them individually.

Interest Driven Learning via Active Participation

The principle that learning is most powerful when it is driven by passion is not a revolutionary idea. Researchers and educators have readily accepted the notion that students learn best when they are emotionally engaged in what they are studying. Exploring interest-driven learning is not a matter of changing one’s subject material to suit the non-academic

preferences of the student; rather, to consider how to engage the students' interest by the manner in which the material is shared.

An effective way to do this is to tap into the students 'flow' by designing a curriculum which implements active participation. Traditional classroom settings often rely upon the student to play a passive role. Contrarily, when students are encouraged to engage in discussion (with both the teacher and their peers), they themselves become productive parts of the learning process. Essentially, we should encourage the students to be creators of their own knowledge, rather than simply receptacles for information. After all, students have already learned to fulfill an active role in the video games they play, and enjoy doing so. As Kurt Squire suggests, "Games are emblematic of a broader shift toward participatory culture and suggest ways of structuring participatory educational experiences. Gaming communities push players from consumption to production. This is a useful model for educators." (Squire 15)

Clear Goals, Sometimes Overlapping

Just as good games always make the player's role clear throughout the game's story, educators should clearly establish both short and long-term goals to their students. Doing so gives the students purpose, and compels them to invest in the learning process on a class-by-class basis, rather than concern themselves only with the 'final grade'. Students will understand how seemingly trivial short-term goals (individual assignments, for example) are a necessary part of building the proper skill sets for accomplishing overarching class objectives.

Often times, by integrating goals that overlap, it requires students to think holistically (rather than rely on single-cause solutions), thereby utilizing different skills they've learned. Again, Squire illuminates why this is key, saying that "The importance of *clearly* communicating

such goals can't be understated. Video games do a lot of work to make these goals compelling to players. These goals *seduce* players into pursuing them. As video game designers, it's always shocking just how much you have to lead players by the nose." (Squire 7)

Accessible System of Rules

When educators establish a clearly communicated set of parameters that dictate what is acceptable and what is not, they offer students a structure in which to operate. The classroom becomes an ecosystem with accessible rules and expectations (just like the world of a video game). This then allows students to pursue goals and actively participate within a clear set of boundaries. Students learn how to function within a system, which establishes their long-term role as part of a group of individuals.

Immediate Feedback

Games typically provide instant feedback to the player in the form of audio/visual clues; for example, winning might elicit cheerful music and fireworks, whilst losing might prompt an ominous sound and a black screen. While students attempt to overcome challenges and pursue goals within the class' system, educators must supply immediate and explicit feedback as well (typically in the form of critique). This helps guide the student towards better understanding success versus failure, which cultivates a recognition within the student that they are responsible for their own trajectory in the class. Ultimately, this is imperative in engaging students as active participants. It breeds motivation, self-realization, and personal agency – all crucial aspects in achieving a state of 'flow'.

Exploration and Unconventional Thinking

In many video games there are various ways to reach a goal, thus forcing a player to make a choice and follow through. Depending on the assignment, students can similarly be offered a variety of paths to take in order to complete their task. Doing this requires that a student actively make an informed decision about which course they choose, thus creating a sense of ownership. It is in this state (with proper feedback) that a student can feel most comfortable thinking imaginatively, and taking risks. This allows students to embrace strategizing, failing, reevaluating, and ultimately becoming the curators of their own knowledge.

Understanding a Linear Path

As opposed to permitting a variety of choices or paths, sometimes a goal has a predefined journey. In a video game, for example, there might be a locked door which only a specific key opens. When this is the case in the classroom, educators should strive to clearly illustrate to the students why a specific course is important, as opposed to goals which might allow a more flexible route. This ties in with establishing easily understandable parameters and goals.

