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A CHRONOLOGY OF VIDEO GAME DEVIANCE

Kevin Hoffin and Elaine DeVos

INTRODUCTION

This chapter will provide a brief history of video gaming and, at certain points, present crucial points in the development of the video game industry that has raised or caused controversy in relation to the traditional interpretation of deviancy. It is important to note that this chapter is perhaps more descriptive than the content usually found within an academic text. The reason for this more descriptive approach is twofold. Firstly, this chapter serves as a contextual canvas in which all proceeding chapters are framed within. Secondly, it is important that the



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reader has an understanding of the key developments of the video game industry in order to appreciate the arguments presented in subsequent chapters. It will highlight several games relevant to this text and open the discussion for authors to proffer analysis in later pages. To understand the role that video games play in society today, it is important to examine their rather complex chronology and analyse their representation through the media as time has elapsed. This chapter will posit that the range of deviant activities one can perform in video game is now so diverse that the often-repeated debate of what effect violence and aggression in video games bleeds through into the everyday life of players, which has hampered academic discourse and analysis of the medium, is both unsophisticated and highly limited.

Originally designed as a tool for research, the level of interactivity and development on display has been a cornerstone in emphasising and drawing attention to technological advances (Donovan, 2010). Gaming media has experienced market crashes and resurgences and until recently remained a mainly outsider hobby/pastime – now gaming and gamification has become inextricably entrenched into everyday activities. We play games for fun, we communicate online and form complex strategies, we learn through gaming and we can even get more physically and mentally fit through video games.

A video game, as defined by Esposito, is ‘a *game* which we *play*, thanks to an *audio-visual apparatus*, and which can be based on a story’ (Esposito, 2005). This definition highlights the active relationship between human and computer, where one will react to the actions of the other; the deceptive simplicity of the definition hides a myriad of possibility, just as in gaming itself. Important features of the definition, as italicised, stress attention on the three most important elements of the video game – it is a game to be interacted with and there must be some kind of audio/video feedback (often seen as an active graphical output); if just one of this triad is missing, the subject is no longer

a video game. That is not to say that there cannot be features beyond that of play, as video games have proven invaluable as educational material ([Gee, 2003](#)). For example, the Acorn BBC Micro from 1981 was a famous early system which relied on edutainment-led programs, to the point where at least one could be found in most 1980s schools ([Leigh, 2018](#), p. 62). Often referred to as electronic or computer games, for consistency this chapter will refer to all such entities as video games.

This text will show that crime and deviance within the context of video games transcends these simplistic boundaries. Specifically, deviant activities have been offered as rewards for completion; the objectives of the game itself; obligatory tasks central to the narrative or secret ‘side missions’ and have thus always been present in one form or another. Some countries are more permissive to the content of video games than others. For example, the Classification Office of New Zealand, for instance, states that for a video game to require classification, it must ‘in some way deal with sex horror, crime, violence or cruelty’ ([Office of Film & Literature Classification, n.d.](#)) or must be classified with an age rating of 15, 18 or similar (or refused classification and therefore banned) in Australia and the United Kingdom (refusal of classification in Australia and/or the United Kingdom will often lead to same in New Zealand). New Zealand presents what seems like quite a rigid series of barriers for the video games industry. However, the process of classification does take into account the ideologies/worldviews promoted (if any) behind such acts; so, games that present themselves as satires or are based in unrealistic worlds will be viewed more favourably than ones where violence is realistic and quite graphic. This generally describes video games classification globally, but there are some levels of subjective interpretations that can shift games into more mature ratings in one country over another. Saudi Arabia has a much harsher system of classifying games, to the point that ‘Grand Theft Auto 5’ ([Rockstar Games, 2013](#)), ‘Heavy Rain’

([Quantic Dream, 2010](#)) and ‘God of War’ ([Sony Computer Entertainment, 2005](#)) and over 40 others were outright banned for ‘unspecified reasons’ in a bizarre response to the social media ‘Blue Whale’ online phenomenon in which two children tragically ended their lives ([Global News, 2018](#)). It is interesting that Saudi Arabia has had this response when faced with a seemingly unconnected phenomenon, but gaming in Saudi Arabia is becoming a much larger concern, though still a relatively new one. The rapid rise of gaming in countries like Saudi Arabia and South Korea ([Carter, 2019](#)) has resulted in a high-velocity need for Governments to have some way to police/monitor their use. While the data that these Governments have are so clouded by myopic tenets that ‘video games cause violence’ ([Johnson, 2019](#)), the result will inevitably be logical missteps as authorities try to keep up. This issue is one that the writers of this book hope that they will be able to contribute towards a solution of more nuanced discussion, leading to a Governmental polity that is research-informed and free of knee-jerk reactionism.

