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Claremont McKenna College

A Look into the Industry of Video Games Past, Present, and Yet to Come

SUBMITTED TO

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AND

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BY

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for

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Abstract

Since its inception, the video game industry has been both a new medium for art and innovation as well as a major driving force in the advancements of many technologies. The often overlooked video game industry has turned from a hobby to a multi-billion dollar industry in its short, forty year life. People of all ages and genders across the world are playing video games at a higher clip than ever before. With so many new gamers and emerging technologies, it is an exciting time for the industry. The landscape is constantly changing and successful business models of the past will need to find ways to adapt if they wish to remain successful in the growing industry.

Looking at how past trends and technological innovations have driven the industry gives understanding and insight into where it is at today and where it will go in the future. Video games have become an interactive art medium which inspires users to explore and create. The digitalization of games and their extreme popularity reflect our instinctive desire to seek out game-playing for its fun, cooperative, and competitive nature.

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Chapter 1: Introduction

The oldest human record of gaming dates back to 3500 BC in ancient Egypt.

What exactly is a game? Games are happening all around us all the time. Wherever we look we can see the makings of a game. What draws us to them? They force us to make decisions, to compete, and to work together.

It is not surprising that our love for games has stepped into the boundaries of the virtual world, for we are always trying to make a game out of everything we do. Since the inception of video games, there have been forces pushing the industry. Innovation, technology, and gamers all come together to make video games a reality. Let us take a trip through the past, present, and yet to come of the video game industry to see where it came from and where it will go. As we move forward into the future, the emergence of new platforms, developer-publisher relationships, and the Internet medium will be the three biggest factors of the video game industry.

Chapter 2: How Did We Get Here

It didn't start with a big bang. It didn't turn water into wine. But it was the birth of something new. What would become of this has still yet to be seen but it has been a crazy ride so far. The digitalization of games has opened up a whole new world full of endless possibilities. Anything that can be imagined can become a reality. The laws of our physical world can be changed, altered, or replaced with new ones to create experiences that could never before exist. Being submerged in new worlds can unlock new perspectives; exploring new universes can cause one to question what is truly real. What is reality? Where do we exist within our universe? The age old question that consciousness continues to ask itself: how did we get here?

2.1 The Birth of Something New

While the idea of video games was flirted with for decades, from the cathode ray tube amusement device (1947)¹ to the NIMROD computer (1951)², it was April of 1972 when the world would get to experience the birth of something new. Its name was the Magnavox Odyssey and its creator was Ralph Baer.³ The original idea was conceived in 1951 when Baer – a radio/television engineer – was working for an electronics company

¹ "Video Game History Timeline," International Center for the History of Electronic Games, accessed March 23, 2014, <http://www.icheg.org/icheg-game-history/timeline/>.

² International Center for the History of Electronic Games, "Video Game History Timeline."

³ "Magnavox Odyssey," The Pong Story, accessed March 22, 2014, <http://www.pong-story.com/odyssey.htm>.

named Loral. One day, Baer's boss came to him and told him to "build the best television set in the world". Ralph had a great idea to include some sorts of interactive games with the TV to attract and entertain customers and separate it from competitors. Ralph's boss was not too fond of the idea and responded: "Just build the damn TV set". So he did and nothing more came of Baer's TV games until 15 years later in 1966. Ralph Baer was then working for Sanders Associates – a company that developed defense electronics – and was waiting at a bus stop for a coworker one summer day when he started jotting down some ideas on using TV sets to play games. This continued, and within a few months, he had a schematic for a game he called Chase Game and was working with a technician to make a prototype. Ralph knew he would need some funding for the project so he decided to demonstrate his game to Herbert Campman, Sanders' Corporate Director. Herb liked what he saw and said Ralph's idea had potential but needs something more. Ralph received \$2500 for R&D.⁴

Ralph's dream would take him many places over the next few years – constantly adding new ideas, building and showcasing new prototypes, and looking for a publisher. In the fall of 1970, Ralph and a partner went to Fort Wayne, Indiana to demo a prototype to Magnavox, a TV manufacturer. Gerry Martin, the VP for Marketing, immediately loved the idea. Nine months later, Gerry had convinced the rest of corporate management to manufacture and distribute Ralph's game box. Word spread of this "mystery box" and there was a lot of press and speculation surrounding Magnavox' newest product. In early 1972, Magnavox began putting on shows showing off the year's product line. The Odyssey was the star of the show. It was officially released in August of 1972, selling

⁴ The Pong Story, "Magnavox Odyssey."

over 100,000 units by the end of the year.⁵ The video game revolution had officially begun.

The world was unaware of the tidal wave that was about to hit, but the swell was quickly approaching. On May 24th, 1972, Nolan Bushnell, eventual co-founder of Atari, attended a Magnavox product demonstration in Burlingame, California. While there, Nolan played the Odyssey, including its Ping-Pong game. After this event Nolan hired an engineer to start designing a coin-operated arcade game. By the end of the year, *PONG* was born and the world would never be the same.⁶

2.2 Crash and Burn

PONG was an absolute sensation. This would lead Atari – and soon others – to start working on more versions of the game. Less than three months after the release of *PONG*, other companies began releasing *PONG* “clones”. Atari hadn’t filed for a patent on their technology so there was nothing they could do. Atari would soon find themselves in some legal trouble of their own after Magnavox filed a lawsuit against them claiming they infringed upon Ralph Baer’s patents and concepts. Atari decided to settle the suit with Magnavox out of court and agreed to become a Magnavox licensee for \$0.7M so

⁵ *ibid.*

⁶ *ibid.*

that they could distribute *PONG*. Other companies producing Atari clones would have to pay royalties to do so.⁷

With the first lawsuit in video game history in the books, the industry was ready for takeoff. Over the next few years, *PONG* and its clones would be all the rage in bars, arcades, and at home. Atari and other companies released more coin-operated and home consoles and the public ate them up. However, in 1977, a lack of creativity and innovation led to the video game crash of 1977. So many *PONG* clones were manufactured that the market was flooded with them. Many companies had to sell their stock at a loss just to clean house.⁸ A savior was needed and it came in the form of the Japanese Toshihiro Nishikao's *Space Invaders*. *Space Invaders* was released in 1978 and sparked a revival of the video game industry and launched it into the "Golden Age".⁹ *Space Invaders* generated \$2 billion in quarters by 1982 and its success led to arcade machines to become commonplace in malls, stores, and restaurants.¹⁰

There were two major markets for the video game industry at this time: the home market and the arcade market. The arcade market peaked in 1982, generating \$8 billion in quarters, more than both pop music and Hollywood films combined.¹¹ Video game and computer journalism also saw a large rise during the late 70s and early 80s. But, as the old saying goes: history repeats itself. The video game industry would prove to be no exception.

⁷ Ibid.