Goal Sharing and Peer-to-peer Guidance

In multiplayer video games (especially online games), players on a team often discover that their particular strengths balance out a teammate's weaknesses, and vice versa. Communal goal-sharing amongst students in the classroom necessitates the same personal reflection, while allowing the students to acknowledge their strengths and weaknesses in a safe and supportive way. Group projects encourage teamwork, discourse, and peer-to-peer mentoring. This cultivates

a vested interest in each other's skills and perspectives. Unfortunately, as Kurt Squire suggests, these pedagogical techniques are not implemented as much as they should be:

This form of learning – having people (including novices and experts) engaged in joint problem solving – is considered by learning theorists such as Annemarie Palincsar and Ann Brown to be perhaps the “best” form of learning. Yet it is rarely utilized in schools, which focus on individual work and are segregated by skill level. Typically, in each class, there is one “expert” (the teacher), whose job it is to impart knowledge to students, who are supposed to diligently work on their own learning. (Squire 12)

Utilizing Game-based Learning Techniques for a Modern Pedagogy

As our students continue to grow up with ever-changing technology, it becomes increasingly important that we, as educators, are growing with them. Possibly dated pedagogies and learning environments should be replaced with relevant ones which take direct advantage of the influence certain technologies have on how our students absorb knowledge. This author suggests that a contemporary, game-based pedagogy is not only widely applicable, but the most effective means of connecting with the modern student. Jane McGonigal, author of *Reality is Broken: Why Games Make Us Better and How They Can Change the World*, emphasizes why this is so important, saying:

The people who continue to write off games will be at a major disadvantage in the coming years. Those who deem them unworthy of their time and attention won't know how to leverage the power of games in their communities, in their businesses, in their own lives... Even if you would *never* play computer or video games, let alone make one,

you can benefit enormously from learning exactly how good games work – and how they can be used to fix real world problems. (McGonigal 11-13)

CHAPTER 4: CONTROVERSIES SURROUNDING VIDEO GAMES

Violent Video Games and Their Effect on Gamers

Almost since their inception, video games have elicited discussions about the effect that playing them might have on individuals, particularly those at a young age. Though the world had experienced ‘violent media’ in the form of books, television, film, theatre, and poetry for centuries, as video games became more popular in the 1980s a new debate ensued. Due to the interactive nature of playing a video game (a player is an active participant, not a passive spectator), it was assumed that children and teens playing violent video games inevitably led to them developing violent tendencies or aggressive urges.

Perhaps one of the most well-known events that attempted to dissect this topic came in the form of a press conference called by Joseph Lieberman (at the time the Democratic Senator for Connecticut) on Wednesday the 1st of December in 1994. Lieberman was joined in his rally by Bob Keeshan, perhaps better known as ‘Captain Kangaroo’. After reporters had taken their seats, footage was shown of two newly released ‘ultra-violent’ video games, namely the fighting game *Mortal Kombat* and the interactive movie/survival horror game *Night Trap*. The footage included a scene from *Mortal Kombat* where a combatant ripped a beating heart out of his opponent’s chest, as well as a campy scene from *Night Trap* where a young woman in a ‘suggestive’ dress is taken off-camera by vampires, followed by the sound of drilling (suggesting she was being drilled to relieve her of her blood).

The gory content was particularly surprising to them. At the time, most reporters in the room (as well as most adults in general) weren’t familiar with these types of games, as it would

be many years before game content became common knowledge to the media and parents alike. “We’re not talking *Pac-Man* or *Space Invaders* anymore”, Lieberman said. “We’re talking about video games that glorify violence and teach children to enjoy inflicting the most gruesome forms of cruelty imaginable.” Lieberman continued, stating that “Violent video games may become the *Cabbage Patch* dolls of the 1993 holiday season. But *Cabbage Patch* dolls never oozed blood and kids weren’t taught to rip off their heads.” (Donavan)

The video game industry had dealt with similar accusations prior to this. Violent games like *Death Race*, released in 1976, and the pornographic *Custer’s Revenge*, released in 1982, certainly evoked some controversial response, but never had the conversation been brought to such a political forum as it was in 1994. Lieberman explicitly demanded that an outright ban on such games take place, though he admitted the Constitution would most likely not allow it. Video game developers, like many other artists, had always felt protected by the Constitution’s inclusion of freedom of speech and freedom of expression. Because of this, prior controversy was easy to laugh off, but with the discussion growing to a national level, game developers recognized the need for compromise if they intended to continue evolving video games as a form of both media and art.