A BRIEF HISTORY OF VIDEO GAMING – THE FIRST GENERATION

The first interactive video games were created in the early 1950s to demonstrate the power and capability of new computers to the public, rather than for entertainment. However, the long queues of visitors which developed ready to pit their wits against ‘Bertie the Brain’ when it debuted in 1950 at the Canadian National Exhibition and ‘Nimrod’ a year later in October 1951 at the Berlin Industrial Show should have been indicative of the immense power that the gaming industry would have in the future ([Bateman, 2014](#)). However, due to their use of light bulbs rather than a graphical motion display, both are generally disregarded as contenders for the title of the

first true video games. Further research developments saw the creation of 'OXO' (Douglas, 1952) at Cambridge University and Christopher Strachey's draughts program at the National Physical Laboratory built using display visuals on an electronic screen (Donovan, 2010). Again, due to a lack of moving graphics or graphics which update continuously, they are often overlooked as the true forbearers of gaming.

William Higinbotham's 'Tennis for Two' (1958) is thought to be the first video game featuring moving graphics created with the sole purpose of entertainment, therefore considered by many as the first true video game (Donovan, 2010). Higinbotham had already made a huge impact on the world as a member of the team that developed the first nuclear bomb at Los Alamos laboratory (Sullivan, 1994), but he wished to be known for his work on radar displays and his efforts to slow the nuclear arms race (Brookhaven National Laboratory, 2019). 'Tennis for Two' was developed for display at the Brookhaven National Laboratory's annual public exhibition in 1958 and was met by great public interest during the 3-day event (Sullivan, 1994). Although Higinbotham saw that visitors to the Brookhaven Exhibition liked the game, he thought it was because all the other exhibits were rather boring. Although he had patents on 20 other inventions, he never thought to patent 'Tennis for Two' as he did not consider it to be particularly innovative (American Physical Society, 2008).

Moving on from 'Tennis for Two' and the analogue systems on which it ran, the first game which used digital computing software and went beyond a single research setting to reach a much larger audience was 'Spacewar!' (Russel, 1962). Designed and built by three students at Massachusetts Institute of Technology (MIT) in 1962, the game allowed two duelling spaceships to launch torpedoes at one another whilst navigating the gravitational pull of the brightest star in the centre of the screen (Graetz, 1981). Within a year of an open house

exhibition in May 1962, copies and variations of the game started to appear in research labs across America. The original game had been played using a cathode ray tube (CRT) display and custom-built controllers on the Digital Equipment Corporation (DEC) PDP-1 machine but copies soon appeared not only on PDP-1s when DEC began to distribute 'Spacewar!' as a glorified tech demo for PDP-series computers but also on just about any research computer that had a programmable CRT (Edwards, 2011). Development spread more rapidly from 1967 as CRT displays became cheaper and therefore more readily available. A most notable 'Spacewar!' development occurred in 1967 at Stanford University when Stanford's programmers developed 'Spacewar Mode' – a time-sharing system which allowed 'Spacewar!' to be run at full speed alongside other programs (Monnens & Goldberg, 2015). This enabled all-hours gaming, previously restricted to computer downtime.

It was Stanford University, California, not MIT's version of 'Spacewar!' that spawned the first arcade video games, 'Galaxy Game' by Bill Pitts and Hugh Tuck (1971) and 'Computer Space' by Nolan Bushnell and Ted Dabney (1971). When the PDP-11 was released for \$10,000 in 1971, Pitts and Tuck purchased one along with an HP 1310 Electrostatic Display and ported 'Spacewar!', renaming it 'Galaxy Game' (Donovan, 2010). Installed at the Tresidder Union at Stanford, players were charged 10 cents per game or three for a quarter making it the first coin-operated video game. Although popular, it took until 1979 for the hardware to pay for itself (Smith, 2013) and it was never commercially available due to the high build cost. Rather than buy costly hardware, Bushnell and Dabney worked together to build custom hardware to run their game *Computer Space* at low cost and then licenced it for production to Nutting Associates, a small arcade game maker in exchange for a 5% royalty on unit sales, whilst also retaining the rights to the game. Released commercially in November 1971, estimates

suggest that the game sold between 500 and 1,000 units and grossed \$3million in unit sales (Edwards, 2011). On 19 October 1972, *Rolling Stone Magazine* sponsored a ‘*Spacewar!*’ tournament at Stanford Artificial Intelligence Laboratory. Dubbed the Spacewar Olympics, this event may have been the first video game tournament (Baker, 2016) and certainly a precursor to the multi-million dollar eSports industry that we see today.