⁸ "The Definitive Space Invaders," Now Gamer, accessed April 7, 2014, http://www.nowgamer.com/features/894697/the_definitive_space_invaders_part_1.html.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Everett Rogers and Judith Larsen, *Silicon Valley Fever: The Growth of High-Technology Culture* (Arizona: Basic Books, 1986), 263.

While industry was growing at extreme rates in the early 1980s, many low-quality games were being released into the market. Most of these games were developed by third-parties for home consoles produced by Magnavox and Atari. The hardware manufacturers had no control over who was making games for their platform and many of these games were underdeveloped, rushed to the market, and just plain bad. These bad games oversaturated the market and caused consumers, and thus retailers, to lose confidence in the quality of the industry. This, combined with a rise in competition from “home computers” (such as the Commodore) and inflation affecting a quarter-dependant industry, would lead to another video game industry crash in 1983 which continued well into 1985. BYTE magazine foresaw this crash coming, writing in their December 1982 edition: “In 1982, few games broke new ground in either design or format. ... If the public really likes an idea, it is milked for all it’s worth, and numerous clones of a different color soon crowd the shelves. ... In the industry’s rush to respond to demand, the original concept always seems to get copied rather than improved. ... While the industry isn’t totally saturated with look-alikes, this year has seen more money poured into promotion and advertising than into developing new and innovative games.”¹²

Industry revenues dropped 97% as a result of the crash and many companies went bankrupt or folded. A story that epitomizes the crash is that Atari, who were getting ready to release their highly-marketed game *E.T.*, produced millions of units in anticipation of record sales. While they sold 1.5 million copies, it didn’t quite match the 5 million copies that they produced. Legend has it that “11 semi-trailer truckloads of Atari computers,

¹² Pamela Clark, “The Play’s the Thing,” *BYTE*, December 1982, 9.

cartridges, and assorted parts” were dumped in a New Mexico landfill a few months after the release of *E.T.*¹³

2.3 Games and the Giant Nintendo

It was the early to mid 80s and the video game industry was in a rut. Retailers concluded that video games were just a fad and consumers had finally gotten over it. As a result, they did not carry video games anymore and developers found it practically impossible to get their games on store shelves. That’s when Nintendo stepped in. Nintendo was founded in 1889 but got their start in the video game industry in 1974 when they signed a deal with Magnavox to distribute their Odyssey console in Japan. They soon started producing their own hardware consoles and arcade cabinets. *Donkey Kong* in 1981 put them on the map. *Donkey Kong* was extremely successful and boosted Nintendo’s profits and popularity; it also meant the birth of the soon-to-be face of the franchise: Mario.

Nintendo released their Family Computer (also known as Famicom) in Japan in 1983. It had some hardware issues at first, but after a recall and reissue, the Famicom became a huge success in Japan.¹⁴ Nintendo began to eye a North American release in 1985 despite *Electronic Games* magazine writing in March of that year that “considering

¹³ M.E. McQuiddy, “City to Atari: ‘E.T.’ trash go home,” *Alamogordo Daily News*, September 27, 1983.

¹⁴ Steve Kent, *The Ultimate History of Video Games: from Pong to Pokemon and Beyond* (California: Prima Pub, 2001)

the videogame market in America has virtually disappeared, [releasing the Famicom] could be a miscalculation on Nintendo's part".¹⁵ Nintendo wasn't fazed but convincing retailers to carry their product would prove to be difficult. The first thing Nintendo did was to rename the North American version of the Famicom to the Nintendo Entertainment System (NES). Calling it an "entertainment system" helped separate it from being thought of as a "video game system". The next thing they did would shape not only the future of Nintendo but the entire video game industry. Nintendo, realizing the errors of hardware manufacturers that led to the video game crash only a few years prior, wanted to prevent the flooding of unlicensed third-party games. Their solution was to put an authentication chip in the NES system that only recognized and ran games which had the right key. This would "keep the lid on the number of cartridges available at any one time, and [promised] to keep quality high," wrote *Compute!* magazine in September of 1988.¹⁶ Nintendo also implemented a "seal of approval" that was displayed on all licensed games. Despite strategies to limit third-party development on their console, Nintendo was actually quite open to the idea (especially compared to competitor Sega) as long as it was on their terms. Nintendo limited third-parties to five releases per year and also put all the risk on the licensee by making themselves (Nintendo) the sole manufacturer of all game cartridges and requiring the third-party to pay for them before they were even produced.¹⁷ Some of these "platform-control measures" would later be implemented by companies such as Sony, Microsoft, and Sega.

¹⁵ Doug Garr, "On-Line: Starting a New Adventure," *Electronic Games*, March 1985, 8.

¹⁶ Gregg Keizer, "Games Hot, but Cartridges Cool," *Compute!*, September 1988, 8.

¹⁷ *Ibid.*

In 1989, *Compute!* magazine reported that “Nintendo sold 7 million game consoles ... last year alone”, as many as the Commodore 64 (home computer) in the five years since it was released.¹⁸ The NES was a huge success and the video game industry was back on the rise, sending a big scare to the rival home computer industry.

2.4 Tech Boom

The nineties would prove to be an interesting time for the multi-billion dollar video game industry. With popularity back on the rise, there was only one thing limiting the seemingly infinite potential of video games: technology. Since the industry relies on electronic and computer devices, the games can only be as complex as the technology is advanced. The 90s were a time of large advancements in computing and graphics technologies which in turn had a huge impact on the video game industry.

Memory, CPU speed, and the downsizing of circuit-based hardware enabled higher-performing computers which took up less space than the previous older devices. This led to the creation of hand-held systems such as Nintendo’s extremely popular Game Boy and also enabled more efficient and compact home consoles. Advancements in CPU processing as well as GPU (graphical processing unit) chips paved the way for 3D graphics, as well as GUI (graphical user interface)-based operating systems and programs. 3D environments enabled many new ways for developers to express their ideas

¹⁸ Keith Ferrell, “Just Kids’ Play or Computer in Disguise?,” *Compute!*, July 1989, 29.

and many new worlds for users to explore. It also led to the development of new genres of video games which would become some of the most popular genres of today, such as: role-playing games (RPGs), first-person shooters, 3D platformers, fighting games, racing games, and many others. RPGs were a *huge* hit and remain hugely popular in today's market. Games such as the *Final Fantasy* series were the core of the genre, allowing users to explore and experience vast new worlds while progressing their character and diving deeper into the story's plot. The best-selling game of the 90s, *Pokémon Red/Blue* (over 30 million units sold¹⁹), classifies as an RPG game although it uses mostly 2D graphics. The extreme popularity of the *Pokémon* video game led to *Pokémon* TV shows, movies, trading cards, books, toys, and much more; further displaying the power of the popularity of video games.