This compromise came to fruition in the creation of the Entertainment Software Rating Board (ESRB). The ESRB was established in 1994 (shortly after the Lieberman hearings) by the Entertainment Software Association (ESA), formerly known as the Interactive Digital Software Association. The ESRB was intended to act as a self-regulatory organization, assigning age and consent ratings to every video game, enforcing industry-adopted advertising guidelines, and, as of today, ensuring responsible online privacy principles for video games in the United States and Canada. (ESRB, “Frequently Asked Questions”)

Though their guidelines and principles have evolved over the years, the ESRB is still in place today. The board assigns ratings to games based on their content, using judgment similar to motion picture rating systems used worldwide. The rating system is organized into six different categories, with each category corresponding to a suggested age. The ratings are: E for everyone (E), Everyone 10+ (E10+), Teen (T), Mature (M), and Adults Only (AO), with the latter two heavily regulated via age restrictions. AO rated games are not even stocked on the floor, and are instead safely contained behind closed doors. An individual must produce a valid photo ID or proof of age 17 years or older in order to purchase an M or AO rated game. In addition, games are also labeled with a system of “content descriptors”, detailing specific types of content within the game, to better assist parents and gamers in making informed decisions about their purchase. The content descriptors attached to each rating include information about gameplay, such as when games might contain violence, crude language, nudity, sexual content, the use of drugs and/or alcohol, and even gambling.

Interestingly enough, a secret shopper report released by the Federal Trade Commission (FTC) on March 25th, 2013 found that minors have a much harder time purchasing M or AO rated video games than they do R-rated movies, tickets to said movies, or music with explicit lyrics (Sinclair). From April to June of 2013, the FTC sent unaccompanied children from the ages of 13 to 16 to major retailers (Walmart, GameStop, Toys R’ Us, Best Buy, Target and Kmart) to garner information about who would sell them restricted content. M-rated games were the most frequently denied purchase, with underage shoppers able to buy them only 13 percent of the time. In comparison, tickets to R-rated movies were able to be purchased 25 percent of the time, R-rated or unrated DVDs 30 percent of the time, and music CDs with the explicit lyric tag sold to minors a whopping 47 percent of the time. The FTC has been conducting secret shopper

reports since 2000, and every indication suggests that video games are the most appropriately regulated media in regards to underage children being allowed access. Indeed, in the *2014 Sales, Demographic, and Usage Data Essential Facts About the Computer and Video Game Industry*, a report conducted by the Entertainment Software Association (the largest video game research organization in the U.S.), it was discovered that most parents are both aware of what their children are purchasing and playing, and make informed decisions about what their children are allowed to experience. The report revealed some shocking conclusions:

- 88% of parents whose children play games believe the ESRB rating system is either very or somewhat helpful in choosing games for their children.
- 85% of parents are aware of the ESRB rating system.
- 87% of parents believe that the parental controls available in all new video game consoles are useful.
- 91% of parents whose children play games are present when games are purchased or rented.
- 82% of children receive their parents' permission before purchasing or renting a game.
- 95% of parents pay attention to the content of the games their children play.
- 88% of all games rated by the ESRB in 2013 received a rating of E (for everyone) to T (teen), while only 12% received an M (mature) or AO (adults only) rating.

This suggests that video game content is not only well regulated by retailers that sell them, but also by the parents of gaming children. These statistics have steadily improved as years have gone by, and if this trend continues, we can assume that as video games become more a more prevalent part of parents' and children's lives the ESRB system will continue to offer parents the

best possible means of knowing exactly what their children are to experience when playing video games.