Bushnell and Dabney went on to found Atari, the makers of hit arcade game ‘Pong’ (Atari, 1972), which at its peak was being played on 35,000 consoles across the United States (Bowles, 2018). Pong’s arcade release coincided with the release of the first commercial home video console, the ‘Magnavox Odyssey’ (Leigh, 2018, p. 16). This first-generation home video game console operated by utilising customised discrete logic circuits and had sold over 350,000 units by the time it was discontinued in 1975 (Leigh, 2018, p. 18) making it a huge commercial success, after a rocky start in which potential buyers were put off by the mistaken thought that the Odyssey needed a TV made by the same company to function. This dedicated console had been conceptualised by Ralph H Baer, an employee of Sanders Associates in 1966, and over the next 3 years, he, along with Bill Harrison and Bill Rusch, created several prototype consoles. The seventh prototype, the ‘Brown Box’, was taken up by Magnavox who agreed to produce it in January 1971 (Amos, 2019). Sanders Associates and Baer filed for the first video game patent in March of the same year, which was granted in April 1973. Their claim to a legal monopoly for any product that included a domestic television with circuits capable of producing and controlling dots on a screen enabled the company to sue dozens of company over the next 20 years for in excess of \$100 million, including Atari who they sued in 1974. Atari settled out of court paying \$700,000 to become Odyssey’s

second licensee as they could not afford the estimated \$1.5 million it would cost to take it to court (Mullis, 2014).

In the late 1970s/early 1980s, thanks to an increase in power and technology and a simultaneous decrease in the costs of production, video gaming entered its golden age (Leigh, 2018). The era of simple sprites housed in large cabinets had moved forward, and home gaming was on the rise. The second generation of consoles showed more promise than the preceding consoles; they were the first to feature swappable media, housed in cartridges, cassette tapes, etc., so a single system could play a multitude of games (Leigh, 2018). The Atari 2600, or Atari VCS (1977), which used microprocessor-based hardware and games stored on ROM cartridges sold an estimated 30 million consoles (Titcomb, 2017). Prior to this, home consoles were designed to operate a single game only, thus only needed the performance specifications for that one item as the game itself was a native component of the system. This revolution in capability led to a greater variety of available concepts that were now tenable by both creators of games.

THE AGE OF GAMING DEVIANCE BEGINS – THE SECOND GENERATION

Just as the gaming industry gathered momentum, thanks to the invocation of cartridges and transferrable media storage, it was held back by a market crash in 1983, as too many investors had overrelied upon the speed of gaming's growth, thanks to their analysis of the revenue from arcade gaming (\$12 Billion in 1982), whereas the actual console market did not reciprocate their projections (Trautman, 2014). Games with extremely negative reviews such as the infamous 'E.T.: The Game' (Atari, 1982) helped to drive down the value of

gaming, the poor sales and high initial production cost for what was essentially a licenced product (from the Spielberg movie) was disastrous to the industry. A gross of game cartridges, including copies of E.T., in their hundreds were buried in a landfill site in Alamogordo, New Mexico, in 1983, as Atari were unable to think of what to do with the unsold copies (Schrier, 2014). It would take the remainder of the 1980s for gaming to regain its momentum, as new manufacturers from Japan entered the market, notably Nintendo and Sega. From this point on, due to the expanded capacity and complexities leading to increased potential in what video games could do, gamers slowly saw shifts from simple games to more experiential ones. With this new-found level of experiential gaming came the ability to pursue the human will to transgress social boundaries (Bataille, 2012; Jenks, 2003), initially, at least, from a safe distance.

One of the earliest games that the authors wish to highlight as deviant is the Atari 2600 game, 'Custer's Revenge' (Mystique, 1982); the game featured a naked sprite with an erect member traverse the screen, dodging arrows in order, with the goal being the sexual assault of a naked squaw tied to a post (Donovan, 2010, p. 98). The problematic relationship between games and sexual deviance will be further discussed in the later chapter by Lee-Treweek and Hoffin.