Another technological advancement spurred by the video game industry – which had a great effect on non-video game electronics – was optical disk storage, or CD-ROMs. CD-ROM technology came on the scene in the 90s and was used as a medium to distribute software such as video games. CD-ROMs had a much higher storage capacity and a much lower cost than the outdated cartridges; Nintendo 64 (released in 1996) was the last major home console to use cartridges to distribute their games. The use of cartridges by Nintendo for their Nintendo 64 alienated many game developers who shifted towards Sony's PlayStation – which used CD-ROMs – due to lower developing costs and less risk. Nintendo cited advantages for using cartridges (such a faster loading times) but would ultimately jump on the CD-ROM train with their next console, the

¹⁹ "Game Database," VGChartz, accessed April 18, 2014, <http://www.vgchartz.com/gamedb/?name=Pokemon&publisher=&platform=&genre=&minSales=0&results=200>.

Nintendo GameCube, in 2001. Despite the use of cartridges, the Nintendo 64 went on to become a huge success and still remains one of the most popular video game consoles of all-time, selling over 32 million units (and over 200 million games) worldwide.²⁰

2.5 Going Digital

Digital distribution and the rise of the Internet in gaming fueled the video game industry at the turn of the 21st century. While digital distribution was slow to reach the consoles, it had large impact on PC gaming. Because of this, the era saw a convergence of the two as many major publishers released games for the consoles as well as for PC, which was not common before this time. The Internet brought gamers together like never before, allowing them to play with and against each other, changing the landscape of game and console development.

The growing support of digital distribution allowed smaller and independent developers to be able to take more chances without the risk associated with the cost of creating physical copies of the game. This led to more niche games and unique independent games since developers did not have to worry about appealing to as wide of an audience. Digital distribution also had a major impact on the user's side. Modding, or making modifications to a game's code, became an increasingly popular activity. A mod can be anything from fixing a bug in game to altering the actual game itself to creating a

²⁰ "Consolidated Sales Transition by Region," Nintendo, accessed April 18, 2014, <http://www.webcitation.org/5nXieXX2B>.

completely new game altogether. Digital distribution and the Internet allowed modders to share their mods with other gamers as the trend became more and more popular. Perhaps the most interesting result of this movement is a game called *Counter-Strike*. *Counter-Strike* is an extremely popular first-person shooter franchise which has sold over 25 million copies as of 2011.²¹ What is unique about this game is that it a mod of a completely different game: *Half-Life*. *Counter-Strike* is a result of modifications to the *Half-Life* engine to create a completely new game. Modding popularity grew rapidly and many game developers even encouraged users to experiment with modding their games, which continues to be a very popular practice today.

While PC users took quick advantage of digital distribution and the Internet, it took a little longer for the consoles to get on board. The next generation of consoles – Sega Dreamcast (1998), Sony PlayStation 2 (2000), Microsoft Xbox (2001), and Nintendo Gamecube (2001) – all offered online gaming via the Internet, but the implementation was not always perfect. While the Dreamcast had great reviews from the media, it did not sell well in stores and thus its online community was not very strong. The Gamecube and PlayStation 2 both required additional adapters in order to play online and thus it was not a very popular feature at first. Nintendo did not offer much support or release many games that took advantage of online multiplayer which caused it to be irrelevant on their system. However, Sony and Microsoft did provide online support for their consoles and saw many games flourish with the popularity of online multiplayer. While the consoles would lag behind PCs in online multiplayer, Microsoft introduced

²¹ “Counter-Strike: Global Offensive firing up early 2012,” GameSpot, accessed April 22, 2014, <http://www.gamespot.com/articles/counter-strike-global-offensive-firing-up-early-2012/1100-6328645/>.

Xbox Live in 2002 as their online service which introduced many new features to online console gaming. Xbox Live allowed users to have a single account and identity which was used for all games as well as a “Friends List” and the ability to voice chat.²² These were all new features for the industry and separated Microsoft’s online support from the rest of the consoles. Sony and Nintendo would later adopt these features in their next generation of consoles (PlayStation 3 and Wii).

Times were changing quickly for the industry with so many technological advancements and the introduction of the Internet. Those who stayed ahead of the curve would see great success, but many of those who fell behind would be unable to recover.

²² “Xbox Erupts on the Scene,” Microsoft, last modified November 15, 2001, accessed April 5, 2014, <http://www.microsoft.com/en-us/news/press/2001/nov01/11-15xboxeruptspr.aspx>.

Chapter 3: Where We Are Today

The current state of the video game industry is just as volatile as its past. Companies come and go and only those who can consistently deliver high-quality games and generate fan popularity stick around. While the volatility of the industry remains, the landscape has changed dramatically.

No longer do console makers rule the industry and force their way onto third-parties. The industry has reached an era of opportunity where anybody can create their own games and strike it rich. Consumers want to see new ideas and are actively supporting content creators through crowdfunding. Not only are there new ways for developers to fund their projects, but new platforms for them to interact and share ideas with their fans. Developers are gaining creative freedom by being less reliant on big publishers just looking to make a profit. There are conferences all over the world promoting innovation and originality within the industry. New ideas are being experimented with, testing the fundamentals of what a video game can be.

Even with all these new and exciting developments, it doesn't mean old habits have come to rest. Big publishers still hold a large share of the market and continue to employ their formula of delivering recycled ideas that they know will sell. But as gamers grow tired of this cycle, they look in new places hoping to find new and enriching experiences.

3.1 AAA Games

Even with smaller, independent development firms on rise in both popularity and revenue, the big publishers still have their grip on the industry. To make big-money in the industry, you need to come out with a big-hit. And to make a big-hit, the common philosophy is that you need big-funding. This is by no means a new development in the industry – or any entertainment-related industry – and this mentality can be traced back to Nintendo’s Seal of Quality implemented after the video game crash in 1983. Having a standard that developers had to meet changed the way they developed games. Games could no longer be rushed or buggy, they had to be of the highest quality and meet the approval of critics and users alike. Companies needed a term to distinguish their high-quality, blockbuster hits from the rest of the pack. In the early 90s, when gaming conventions such as the Game Developers Conference (GDC) and the Electronic Entertainment Expo (E3) were becoming popular, developers starting using the term “AAA” to refer to these blockbuster projects. The letter “A” came from the common grading system in America and each “A” represents a branch of commercial success. The three branches are: critical success, innovative gameplay, and financial success.

Today, however, the definition of AAA has slightly changed. Many companies self-proclaim their games to be AAA months or years before the game is even released. The term has become more synonymous with big-budget than with its original definition, and this is a philosophy that is common in the industry: big-budget equals big sales. Companies believe that pouring money into development is the way to bring in big revenues, and when you look at some recent successes, it’s hard to disagree. Just look at

recent billion-dollar franchises such as: Activision Blizzard's *Call of Duty* and *World of Warcraft*, Electronic Arts' *Battlefield* and *Madden NFL*, Take-Two Interactive's *Grand Theft Auto*, and Ubisoft's *Assassin's Creed*. But what needs to be remembered is that these games were not built in a day. *Grand Theft Auto V*, for example, took five years to develop and had a budget of \$260 million. Dropping \$260 million to develop a video game is a huge risk, but when the game turns around and earns over \$1 billion within 24 hours of its release, it's not hard to see why some companies take that risk.²³

Spending \$260 million to develop a game sounds absurd and many people wonder how a video game can even cost that much to make. Sure, developers and artists are expensive, but a large portion of that \$260 million goes towards advertising; or, as some in the industry like to call it, fueling the hype train. This is a crucial step for the success of any AAA game. Companies need their potential users and reviewers to be gushing about the game months before it is even released. For companies that take the risk of developing these large titles, it is not about how much people like the game but rather how many people like the game, so the game needs to reach as large of an audience as possible. This is done by fueling the hype train. This can lead to users being disappointed that the game didn't "meet the hype" so it's up to the developers to make sure they deliver.