The efficiency of the ESRB rating system aside, the crux of the conversation still roots itself in one important question: do playing violent video games make gamers more violent and/or aggressive individuals? This has certainly become more topical than ever with the rise of school shootings and gun violence that America has experienced in the last two decades. Studies have been done since the mid-1980s about game content and the effect it has on the player, with wildly inconclusive results (Schreier). In truth, there has been no documented scientific link between video game violence and criminal violence (Fisher). Because of this, the hypotheses of these studies have changed over the years, wherein the focus is less about attempting to illustrate a causal or correlational link between video games and actual violence, but rather how video games might lead to more subtle aggressive tendencies in gamers. Still, we find no conclusive data that suggests playing violent video games might make a gamer more aggressive, as explained by Christopher J. Ferguson, associate professor of Psychology and Criminal Justice at Texas A&M International University, in an interview with gaming website *Kotaku*:

I think anybody who tells you that there's any kind of consistency to the aggression research is lying to you. There's no consistency in the aggression literature, and my impression is that at this point it is not strong enough to draw any kind of causal, or even really correlational links between video game violence and aggression, no matter how weakly we may define aggression.

Furthermore, many prevalent scholars and psychologists suggest that we're having the wrong conversation entirely, and are perhaps analyzing the problem backwards. In essence, the question should not be 'do video games with violence make players aggressive?', but rather 'do players

want more violent video games because they develop aggressive tendencies outside of gaming?’ Carly Kocurek, a professor of Digital Humanities at the Illinois Institute of Technology, suggests exactly that:

I think that the discussion of media forms—particularly games—as some kind of serious social problem is often an attempt to kind of corral and solve what is a much broader social issue. Games aren't developed in a vacuum, and they reflect the cultural milieu that produces them. So of course we have violent games. (Kain)

Learning and literacy professor James Paul Gee shares a similar sentiment, stating that “Debates over violence in video games are one more way in which we seek to talk about technology doing things to people rather than talking about the implications of people’s overall social and economic contexts.” (Gee 12)

Truthfully, scientists and psychologists are currently divided on the issue. With each new study that may suggest some causal (or at least correlational) link between violent video games and aggression, subsequent studies find no empirical evidence of a connection at all (Schreier). Fortunately, there have been some successful deductions in reference to aggression and video games this past year, but video game violence does not seem to be a factor. Instead, the study (conducted at the University of Oxford) discovered that gamers showed some aggressive tendencies immediately after playing games in which the gameplay mechanics themselves felt unnecessarily difficult or punishing - the findings of which have been published in the *Journal of Personality and Social Psychology* (Lee). Dr. Andrew Przybylski, from the Oxford Internet Institute, who carried out the research with colleagues from the University of Rochester in the US, further explains their findings:

We focused on the motives of people who play electronic games and found players have a psychological need to come out on top when playing. If players feel thwarted by the controls or the design of the game, they can wind up feeling aggressive. This need to master the game was far more significant than whether the game contained violent material. (Lee)

These ‘aggressive tendencies’, therefore, mainly seem to be attached to a universally negative feeling shared by all humans, gamers or not: a lack of control. In this sense, the aggressiveness that gamers may feel after being thwarted by a difficult game is no different than the frustration one might feel when their computer or phone doesn’t work, or they accidentally overcook a steak. It seems only natural that when we attempt to achieve a goal, but feel like the odds are against us, we tend to get frustrated; and quite possibly, aggressive.

Amidst all of the studies that have been done about video games, video game players, and possible links to violence and/or aggression, the only conclusion we can effectively come to at this point is such: further studies must be done before any absolutes can be adapted as fact, one way or the other. Fortunately, the current rating system for video games (as employed by the ESRB) is both informative and effective enough to continue enabling parents to make informed choices about what type of video game content their children are allowed to experience.

Video Games and Addiction

Perhaps equally as debated as the issue of violent video games, video game addiction and video game obsession have become growing concerns amongst both the scientific community and general public (particularly parents). At the heart of the discussion is the question of whether there is anything intrinsically unique to video games which leads to gaming addiction, or if prior

existing social and psychological issues are the impetus. Considering the statistics noted in Chapter 1 (which illuminate the prevalence of video games), this is an understandably important topic.