In 1992, the first in the Mortal Kombat series (Midway Games, 1992), a popular fighting game was released. It featured a focus on extreme violence which quickly became the subject of an outrage fuelled by the media, leading to a Senate hearing held between late 1993 and early 1994 on the violence depicted in video games (Donovan, 2010) and how that would affect the aggression in young audiences (Kirsch, 1998). Subsequently, the Senate hearing committee led by Democrat Joseph Lieberman led to the creation of the ESRB (Entertainment Software Rating Board) in the following year

(Crossley, 2014). Interestingly, Sega already used an age rating system (Donovan, 2010, p. 232), but the ESRB ensured a universality. The media and political furore surrounding the game marketed as ‘So real it hurts’, highlighting a few inconsistencies in how the video games industry was viewed by the media. Much of the ‘realistic’ violence that those outraged took exception to in the game stemmed from the performance of gruesome finishing moves called ‘Fatalities’ (Donovan, 2010, p. 227) in which players’ characters could among other things throw grappling hooks, ice projectiles and, at the most extreme end, physically dismember their opponents in completely impossible fashions to win (certain characters could tear opponents’ heads from their body pulling out their spinal cords), which was argued to be irrelevant in promoting and encouraging real-life violence. In 1997, Connecticut, USA, 13-year-old Noah Wilson was tragically stabbed and killed by Yancy Salazar, also 13. Wilson’s parents placed the blame on Midway Games and *Mortal Kombat* and claimed that Salazar was recreating a fatality he had seen in the game. The Court dismissed the case upon finding that the fatality in question did not exist and therefore the accusation had no basis (Hopkins, 2018). What Lieberman and the Senate had done, by introducing the ESRB, was to make it easier to create violent video games; however, Lieberman was clear that his intention was to impose a complete ban, but was aware that it would be in contravention of the US Constitution (Donovan, 2010, p. 226).

What became apparent, however, is that the video games industry was in an era of transition, an activity that up until this point was perceived as a children’s activity, now found itself also addressing the needs of older, more mature gamers. Before, gaming was not taken nearly seriously enough to warrant such an authoritative body, but after 1994, the ESRB would rate games across all systems, according to their

content, to ensure that they are sold to suitable audiences. Gaming and its consumers had come of age. Aware of the freedoms that they had in the early 1990s and the needs of the previous generation of gamers who had stuck with the medium beyond their childhood, developers created games like *Mortal Kombat* and *Doom* (iD software, 1993) which were instrumental in providing more mature content, fully cognisant that no one in authority was watching closely enough and enjoying an audience who wanted more than *Super Mario* (Donovan, 2010). In ports (conversions between gaming platforms) for the family-oriented Super Nintendo Entertainment System, of *Mortal Kombat*, such aesthetics of extreme violence would be removed or heavily censored. However, when the sequel arrived, the gore would return, as the ESRB rating was deemed enough to support the distribution of the game to the appropriate audience.

THE NEXT GEN OF 'DEVIANCE'

Due to the technical limitations of cartridges as a gaming platform, new consoles would begin to use their own branded CD discs or DVDs. This enabled a much fuller more immersive experience with smoother transitions between loading times and richer gaming worlds. This enhanced the industry to allow for more diverse activities to become gamified.

The *Grand Theft Auto* series (DMA Design, Rockstar Games, 1997–present) has become one of the most anticipated and highly regarded releases of the last 20 years; later games such as *Grand Theft Auto 4* and *5* (Rockstar Games, 2008; 2013) can, with their heavier concentration on plotting, be described loosely as 'noir'. The allegorical America featured in the sandbox gaming worlds (lack of linear level/progression structure) presents the result of a satirical and sometimes

gloriously profane eye over structures and institutions integral to modern Western life: 'Lifeinvader' makes fun of the ubiquitous nature of social media, the corrupt 'FIB' does the same for the FBI. Corporations in general are seen as sinister and amoral. This approach gives the criminal undertaking attitude that the player is forced to adapt to some moral justification, therefore making the carnage more palatable.

The protagonist, our avatar, travels across an open-world environment committing various violent and acquisitive crimes to earn money and progress through the game. Although the essential missions encourage deviance in order to move forward, there are multiple options (side missions, mini games) that will allow the player to experience further criminality. The protagonist enacts a virtual form of special liberty in order to disavow society's rules as a criminal undertaker (Hall, 2012) and indulge in a degree of personal sovereignty (Hoffin, 2019). However, this does come with consequences; the police will attempt to stop the player, with their efforts increasing on a scale from 1–5 stars in proportion to the severity or volume of crime committed but can be outrun and hidden from. If successfully caught, the police arrest you (or if significant wanted rating is high enough, kill you) and you will resume at either the hospital (if killed), having been relieved of the value of your treatment, or the police station, relieved of some of your money and your weapon stock. Grand Theft Auto's numerous activities deserve a mention within this chapter. Stealing cars, hacking, mugging, burglary and robbery are all rooted in game. There is particular detail given to organising bank robberies in Grand Theft Auto V (Rockstar Games, 2013), assessing the blueprint of the bank or 'scoping out the joint' and planning the logistics of when best to hit and how best to strategise, thus evolving the game past relying on impulsive criminal acts towards a more organised dimension of criminality.