Another negative side-effect of this big-budget, big-hit mentality is that producers are scared to try new things. If a producer is going to spend hundreds of millions of

²³ Marc Graser, "'Grand Theft Auto V' Sales More Than Double Take-Two Interactive Profits," *Variety*, February 3, 2014, accessed April 5, 2014, <http://variety.com/2014/biz/news/gtav-grand-theft-auto-v-sales-more-than-double-take-two-interactive-profits-1201084902/>.

dollars developing a game, they need to be sure that people are going to like it and buy it. This results in a lack of innovation as companies rely on replicating games that have sold well in the past. While consumers continue buying these games because they have the brand-name that they are familiar with, this repetitive process has many yearning for something more.

3.2 The Indie Market

On the other end of the spectrum of AAA games, budget-wise, lie the independently-developed games. While the term independent, or “indie”, has no definite meaning, it is usually used to refer to an individual or small group that develop a game and self-publish it without the help or financial support of an outside source (usually a publisher). Due to the lack of a true publisher, indie games rely on other methods to raise funds to develop their games, or make do with minimal funding. As a result, it has been commonly thought that indie games are not as good and cannot be as successful as big-budget or AAA games. This, however, is not always the case.

Independent games have been gaining a lot of momentum in recent years and many users and developers attribute this to the indie “feel”. It is hard to capture what quite encompasses this indie feel, “some developers think ... you have to be creating artistic experiments with mechanics that have never been experienced before. Others think it’s a mindset where you’re not letting money, marketing, and big business cloud

the vision for your game”.²⁴ For these and other reasons independent developers find themselves closer and more connected to the users who play their games.

Users like to feel like they have a voice in the creative direction of a game and indie developers are starting to cater towards this. The rise of modding in the nineties showed that video game players are not all just blind consumers; many have technical skills of their own and use these to alter and improve the games that they play. As a response to this, many small developers will release alpha- or beta- builds of their games to the general public. You might be asking yourself: who would want to buy an incomplete, bug-ridden game? Please direct all questions to Markus Persson.

Swedish programmer Markus Persson released his developmental (incomplete) version of *Minecraft* in May of 2009, an alpha version in June of 2010, and a beta version in December of 2010. *Minecraft* surpassed 10 million users and had generated an estimated \$33 million by July of 2011, months before its official release in November of that year. Not only did users enjoy playing the developmental version of *Minecraft*, they enjoyed working on it too. Users found and fixed bugs, created new features, and spread the popularity of the game through word of mouth. Today, *Minecraft* has sold over 35 million copies, generated over \$250 million in revenue, and has over 100 million registered users. While *Minecraft* is not the first commercially successful indie game, it

²⁴ Mike Gnade, “What Exactly is an Indie Game?,” *Indie Game Magazine*, July 15, 2010, accessed March 27, 2014, <http://www.indiegamemag.com/what-is-an-indie-game/>.

shows the impact that one can have as well as the changing trends of video game consumers.²⁵

3.3 A Shift in Trends

We have just examined two extremely different methods that developers and publishers use to popularize and launch their games: spending lots of money to create a media buzz vs. engaging users and letting them become part of the creation process. However, most games won't be a product of either of these two strategies and must find their own way into the hands of their users. If they want to create media buzz or generate user interest, it will have to be through merit and innovation.

Innovation, or lack of innovation, has been a focal point of the video game industry in recent years. With many big AAA titles being sequels or spinoffs of other games, their innovation has been in question. Their profits sure haven't though. *Grand Theft Auto V* (10th installment of the series), *Need for Speed: Rivals* (20th installment), *Call of Duty: Ghosts* (10th installment), *FIFA Soccer 14* (21st installment), and *Battlefield 4* (11th installment) are just a few examples of games that were released within the past year which, as we can see, are not the first installment in their respective series. This process of releasing game after game under the cover of the popularity of a brand name has taken a lot of flak over the years (in other industries as well), but these games

²⁵ "Timeline of Events," Official Minecraft Wiki, last modified April 14, 2014, accessed April 21, 2014, http://minecraft.gamepedia.com/Timeline_of_events.

continue to sell and bring in high revenue for their producers. Users complain about the lack of innovation and diversity in major games, yet line up to purchase sequels and rehashed ideas time and time again. However, with recent titles – such as *Minecraft* as well as others like *Braid*, *fLOW*, and *The Stanley Parable* – bringing back innovative, creative, and unique user-experiences, gamers are craving more and more of this style that the industry has seemed to be lacking.

3.4 New Platforms

Gamers seeking new, innovative games to play and new ways to experience their interactive entertainment are having an easier time of doing so, and this is great news for the industry. New platforms and ways to play games have been cropping up over recent years; there have been releases of new versions of the popular consoles (such as Xbox and PlayStation), entirely new platforms such as mobile devices (iPhone and Android), as well as computer-based platforms (Steam and Facebook). Consoles have been long thought to be the way to go for video games, but these new platforms are showing that is not the case.

The introduction of touch-screen mobile devices has warped the industry. Mobile phones have turned people who don't play video games into gamers. Roughly 40% of the United States population plays games on their mobile device and mobile gaming

revenues reached \$1.78 billion last year in the US alone.²⁶ These numbers have been increasing year after year and there is no sign of slowing down.

Mobile gaming isn't the only new platform in town, new ways to game on the PC have been gaining popularity as well. Most notable are Steam and Facebook. Steam is a PC gaming platform where users have access to thousands of games at the click of their mouse. New games are being released every day and Steam users are even involved in the vetting process. Platforms like Steam bring gamers and developers closer together than ever before and this contributes greatly to its growing success.

Feeling the heat of these new platforms, console-makers Microsoft, Sony, and Nintendo have introduced new ways to play games – as well as introducing other services such as Netflix or Hulu – on their consoles with the Xbox Live Arcade (XBLA), PlayStation Network (PSN), and Nintendo eShop. These marketplaces host thousands of games, from both major and independent developers, that are smaller and cheaper than full-release titles. Many of these games become even more popular than full-release games due to their fun, creative, and/or classic style.