There have been numerous high-profile cases that have ignited the conversation about video game addiction. In 2009, 17 year-old Daniel Petric was sentenced to 23 years in prison after fatally shooting his mother. Petric shot both his parents after they had taken away his copy of *Halo 3*. The court was told during his trial that Petric had become addicted to the game after a jet skiing injury left him housebound. A similarly tragic event took place in 2011, wherein 28 year-old Rebecca Colleen Christie was sentenced to 25 years in prison by a New Mexico Court for allowing her 3 ½ year-old daughter to die of malnutrition while she was on a *World of Warcraft* gaming binge (Vitelli, *Are Video Games Addictive?*). Considering behavior like this is often witnessed in individuals with recognized addictions (drugs, alcohol, gambling, et al) news stories like these make it very easy to be suspect of gaming.

Organizations have already been established to combat and/or cure video game addiction. In addition to *Online Gamers Anonymous* in the United States, clinics designed for video game addicts have been created around the world, including the Netherlands, Australia, and China. Even conventional clinics focused on treating addiction have noted an increase in individuals claiming to have a video game addiction.

At this time, the American Psychiatric Association does not consider gaming addiction to be a mental disorder. However, in the APA's most recent *Diagnostic and Statistical Manual of Mental Disorders*, Internet Gaming Disorder has been included as a condition for possible further study and addition in future DSM editions (American Psychiatric Association, DSM-5).

Studies have found that adolescents, particularly males, appear more prone to gaming addiction. Attention-deficit hyperactivity disorder, general impulsiveness, depression, anxiety, heightened stress, and poor social skills have also been connected to video game addiction (Vitelli, *Are Video Games Addictive?*). Though research has suggested that these traits (which often cultivate addictive or compulsive tendencies) are often associated with gaming dependency, there is debate as to the nature of the association: do video games inherently lead to addiction in individuals, or do prior existing addictive tendencies lead them to pathological gaming?

A 2011 study done by Dutch psychologists Jeroen S. Lemmens, Patti M. Valkenburg, and Jochen Peter attempted to find the answer. A section of the study's abstract both illustrates the purpose of the study, and sheds light on their findings:

Pathological use of computer and video games has been associated with indicators of psychosocial well-being, such as loneliness, low self-esteem, low social competence, and low life satisfaction. However, few studies have decisively demonstrated whether these indicators of psychosocial well-being are causes or consequences of pathological gaming. To address this gap in the literature, we conducted a two-wave panel study among 851 Dutch adolescents (543 gamers) ... These analyses indicated that social competence, self-esteem, and loneliness were significant predictors of pathological gaming six months later. Thus, lower psychosocial well-being can be considered an antecedent of pathological gaming among adolescent gamers. (Lemmens, et al)

In essence, the research concluded that the cause of gaming addiction firstly rooted itself in adolescents already suffering from certain social or psychological issues before pathological gaming occurred; therefore, video games themselves should not be considered the initial catalyst.

Furthermore, a similar study done over the course of five years by German researchers Florian Rehbein and Dirk Baier concluded that “The data shows that 15-year-old video game addicts had already exhibited a number of specific risk factors at the age of 10. Students from single-parent families seem to be particularly at risk, as are students with low experienced school well-being and with a weaker social integration in class.” (Rehbein, et al)

The fundamental factors which lead to video game addiction are the same factors that typically lead to other pathological dependencies: depression, anxiety, social difficulties, etc. We must continue to study video game addiction, though it currently seems the best way to prevent excessive gaming is to focus on correcting worldwide psycho-social issues. As Romeo Vitelli illustrates in his article *Are Video Games Addictive?*, video game escapism in moderation is not innately dangerous:

Ultimately, people become dependent on video games for the same reason that they can become dependent on any other problem behavior such as gambling or using recreational drugs. Getting away from problems in our lives by doing things that seem pleasurable or simpler to understand can be a potent lure for people in need, whether you are a child or an adult.

Quite similar to the debate over video game violence, the issue of pathological gaming seems to derive itself from a problem of perspective. Is excessive gaming the cause of addiction, or the consequence of addictive tendencies? Though no definite conclusion has yet been reached, hopefully future advances in psychology and sociology will allow us to curb addictive tendencies before gamers reach the point of addiction.

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Vita

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