A standout mission in *Grand Theft Auto V*, 'By the Book', is perfectly emblematic of the view of deviance within the game. In it, the player's character tortures an Azerbaijani man suspected of links to terror organisations. After a graphic representation of the torture itself using various instruments, the game offers a dialogue that denigrates the actual value of torture, demeaning it as a tool for sadists. Playing the torturer is not a role that players are inclined to enjoy, as it is, the gamifying aspects of the various set pieces beyond the game mechanics on offer elsewhere (moving the analogue stick to dislodge a tooth) are far from fun and produce a satirical milieu of the USA's sanctioned torture against terror suspects (waterboarding is one of the options that the player can utilise). Once the avatar, Trevor Phillips, and by extension, the player, has finished the scene and extracted information from the victim, the game punctuates this sense of unease by offering a treatise on the ineffectiveness of torture as a tool for extracting information.

As the media's response to violent gaming has been consistently reliant on spectacles such as the *Grand Theft Auto* series, notable media producers have created a sweeping statement denigrating the games themselves and the subculture that play them. The moral panic argument begins to falter as the population who 'do' video games (play and create) augments, but patterns of violence that can be 'attributed' to gamers, arising from their habits do not truly correlate. The consensus that the media voices held that gamers are overly aggressive and prone to violent acts has slowly been chipped away, the risk of alienating a gaming audience being a very real prospect, turning away a constantly ameliorating sector of the population. There are also the evident mistakes that the media can make when talking about gaming; in 2004, 14-year-old Stefan Pakeerah was murdered by 17-year-old friend Warren Leblanc in Leicestershire, England. The murder was

heavily linked to the game *Manhunt* (Rockstar Games, 2003), as the method used resembled the brutality in the game. A copy of the game being discovered was both documented and reported by the media. The game was widely removed from sale all over the country and subsequently interest in the item rose. However, it was later revealed that the investigation unearthed no connection to *Manhunt*, as the rationale behind the murder was robbery to repay a drug debt, and the game itself was found in the victim's room, not the offender's (BBC News, 2004). This began a backlash against the media, particularly the Daily Mail who reported widely on the subject, ignoring police reports and created their own narrative (Fahey, 2004). In later chapters, Hart will argue for the renegotiation and eventual removal of 'Moral Panics' appertaining to video games, in accordance with the work of Horsley (2017).

In 2017, the phenomenon of 'swatting' became public knowledge through the murder of Andrew Finch. A criminal act whereby one person makes a hoax call to the emergency services results in the police arriving at the address of an intended victim. A hoax caller, identified as Tyler Raj Bariss, who had previously performed 'swatting' on victims for hire and had a previous criminal record for hoax bomb threats and domestic violence (Manna, 2018), was instructed to send emergency services to Finch's address on behalf of Casey Viner, who had threatened to swat another player that he had argued with over *Call of Duty: WWII* (Sledgehammer Games, 2017). The intended victim, Shane Gaskill, had given Viner an address that he had previously lived at (now the home of Finch), but had been evicted the previous year. Bariss called Wichita Police, making them believe there was a live hostage situation, resulting in the completely innocent Finch being shot and killed by a police officer. This will be discussed further in Lamb's contribution, which will detail the

development of swatting as a phenomenon and raise questions regarding the difficulties of policing such convergences between online/offline actualities of violence.

As consoles now are ubiquitously connected to the internet, it has become standard to games to be released in an incomplete state with huge patches downloaded later to cover up any issues raised in the game. Prior to this, games that were released in a subpar state generally remained so. Now games like 'No Man's Sky' ([Hello Games, 2016](#)) upon release could not fulfil the momentous promises it had made to consumers on its near limitless gameplay. A few years and many patches later, it is finally showing the promise that the developers envisioned from the start. The evolution towards online-friendly consoles has also introduced the idea of DLC (Downloadable Content), which has been instrumental in diversifying the income stream for the gaming industry. Gaming has also become a feature of social media sites such as Facebook; social media has even formed with video games at its centre, such as Twitch, where gamers watch each other play.