Not only have new platforms to develop and play games been created in the past few years, but so have platforms to fund projects. Websites such as Kickstarter, Indiegogo, and many others have created crowdfunding platforms bringing together artists and funders. Anybody can create a project on these sites – whether it be of film, fashion, games, music, or anything else – to present their ideas to potential backers. They

²⁶ Michael Wall, "US Mobile Gaming Revenues Hit \$1.78 Billion in 2013," *Brighthand*, May 13, 2013, accessed April 22, 2014, [http://www.brighthand.com/default.asp?newsID=20161&news=us_mobile_gaming_revnuues_hit_\\$1.78_billion_in_2013](http://www.brighthand.com/default.asp?newsID=20161&news=us_mobile_gaming_revnuues_hit_$1.78_billion_in_2013).

can even post pledge amounts with gifts or inside information that the backer can receive for donating. It is becoming an extremely popular platform that many developers are exploring and it is great for the consumers as well. Since they choose what they want to fund and how much they want to give, they can directly contribute to projects that they want to see happen. It also allows for closer bonds between the developer and the user. Since the users are funding the project, developers stay in close contact with their supporters and let them help guide the project through development. It is a win-win for both developers and users because developers can get funding for their projects without needing a producer and users can directly contribute to projects they think are exciting. Success is very widespread on sites like Kickstarter and Indiegogo; the project idea and how the developer presents it is very critical for receiving donations. Looking just at video game projects on either of the two sites, projects can be seen with anywhere from a few hundred dollars to over millions of dollars of pledges, with most falling somewhere between the two.²⁷ There is a lot of opportunity on this platform and it is great that users are getting more involved in the development process.

With all these new ways for developers and users to connect and share ideas, developing a game and finding an audience has never been more achievable. The ability to distribute content instantly and effortlessly to the entire world will encourage many aspiring developers to put their talents to work and test their luck in the industry.

²⁷ Kickstarter, accessed April 5, 2014, <https://www.kickstarter.com/>.

3.5 Changing Barriers to Entry

The video game industry has been known in the past to have high barriers to entry. With so much technology involved and the high costs of licenses to publish games on consoles, not just anybody could jump in, make a game, and release it to the public. The publishers in the industry already had the connections, popular franchises, and brand awareness which were considered essential to make it. All of that is changing, however, and it is great for the industry.

New platforms are a big reason for the lowering of barriers to enter into the industry. Developers no longer have to rely on consoles for their products to reach the public; they can use other platforms like Steam for PC or mobile devices. Steam has zero initial costs which is great for both independent and major developers. Independent developers can release games to a user-base of 65 million people²⁸ and major developers can take risks and develop new, innovative projects that they wouldn't normally be able to undertake. The mobile sector allows for this as well, both Android and iOS only require a \$100/year membership and the developer can release as many apps as he/she likes to the estimated 2 billion smartphone and tablet users across the world.²⁹ Of course,

²⁸ Ben Gilbert, "Steam now 65 million users strong," *Engadget*, October 30, 2013, accessed April 21, 2014, <http://www.engadget.com/2013/10/30/valve-steam-65-million-users/>.

²⁹ John Heggstuen, "One In Every 5 People In the World Own a Smartphone," *Business Insider*, December 15, 2013, accessed April 5, 2014, <http://www.businessinsider.com/smartphone-and-tablet-penetration-2013-10>.

these platforms do take their lion's share of the pie (usually around 30%)³⁰, but that is a small price to pay for free global exposure.

Another barrier to entry in the video game industry that has blocked potential developers is the need for technology and development talents. In the past, just to design and test games, expensive technology was needed. Not to mention programmers who could be quite expensive due to their demand in other industries. Now, with capable technology in almost every home and the wealth of information available on the Internet, anybody can learn how to program, develop a game, and release it for millions to see. This is great for the future of video games because it means that anyone who is interested can get involved and experiment on their own with just a laptop.

³⁰ Tom Senior, "Steam and GOG take 30% cut of revenue," *PC Gamer*, May 2, 2013, accessed April 22, 2014, <http://www.pcgamer.com/2013/05/02/steam-and-gog-take-30-revenue-cut-suggests-fez-creator-phil-fish/>.

Chapter 4: Where Will We Be Tomorrow

The video game industry may be a volatile industry but the future has never looked so optimistic. The industry is blossoming with new technologies pushing the limits of creation. New platforms are changing the way the industry works and consumers are becoming developers.

4.1 Platform Wars

No longer is it just a “console war” between Sony, Nintendo, and Microsoft; PC and mobile gaming are on the rise and threatening the future of console gaming. The platform war is on. While it will be unlikely to see Sony, Nintendo, and Microsoft teaming up to combat the rising popularity of PC and mobile gaming, they need to do something. Even with the recent releases of the new generation of consoles – Microsoft’s Xbox One and Sony’s PlayStation 4 – PC gaming is taking hold of the market. Although it is difficult to find exact numbers, many analysts expect PC gaming to pass console gaming this year – if it hasn’t already – while mobile gaming is slowly gaining market share as well.³¹

The video game industry is a fickle one and it is not uncommon to see articles titled “The Death of PC Gaming?” right next to articles like “Five Reasons Why Console

³¹ Sebastian Anthony, “PC gaming vs. consoles, the infographic,” *Extreme Tech*, September 29, 2011, accessed on March 29, 2014, <http://www.extremetech.com/gaming/97705-pc-gaming-vs-consoles-the-infographic>.

Gaming is Dying”. Yet, despite the pessimism from some media sources, the industry continues to grow at astronomical rates. The real question that everybody wants to know is will consoles or PCs be the future of gaming? Or will it be something completely different?

The rivalry between consoles and PCs is nothing new but the stakes have never been higher, especially with the new addition of mobile gaming and technologies like virtual reality on the horizon. Hardware manufacturers are still weary of the oversaturation that led to the video game crash of 1983 and they know that the market can only satisfy so many devices. As a result, and to compete with the multi-functional PCs and mobile devices, console developers have incorporated new functions to their devices as well. No longer are video game consoles just for playing video games. Video game consoles now offer many other forms of entertainment like music, movies, TV shows, and internet browsing – offered through third-party services like Pandora, Netflix, HBO, Hulu, ESPN, MLB.tv, YouTube, Xfinity, Vudu, and the list goes on. In fact, over the past two years console-users have been spending about as much time on their consoles streaming music, movies, and TV shows than actually playing games.³² This is a good sign for console developers since it means that users are utilizing the consoles’ features to meet their entertainment needs instead of relying on PCs or mobile devices.

With video game consoles now being able to perform so many different tasks, many people are wondering: what is even the difference between a video game console

³² Tricia Duryee, “Xbox Users Clocking More Hours Gobbling Media Than Gaming Online,” *All Things Digital*, March 27, 2012, accessed April 5, 2014, <http://allthingsd.com/20120327/xbox-users-clocking-more-hours-gobbling-media-than-gaming-online/>.

and a personal computer? Well, technically, nothing. Both are computing devices which have all the standard computing hardware: CPU, RAM, graphics cards, audio cards, disc drives, etc. Video game consoles are essentially extremely optimized computers that can perform the demanding tasks of running a complex game and drawing detailed graphics. This is advantageous from a commercial aspect because designing such a specialized computer means that it can be much cheaper than an all-purpose computer with the same processing and graphical power. However, if price is not a concern, it is possible to put together a much more powerful machine with the hardware available today.