As gaming has appropriated the 'freemium' model, upon which access to a game's basic functions are free and yet enhancements cost real currency, game developers have begun to utilise 'loot crates'. This system relies on players gambling on whether by paying a certain sum, they will receive a 'rare' item which will either improve their chance of beating the game OR other players (a power-up, a new gun, etc.) or something that will only make aesthetic and cosmetic changes to a gamer's online avatar. Since the controversy has come to light, developers stress that these items may also be gained through playing the game without purchases, but this realistically involves a heavy amount of 'grinding', a term which denotes playing certain parts of the game over and over to achieve the desired points to exchange for the items in

question. Gambling has been a feature of gaming for a very long time; but when the target market for many of these games is those under 18, the decision to include such systems becomes problematic (Matthews-King, 2018). As other elements of gambling esports (both legitimate and illegitimate) have augmented in their fame and public interests have become as fertile ground for betting as horse-racing, fans all over the world watch live streams of games and bet on outcomes (Luongo, 2018). As such areas are relatively unmonitored, the risks of unrestricted gambling among children are incredibly high (Stockwell, 2016). The purpose is clearly to increase revenue for the creator, but if this also ruins the progression of the game itself, it can be assumed that there is a shift in the way that video games are consumed and responded to. This combination of gaming and real-world currency has highlighted a risk factor far beyond that originally imagined by the medium, and now actual counts of fraud can be committed on a gaming platform.

CONCLUSION

While arguably a 'safe' form of transgression for many, a hobby that primarily harms no external party, players experiencing deviance in video gaming provide quandaries for authoritative bodies. The common discourse that violence in video games produces violent effects from gamers is outdated and irrelevant. Deviance in gaming is far more varied in its presentation. Research has offered both sides of the violence dichotomy to be true at one point or another (Cooper & Mackie, 1986; Funk, 1993; Irwin & Gross, 1995; Silvern & Williamson, 1987). The media may continuously continue with the narrative of the dangers of gaming, as that is easier than shedding light on the other systematic relevant causes of

violence. Dr Tanya Bryon in her 2008 report, 'Safer Children in a Digital World', offered the following in her conclusion:

The current debates on the “harms” of video games and the internet are the latest manifestations of a long tradition of concerns relating to the introduction of many forms of new media

(Bryon Review, 2008)

Thus traversing the callow pitfalls in the argument about video game deviance entirely and transposing the blame across to the inherent mistrust in the evolution of media (including the shadowy spaces where traditional media does not have a foothold or means to profit). What this chapter has hoped to provide is a chronology that states that the deviance within is almost as old as the medium itself, but the evolution of gaming has allowed it to proliferate in various ways. The intention behind this text is that academics and policymakers will change this most myopic of viewpoints and turn their gaze towards real issues that exist outside of simplistic arguments of virtual violence impacting on real-life equivalence.

REFERENCES

- American Physical Society. (2008). October 1958: Physicist invents first video game. *APS News*, 17(9). Retrieved from <https://www.aps.org/publications/apsnews/200810/physicshistory.cfm>. Accessed on July 18, 2019.
- Amos, E. (2019). *The game console: A photographic history from Atari to Xbox*. San Francisco, CA: William Pollock.

- Anon. (2018). Saudi Arabia bans 47 popular video games after children's deaths. *Global News*. Retrieved from <https://globalnews.ca/news/4333558/saudi-arabia-bans-video-games/>. Accessed on August 15, 2019.
- Atari. (1972). Pong [Arcade video game]. New York, NY: Atari, Inc.
- Atari. (1982). E.T. the Extra-Terrestrial [videogame, Atari 2600], New York, NY: Atari, Inc.
- Baker, C. (2016). Stewart brand recalls first 'Spacewar' video game tournament. *Rolling Stone*. Retrieved from <https://www.rollingstone.com/culture/culture-news/stewart-brand-recalls-first-spacewar-video-game-tournament-187669/>. Accessed on July 18 2019.
- Bataille, G. (2012). *Eroticism*. London: Penguin Modern Classics.
- Bateman, C. (2014). Meet Bertie the Brain, the world's first arcade game, built in Toronto. *SpacingToronto*, August 13. Retrieved from <http://spacing.ca/toronto/2014/08/13/meet-bertie-brain-worlds-first-arcade-game-built-toronto/>. Accessed on July 20, 2019.
- BBC Leicestershire. (2004). Police reject game link to murder. *BBC News archive*. Retrieved from <http://news.bbc.co.uk/1/hi/england/leicestershire/3538066.stm>. Accessed on July 20, 2019.
- Bowles, N. (2018). Ted Dabney, a founder of Atari and a creator of Pong, Dies at 81. *The New York Times*. Retrieved from <https://www.nytimes.com/2018/05/31/obituaries/ted-dabney-dead-atari-pong.html>. Accessed on July 18, 2019.
- Brookhaven National Laboratory. (2019). *The first video game?* BNL.org. Retrieved from <https://www.bnl.gov/about/history/firstvideo.php>. Accessed on July 17, 2019.