Seems simple right? If you want to play video games but don't want to drop a ton of money on a high-tech PC, buy a console. If money doesn't matter, build the best PC money can buy. Right? Wrong. While performance and graphics power can turn into heated debates among hardcore gamers, it is only the tip of the platform war iceberg.

Exclusive titles lie at the heart of the platform war. Many of the industry's top games are only available on certain platforms, further fueling the fire. Oh you own a Sony PlayStation but really want to play a Mario game? Too bad, buy a Nintendo Wii. Each console, as well as PC and mobile platforms, have their own exclusive games only available on their system and it drives gamers mad. While it may reduce the total number of copies a game will sell, platforms will pay good money for an exclusive title to ensure that people not just want, but need, to play on their system. This alienates users and forces them to make a decision not just what platform they want to play on, but also what games are available with it.

4.2 Developer-Publisher Relations

Now that video game content can be distributed digitally without the need for hard copies, the costs and risks associated with releasing a game are much lower. This has a great impact on the relationship between video game developers and publishers, but before we dive into that, let us go over the roles that each have in the industry.

The developers are responsible for making the actual game. This includes programming, creating art, audio, story, design, and testing it all. Many people would consider these to be the most important aspects of game development since they are what create the game the user will be playing. Making an awesome game is great and all, but what happens if nobody knows about it? That is where the publishers step in. The publisher has a name that people know, connections to major media outlets, and the funds to market and manufacture the game to a large audience. Without the savvy and funds of a publisher, it would be risky for developers to invest time developing a game that might never be seen. Without the technological skills of developers, the producers would have no product to advertise or distribute. It seems the two are destined to need each other, or are they?

Game developers and publishers do not always get along. Developers are gamers themselves who want to make a fun, creative game for people to enjoy. Publishers don't have time for creativity and only want one thing: a game that will sell. This leads for the two to butt heads throughout the creation process. This model also leads to a lack of innovation within the industry because "game companies like to invest in products that

have a predictable return. That makes them want to make things that they've seen work before", explains Chris Swain, director of USC's Innovation Lab, and this causes "people in the gaming industry [to feel] restricted in what they can do".³³ And if you don't believe Chris, just go ask game developer-gone-indie Lorne Lanning: "I'd rather not make games than go f***ing be a slave for public companies who care more about their shareholders than they do about their customers".³⁴ It is quite apparent that there is some disagreement between developers and publishers.

Disgruntled developers are nothing new in the gaming industry. In fact, in 1979 disgruntled Atari developers left the company to start their own independent game studio, Activision. Today, Activision is one of the industry's biggest publishers. While they did not know it at the time, the developers who left Atari to start their own company were the pioneers for future independent developers. The rise of the consoles and the limiting of third-party games in the 80s and 90s made developing and distributing games without a publisher tough, but now, with digital distribution and the emergence of so many new platforms, independent development has become a reality once again. Steam is a big advocate of indie games and has tons of them available in its store. This is great for the gaming community because, according to legendary game developer and Microsoft millionaire Gabe Newell, "we can put something up on Steam, deliver it to people all

³³ Mary Jane Irwin, "Indie Developers Rise Up," *Forbes*, November 20, 2008, accessed April 18, 2014, http://www.forbes.com/2008/11/20/games-indie-developers-tech-ebiz-cx_mji_1120indiegames.html.

³⁴ Phil Owen, "Oddworld: New 'n' Tasty," *VG247*, March 25, 2014, accessed April 18, 2014, <http://www.vg247.com/2014/03/25/oddworld-new-n-tasty-its-not-a-fucking-hd-remake/>.

around the world, make changes. We can take more interesting risks. ... In this new world we can do things that weren't previously possible".³⁵

4.3 Virtual Reality

Virtual reality has been the fantasy of tech-geeks for decades, but until recently, it only existed in books and movies. It seems like virtual reality has been expected to come in the "near future" for a long time, leading many to grow tired of speculation and give up on it altogether. But what many don't realize is that virtual reality exists and is used in many different fields, it just has not reached mainstream retailers yet. Current virtual reality technology is used in the military to train soldiers and simulate flight and combat, in education to enable users to explore virtual spaces like biological systems, in medicine to simulate performing surgery, in healthcare to help children and adults with disabilities, as well as having many other beneficial and entertainment uses.³⁶

It is awesome that virtual reality is being used to help and improve so many lives in ways that were not previously possible. With this technology still in its developmental stage, it seems the future possibilities are endless. This has gamers asking: when will I be able to play crazy games with it?

³⁵ John Walker, "RPS Exclusive: Gabe Newell Interview," *Rock, Paper, Shotgun*, November 21, 2007, accessed April 5, 2014, <http://www.rockpapershotgun.com/2007/11/21/rps-exclusive-gabe-newell-interview/>.

³⁶ "Applications of Virtual Reality," *Virtual Reality*, accessed April 19, 2014, <http://www.vrs.org.uk/virtual-reality-applications/index.html>.

Oculus VR, a start-up virtual reality company, is on the job. The company was founded in 2012 and launched a Kickstarter campaign to raise money to fund their project: the Oculus Rift; they raised \$2.4 million and anyone who pledged more than \$300 received an Oculus Rift development kit.³⁷ Kickstarter was a great success for Oculus and pushed the Oculus Rift closer and closer to becoming a reality. But a million dollars isn't cool, you know what is cool? A billion dollars. More specifically, two billion dollars. Oculus VR made the news recently when Facebook announced on March 25, 2014 that it was acquiring Oculus for \$2 billion.³⁸ This news had gamers and non-gamers alike scrambling to make sense of what just happened. So far, not much news has been released about what role, if any, Facebook will have in the creative process, but many gamers – rationally or not – fear the worst. Gamers have been drooling over the idea of playing games on the Oculus Rift but now worry about it becoming more of a social media platform than a gaming platform. Markus Persson (creator of *Minecraft*) was a strong backer of the Rift and was even working on a *Minecraft* version for the platform. After news of the buyout, he responded by saying that he would no longer be working with Oculus due to his distaste for Facebook.³⁹

While other companies, such as Sony (codename “Project Morpheus”), are working on their own virtual reality technologies, it has generally been thought that

³⁷ Julian Horsey, “Oculus Rift Virtual Reality Headset Developer Kits Now Available to Pre-Order,” *Geeky Gadgets*, September 27, 2012, accessed March 27, 2014, <http://www.geeky-gadgets.com/oculus-rift-virtual-reality-headset-developer-kits-now-available-to-pre-order-video-27-09-2012/>.

³⁸ Brian Solomon, “Facebook Buys Oculus, Virtual Reality Gaming Startup, for \$2 Billion,” *Forbes*, March 25, 2014, accessed March 25, 2014, <http://www.forbes.com/sites/briansolomon/2014/03/25/facebook-buys-oculus-virtual-reality-gaming-startup-for-2-billion/>.

³⁹ Justin Haywald, “Minecraft developer Notch cancels Oculus VR version of game after Facebook acquisition,” *GameSpot*, March 25, 2014, accessed March 25, 2014, <http://www.gamespot.com/articles/minecraft-developer-notch-cancels-oculus-vr-version-of-game-after-facebook-acquisition/1100-6418541/>.

Oculus is on the frontier. Oculus is expected to release a consumer version of the Rift late 2014 or early 2015, while development kits can currently be ordered from their website.⁴⁰ The reviews by people who have tested models of Rift are overwhelmingly positive and describe the experience as amazing and mind-boggling. It sounds awesome and when it finally hits stores, the video game industry will never be the same. Both gamers and non-gamers will be curious to experience what it can do, and while there may be some initial apprehension to wearing funky goggles, the experiences it can provide will be unmatched. With so many positive benefits even outside of the interactive entertainment sphere, it is exciting to see this technology taking shape and becoming a true reality.

4.4 eSports

eSports. Yes, that is short for “electronic sports”. Yes, it is a real thing. And, yes, its popularity is growing extremely rapidly. While competitive gaming dates back to the 70s, professional eSports have been a 21st century sensation – spurred by online multiplayer gaming popularized in the 90s. The founding of the World Cyber Games (WCG) in 2000 and Major League Gaming (MLG) in 2002, among other organizations, fueled the professional gaming circuit in the early 2000s. Even popular TV channel ESPN got in on the action in 2005 with their show *Madden Nation*, a reality TV show following members participating in a *Madden NFL* video game tournament. The show

⁴⁰ Oculus VR, accessed April 5, 2014, <http://www.oculusvr.com/>.

had four seasons, ending in 2008.⁴¹ While *Madden Nation* wasn't the most popular TV program of all-time, it showed that video games – like traditional sports – had a market for spectatorship.

Fast-forward to the year 2013 and the numbers are staggering: in 2013 alone, 71.5 million people watched competitive gaming and \$25 million was awarded in prize money to competitors. The *League of Legends* Season 3 World Championship was played in front of a sold out Staples Center crowd with an additional 32 million viewers tuning in at home. Yes, 32 million. That is more viewers than the BCS College Football National Championship (26.4 million viewers), Game 7 of the NBA Finals (26.3 million), and the MLB World Series (14.9 million).⁴²

While the effect of the growing popularity of eSports on the video game industry is unknown, one can only assume it would help bolster the multi-billion dollar industry. Websites like Twitch.tv are changing the way video games are consumed. Today, not only are gamers playing video games, but they are *watching* them too. Twitch.tv is a website where users can stream their sessions live to viewers and chat with them as well. Anyone, from amateurs to professionals, can be found streaming sessions of themselves playing video games for viewers to watch. Twitch has over 45 million monthly viewers⁴³ and is *fourth* in US peak internet traffic behind Netflix, Google, and Apple.⁴⁴ It is

⁴¹ "Madden Nation," TV.com, accessed April 21, 2014, <http://www.tv.com/shows/madden-nation/>.

⁴² "Digital Games Market Trends Brief," SuperData, last modified April 2014, accessed April 21, 2014, http://gallery.mailchimp.com/a2b9207999131347c9c0c44ce/files/SuperData_Research_eSports_Brief.pdf?_ga=1.120792712.1227218521.1396602859.

⁴³ "Twitch 2013 Retrospective," Twitch, accessed April 21, 2014, <http://www.twitch.tv/year/2013>.

⁴⁴ Cody Conners, "Wall Street Journal chart lists Twitch.tv fourth in U.S. peak traffic," *On Gamers*, February 5, 2014, accessed April 21, 2014, <http://www.ongamers.com/articles/wall-street-journal-chart-lists-twitch-tv-fourth-in-u-s-peak-traffic/1100-824/>.

unbelievable that Twitch has more traffic than websites like Facebook, Hulu, and Amazon, yet is relatively unknown. The extreme popularity combined with relative unfamiliarity suggests tremendous untapped potential for not only Twitch but eSports as a whole.

The eSports world has even had an impact on United States immigration protocol. In 2013, Danny ‘Shiphtur’ Le was the first eSports athlete to be granted a P-1A visa. P-1A visas are routinely granted to athletes – such as Britain’s David Beckham, China’s Yao Ming, and a large portion of the Los Angeles Dodgers’ roster – so that they may live and earn a salary in the US without needing citizenship. International eSports athletes have been trying to get visas for years with no success. They have been allowed to come to the country to compete in tournaments and collect prize money, but have been barred from staying and earning a true salary. Danny Le is a Canadian who plays on a professional *League of Legends* team based in Riverside, CA. When Le was denied access into the US, Riot Games – developers of *League of Legends* – hired a lawyer to fight for him. “[Lawyer Jephtha] Evans and Riot told U.S. officials that the eSports league met government benchmarks for a major sports league because it had clear rules and at least six teams with combined revenues of more than \$10 million. ‘Like many people hearing about *League of Legends* for the first time, immigration officials scratched their heads,’ Riot Vice President Dustin Beck said.” But, after all the head-scratching, Danny

Le was approved for his visa in May of 2013 and many international eSports athletes have followed in his path.⁴⁵

The rise in popularity of eSports has shown, among other things, that video games and gamers are becoming more socially acceptable, especially in America (professional gamers are already some of the biggest celebrities in many Eastern nations like South Korea, China, and Japan). And this is great news because video games have so much to offer in so many different ways.

⁴⁵ Paresh Dave, "Online game League of Legends star gets U.S. visa as pro athlete," *Los Angeles Times*, August 7, 2013, accessed April 5, 2014, <http://articles.latimes.com/2013/aug/07/business/la-fi-online-gamers-20130808>.

Chapter 5: Conclusion

Wow what a journey through time. We have examined the past, present, and yet to come for a complex and dynamic industry. With so many different factors and so many people playing different roles in the video game industry, there is a lot that can happen in the future. New technologies, ground-breaking games, and consumers getting involved in the development process. The possibilities are endless for interactive entertainment and we've only seen the tip of the iceberg. Technological innovation will continue to fuel the growth of the industry to new heights. Video games will continue to not only provide new, unworldly experiences but also be a platform to train, teach, help people across the world.