- Bryon Review. (2008). *Safer children in a digital world: The report of the Bryon review*. London: Department for Children, Schools and Families.
- Bushnell, N., & Dabney, T. (1971). *Computer space* [Arcade Video Game]. Sunnyvale, CA: Syzygy Engineering.
- Carter, M. S. (2019). Video games are dividing South Korea. *MIT Technology Review*, December 23. Retrieved from <https://www.technologyreview.com/s/614933/video-games-national-crisis-addiction-south-korea/>. Accessed on December 24, 2019.
- Cooper, J., & Mackie, D. (1986). Video games and aggression in children. *Journal of Applied Social Psychology*, 16, 726–744.
- Crossley, B. (2014). Mortal Kombat: Violent game that changed video games industry. *BBC*. Retrieved from <http://www.bbc.co.uk/news/technology-27620071>. Accessed on July 22, 2019.
- DMA Design. (1997). *Grand Theft Auto* [PlayStation]. New York, NY: Take-Two Interactive.
- Donovan, T. (2010). *Replay: The history of video games*. Lewes: Yellow Ant.
- Douglas, A. S. (1952). *OXO* [EDSAC]. Cambridge: University of Cambridge.
- Edwards, B. (2011). Computer space and the Dawn of the arcade video game. *Technologizer*. Retrieved from <http://www.technologizer.com/2011/12/11/computer-space-and-the-dawn-of-the-arcade-video-game/>. Accessed on July 22, 2019.
- Esposito, N. (2005, June 16–20). A short and simple definition of what a videogame is. In *Proceedings of the DiGRA 2005 conference- changing views- Worlds in play*, Vancouver, BC.

- Fahey, R. (2004). New twist to manhunter murder investigations. GamesIndustry.biz. Retrieved from <https://www.gamesindustry.biz/articles/new-twist-to-manhunt-murder-allegations>. Accessed on July 20, 2019.
- Funk, J. B. (1993). Re-evaluating the impact of video games. *Clinical Pediatrics*, 32, 86–90.
- Gee, J. P. (2003). *What video games have to teach us about learning and literacy*. New York, NY: Palgrave Macmillan.
- Graetz, J. M. (1981). The Origin of Spacewar. *Creative Computing*, 18. Retrieved from <http://gillesboulet.ca/textes/spacewar.pdf>. Accessed on July 22, 2019.
- Hall, S. (2012). *Theorizing crime & deviance*. London: SAGE Publications.
- Hello Games. (2016). *No Man's Sky* [PlayStation 4], Guilford: Hello Games Ltd.
- Higinbotham, W. (1958). Tennis for Two [Analog computer], Upton, NY: Brookhaven National Laboratory.
- Hoffin, K. (2019). "Sans compassion nor will to answer whoever asketh the why": Personal sovereignty within black metal. *Metal Music Studies*, 5(2), 151–162. doi: [10.1386/mms.5.2.151_1](https://doi.org/10.1386/mms.5.2.151_1)
- Hopkins, E. (2018). Kontroversial: 15 insane scandals that almost finished mortal Kombat. *Comic Book Resources*. Retrieved from <https://www.cbr.com/mortal-kombat-controversies/>. Accessed on July 22, 2019.
- Horsley, M. (2017). Forget 'moral panics'. *Journal of Theoretical and Philosophical Criminology*, 9(2), 84–98.
- Irwin, A. R., & Gross, A. M. (1995). Cognitive tempo, violent video games and aggressive behaviour in young boys. *Journal of Family Violence*, 10, 337–350

- Jenks, C. (2003). *Transgression: Key ideas*. Abingdon: Routledge.
- Johnson, S. (2019). Trump suggests connection between video games and mass shootings. *Big Think*. August 5, Retrieved from <https://bigthink.com/politics-current-affairs/video-game-violence-trump?rebelltitem=1#rebelltitem1>. Accessed on August 6, 2019.
- Kirsch, S. J. (1998). Seeing the world through mortal kombat-coloured glasses: Violent video games and the development of a short-term hostile attribution bias. *Childhood*, 5(2), 177–184.
- Leigh, P. (2018). *The Nostalgia Nerd's retro tech: Computers, consoles & games*. London: ILEX
- Luongo, L. (2018). ESI gambling report: Betting on battle royale. *Esports Insider*. Retrieved from <https://esportsinsider.com/2018/06/esi-gambling-report-betting-on-battle-royale/>. Accessed on July 21, 2019.
- Manna, N. (2018). Swatting suspect said he'd kill his grandmother if she talked. *The Wichita Eagle*. Retrieved from <https://www-1.kansas.com/news/local/crime/article192948564.html>. Accessed on July 20, 2019.
- Matthews-King, A. (2018). Games like Fortnite use 'predatory' gambling techniques to make children spend, experts warn. *Independent*. Retrieved from <https://www.independent.co.uk/news/health/fortnite-loot-llamas-payments-upgrades-items-gambling-addiction-a8421201.html>. Accessed on July 22, 2019.
- Midway. (1992). *Mortal Kombat* [Arcade video game], Chicago, IL: Midway Games.

- Monnens, D., & Goldberg, M. (2015). Space Odyssey: The long journey of Spacewar! From MIT to computer labs around the world. *Kinephanos*. Retrieved from <https://www.kinephanos.ca/2015/space-odyssey-the-long-journey-of-spacewar-from-mit-to-computer-labs-around-the-world/>. Accessed on July 22, 2019.
- Mullis, S. (2014). Inventor Ralph Baer, “The father of video games” dies at 92. *NPR*. Retrieved from <https://www.npr.org/sections/alltechconsidered/2014/12/08/369405270/inventor-ralph-baer-the-father-of-video-games-dies-at-92?t=1563800557514>. Accessed on July 22, 2019.
- Mystique. (1982). *Custer’s revenge* [Atari 2600]. Canoga Park, CA: American Multiple Industries.
- Office of Film & Literature Classification. (n.d.). How games are classified [online]. Retrieved from <https://www.classificationoffice.govt.nz/about-nz-classification/how-games-are-classified/>. Accessed on August 15, 2019.
- Pitts, B., & Tuck, H. (1971). *Galaxy game* [Arcade, video game], Stanford, CA: Stanford University.
- Rockstar Games. (2003). *Manhunt* [Microsoft Windows], Edinburgh: Rockstar North.
- Rockstar Games. (2008). *Grand Theft Auto IV* [Xbox 360], Edinburgh: Rockstar North.
- Rockstar Games. (2013). *Grand Theft Auto V* [videogame], Edinburgh: Rockstar North.
- Russel, S. (1962). *Spacewar!* [PDP-1], Cambridge, MA: Massachusetts Institute of Technology.
- Schrier, J. (2014). E.T. found in New Mexico landfill. *Kotaku*. Retrieved from <https://kotaku.com/e-t-found-in-new-mexico-landfill-1568100161>. Accessed on August 22, 2019.

- Silvern, S. B., & Williamson, P. A. (1987). The effects of video games on children's aggression, fantasy and pro-social behaviour. *Journal of Applied Developmental Psychology*, 8, 453–462.
- Sledgehammer Games. (2017). *Call of duty WWII* [PlayStation 4], Santa Monica, CA: Activision.
- Smith, K. (2013). Galaxy game. *The Golden Age Arcade Historian*, [online]. Retrieved from <http://allincolorforaquarter.blogspot.com/2013/03/galaxy-game.html>. Accessed on July 22, 2019.
- id Software. (1993). *Doom* [MS-DOS]. Dallas, TX: id Software LLC.
- Sony Computer Entertainment. (2005). *God of War* [PlayStation 2]. San Mateo, CA: Sony Interactive Entertainment.
- Sony Interactive Entertainment. (2010). *Heavy Rain* [video-game]. Paris: Quantic Dream.
- Stockwell, S. (2016). How online gaming became the wild west of underage gambling. *ABC Australia*. Retrieved from <https://www.abc.net.au/triplej/programs/hack/how-online-gaming-became-the-wild-west-of-underage-gambling/7694146>. Accessed on July 21 2019.
- Sullivan, R. (1994). William A. Higinbotham, 84 helped build first atomic bomb. *The New York Times*. Retrieved from <https://www.nytimes.com/1994/11/15/obituaries/william-a-higinbotham-84-helped-build-first-atomic-bomb.html>. Accessed on July 22, 2019.
- Titcomb, J. (2017). Atari to make first console in over 20 years. *The Telegraph*. Retrieved from <https://www.telegraph.co.uk/technology/2017/06/19/atari-make->

[first-video-games-console-20-years/](#). Accessed on July 22 2019.

Trautman, T. (2014). Excavating the video games' industry's past, *The New Yorker*. Retrieved from <https://www.newyorker.com/business/currency/excavating-the-video-game-industrys-past>. Accessed on July 22, 2019.