Bibliography

- Anthony, Sebastian. "PC gaming vs. consoles, the infographic." *Extreme Tech*, September 29, 2011. Accessed March 29, 2014.
<http://www.extremetech.com/gaming/97705-pc-gaming-vs-consoles-the-infographic>.
- Clark, Pamela. "The Play's the Thing." *BYTE*, December 1982.
- Connors, Cody. "Wall Street Journal chart lists Twitch.tv fourth in U.S. peak traffic." *On Gamers*, February 5, 2014. Accessed April 21, 2014.
<http://www.ongamers.com/articles/wall-street-journal-chart-lists-twitch-tv-fourth-in-u-s-peak-traffic/1100-824/>.
- Dave, Paresh. "Online game League of Legends star gets U.S. visa as pro athlete." *Los Angeles Times*, August 7, 2013. Accessed April 5, 2014.
<http://articles.latimes.com/2013/aug/07/business/la-fi-online-gamers-20130808>.
- Duryee, Tricia. "Xbox Users Clocking More Hours Gobbling Media Than Gaming Online." *All Things Digital*, March 27, 2012. Accessed April 5, 2014.
<http://allthingsd.com/20120327/xbox-users-clocking-more-hours-gobbling-media-than-gaming-online/>.
- Ferrell, Keith. "Just Kids' Play or Computer in Disguise?," *Compute!*, July 1989.
- GameSpot. "Counter-Strike: Global Offensive firing up early 2012." Accessed April 22, 2014. <http://www.gamespot.com/articles/counter-strike-global-offensive-firing-up-early-2012/1100-6328645/>.
- Garr, Doug. "On-Line: Starting a New Adventure." *Electronic Games*, March 1985.
- Gilbert, Ben. "Steam now 65 million users strong." *Engadget*, October 30, 2013. Accessed April 21, 2014. <http://www.engadget.com/2013/10/30/valve-steam-65-million-users/>.
- Gnade, Mike. "What Exactly is an Indie Game?" *Indie Game Magazine*, July 15, 2010. Accessed March 27, 2014. <http://www.indiegamemag.com/what-is-an-indie-game/>.
- Graser, Marc. "'Grand Theft Auto V' Sales More Than Double Take-Two Interactive Profits." *Variety*, February 3, 2014. Accessed April 5, 2014.
<http://variety.com/2014/biz/news/gtav-grand-theft-auto-v-sales-more-than-double-take-two-interactive-profits-1201084902/>.

- Haywald, Justin. "Minecraft developer Notch cancels VR version of game after Facebook acquisition." *GameSpot*, March 25, 2014. Accessed March 25, 2014.
<http://www.gamespot.com/articles/minecraft-developer-notch-cancels-oculus-vr-version-of-game-after-facebook-acquisition/1100-6418541/>.
- Heggestuen, John. "One In Every 5 People In the World Own a Smartphone." *Business Insider*, December 15, 2013. Accessed April 5, 2014.
<http://www.businessinsider.com/smartphone-and-tablet-penetration-2013-10>.
- Horsey, Julian. "Oculus Rift Virtual Reality Headset Developer Kits Now Available to Pre-Order," *Geeky Gadgets*, September 27, 2012. Accessed March 27, 2014.
<http://www.geeky-gadgets.com/oculus-rift-virtual-reality-headset-developer-kits-now-available-to-pre-order-video-27-09-2012/>.
- International Center for the History of Electronic Games. "Video Game History Timeline." Accessed March 23, 2014. <http://www.icheg.org/icheg-game-history/timeline>.
- Irwin, Mary Jane. "Indie Developers Rise Up." *Forbes*, November 20, 2008. Accessed April 18, 2014. http://www.forbes.com/2008/11/20/games-indie-developers-tech-ebiz-cx_mji_1120indiegames.html.
- Keizer, Gregg. "Games Hot, but Cartridges Cool." *Compute!*, September 1988.
- Kent, Steve. *The Ultimate History of Video Games: from Pong to Pokemon and Beyond*. California: Prima Pub, 2001.
- Kickstarter. Accessed April 5, 2014. <https://www.kickstarter.com/>.
- McQuiddy, M.E. "City to Atari: 'E.T.' trash go home." *Alamogordo Daily News*, September 27, 1983.
- Microsoft. "Xbox Erupts on the Scene." Last modified November 15, 2001. Accessed April 5, 2014. <http://www.microsoft.com/en-us/news/press/2001/nov01/11-15xboxeruptspr.aspx>.
- Nintendo. "Consolidated Sales Transition by Region." Accessed April 18, 2014.
<http://www.webcitation.org/5nXieXX2B>.
- Now Gamer. "The Definitive Space Invaders." Accessed April 7, 2014.
http://www.nowgamer.com/features/894697/the_definitive_space_invaders_part_1.html.
- Oculus VR. Accessed April 5, 2014. <http://www.oculusvr.com/>.

- Official Minecraft Wiki. "Timeline of Events." Last modified April 14, 2014. Accessed April 21, 2014. http://minecraft.gamepedia.com/Timeline_of_events.
- Owen, Phil. "Oddworld: New 'n' Tasty." *VG247*, March 25, 2014. Accessed April 18, 2014. <http://www.vg247.com/2014/03/25/oddworld-new-n-tasty-its-not-a-fucking-hd-remake/>.
- Pong Story. "Magnovox Odyssey." Accessed March 22, 2014. <http://www.pong-story.com/odyssey.htm>.
- Rogers, Everett and Judith Larsen. *Silicon Valley Fever: Growth of High-Technology Culture*. Arizona: Basic Books, 1983.
- Senior, Tom. "Steam and GOG take 30% cut of revenue." *PC Gamer*, May 2, 2013. Accessed April 22, 2014. <http://www.pcgamer.com/2013/05/02/steam-and-gog-take-30-revenue-cut-suggests-fez-creator-phil-fish/>.
- Solomon, Brian. "Facebook Buys Oculus, Virtual Reality Gaming Startup, for \$2 Billion." *Forbes*, March 25, 2014. Accessed March 25, 2014. <http://www.forbes.com/sites/briansolomon/2014/03/25/facebook-buys-oculus-virtual-reality-gaming-startup-for-2-billion/>.
- SuperData. "Digital Games Market Trends Brief." Last Modified April 2014. Accessed April 21, 2014. http://gallery.mailchimp.com/a2b9207999131347c9c0c44ce/files/SuperData_Research_eSports_Brief.pdf?_ga=1.120792712.1227218521.1396602859.
- TV.com. "Madden Nation." Accessed April 21, 2014. <http://www.tv.com/shows/madden-nation/>.
- Twitch. "Twitch 2013 Retrospective." Accessed April 21, 2014. <http://www.twitch.tv/year/2013>.
- VGChartz. "Game Database." Accessed April 18, 2014. <http://www.vgchartz.com/gamedb/?name=Pokemon&publisher=&platform=&genre=&minSales=0&results=200>.
- Virtual Reality. "Applications of Virtual Reality." Accessed April 19, 2014. <http://www.vrs.org.uk/virtual-reality-applications/index.html>.
- Walker, John. "RPS Exclusive: Gabe Newell Interview." *Rock, Paper, Shotgun*, November 21, 2007. Accessed April 5, 2014. <http://www.rockpapershotgun.com/2007/11/21/rps-exclusive-gabe-newell-interview/>.

Wall, Michael. "US Mobile Gaming Revenues Hit \$1.78 Billion in 2013." *Brighthand*, May 13, 2013. Accessed April 22, 2014.