

**DEFINING THE INDIE GAME AS PROCESS:
AESTHETIC, PRODUCTION AND COMMUNITY**

by

Darius Reza Malek

Canterbury Christ Church University

**Thesis submitted
for the Degree of Doctor of Philosophy**

2021

Acknowledgements

For his passion, expertise, insight, and guidance, I express my sincere gratitude to Dr. Chris Pallant, my first supervisor who has been with me all throughout my time at University. Chris kept pushing me throughout my eight years here, and I am truly grateful for his assistance and contribution throughout my studies.

I sincerely thank Dr. Alan Meades, my second supervisor who provided fantastic feedback and advice throughout the last four years. His feedback provided a different viewpoint to Chris', and without him my thesis would not be what it is today.

I express my sincere gratitude to my family, especially my mother, Christine, who has provided me with the support and understanding throughout these last three years. I am very grateful and lucky to have such caring people around me.

I would like to thank my closest friend and partner, Emelie, the most kind and generous person I know. You have kept me stable, motivated, and focused during the final stages of my studies. Your support and understanding are truly cherished.

I would like to express my sincere gratitude to Canterbury Christ Church University for providing me with the fee-waiver and opportunity to complete my thesis. I am truly thankful for the opportunity to study at this University. Additionally, I would like to thank Ellie Russell and Samuel O'Neill, who have both been invaluable proof-readers of my work, their contribution was truly valued.

I would also like to offer thanks to all my interviewees and questionnaire respondents for their contribution to this study. The discoveries in my thesis would not have been possible in the same capacity without their willingness to share their experiences, ideas, and thoughts. I am truly grateful.

Abstract

The video game industry is now considered one of the largest entertainment industries in the world. This growth coincided with larger teams, budgets, and expectations to provide the latest technological advanced video games. However, in the mid to late 2000s there was a different type of game emerging – the indie game. Despite there being preconceptions about the qualifying factors of their classification - such as publishing independence - it has since become clear that indie games are not simply an abbreviation of independent. They represent and reflect different ways of working, ideas, values, and beliefs. In turn, there have been attempts to define “indie”, with some claiming that the term cannot be defined and therefore no longer makes sense. This research seeks to provide an intervention. Asserting that the term “indie” can be – and has been – understood in a variety of ways by a wide range of audiences over a period of several decades. This research draws on textual analysis, original practice-based research involving the production of an indie game, original interviews, and original audience research (drawing on a survey of 966 respondents) to arrive at a definition: Indie as process. Within this notion of indie as process, it is possible to identify three predominant themes. Indie as Aesthetic Process, Indie as Production Process, and Indie as Community Process. These processes, when considered in isolation or together, begin to inform our shared understanding of the indie game, allowing us to move beyond rigid ideas of what makes an indie game “indie”.

Table of Contents

Abstract	3
Introduction	5
Literature Review	9
Methodology.....	22
Chapter 1 – Reconsidering the History of Independent Games: History as Process	37
Chapter 2 - Towards a Typology of “Indie”: Aesthetic as Process	83
Chapter 3 - Making Indie Games, Making Games “Indie”: Production as Process	118
Chapter 4 - Consuming Indie Games: Community as Process	161
Chapter 5 - Thesis Conclusions: Indie as Process	198
Bibliography	204
Appendix	262 - 339
A - Interviews	262
B - Typology.....	293
C - Questionnaire	336

Introduction

In the words of video game¹ character Flowey from *Undertale* (2015), “In this world, it's kill or BE killed”. This is conveyed immediately after the first character the player encounters urges the player to collect as many “friendliness pellets” as possible to “grow strong”. However, doing so results in the player taking damage, with Flowey consequently calling the player an “idiot”. What seems like a tutorial explaining how to play the video game, instead functions to assert that this video game is unlike most others. After all, many modern video games have extensive tutorials (Loomis, 2015; Legler, 2018), with many experienced players criticising most AAA² games for being too “hand holdey” and arguing some have “forgot how to be a game” (Ayon, 2018; Gamecentral, 2019; Reddit, 2019). *Undertale* then, whilst initially suggesting a cliché setting, with the player accidentally falling underground into an unknown, mysterious world, quickly subverts the player’s expectations.

Developed almost single-handedly by Toby Fox (Hiscott, 2016), *Undertale* has since become universally celebrated, being nominated for “Game of the Year” and “Excellence in Gameplay” at the SXSW Gaming Awards in 2016, alongside blockbuster AAA games *Fallout 4* (2015) and *Metal Gear Solid: The Phantom Pain* (2015) (Hiscott, 2016). Thus, despite the video game’s lack of resources and small team size, *Undertale* has garnered praise for the way in which it breaks gaming conventions, a characteristic that surprised gamers and critics alike (Hicks, 2018; Plagge, 2018). All of this suggests one thing: *Undertale* is an indie game (Valentine and Jenson, 2016; Steam, 2019).

¹ My thesis acknowledges that PC (Personal Computer) games are commonly referred to as “Computer Games” (Amazon.co.uk, 2019) instead of video game. However, for the consistency and cohesion of my thesis, PC, Console, Mobile and Handheld games will all be referred to as “video games”. The exception to this is when another descriptor is used such as: indie game, independent game, shareware game, AAA game, etc.

² “AAA” is a term that rose in popularity during the late 1990s to describe “blockbuster” games. The origins and meaning of this term are discussed in Chapter 1.

Video Games like *Undertale*, which are created almost single-handedly with no publisher support, are often granted “indie” status. However, not all games considered “indie” are without a publisher. *Journey* (2012) was published by Sony, and *Hotline Miami* (2012) was published by “indie publisher” (Webster, 2018) Devolver Digital. The involvement of these publishers can prompt debate on whether they are truly “indie”. Though, despite publisher associations with *Journey* and *Hotline Miami*, to many the video games remain “indie” (Sweet, 2014; Radulovic, 2018; Cossu, 2019). These discussions begin to complicate the meaning of “indie”. This raises the question, if “indie” is not simply an abbreviation of independent, what is it?³ Academics in the field of video game studies have begun to explore this, and much of this research has suggested that “indie” is a multifaceted term (Graebisch, 2012; Warren, 2014; Juul, 2019). This has led to a tension, with some academics and scholars trying to define “indie” (Graebisch, 2012; Juul, 2019), whilst others have declared that the term no longer makes sense or cannot be defined (Warren, 2014, King 2021). Definitions of indie games have also extended beyond the production process, and discussions of how the video game looks, plays, and feels have become commonplace (Chiodini, 2016; Juul, 2019). This is hardly surprising considering the early video games that shaped the “indie scene”, such as Johnathan Blow’s *Braid* (2008) and Team Meat’s *Super Meat Boy* (2010) became celebrated for their artistic expression and unconventional gameplay, respectively. These qualities resulted in sub-classifications such as “indie style” and “indie look” (Garda and Grabarczyk, 2016) gaining popularity.

My thesis seeks to provide an intervention. Asserting that the term “indie” can be – and has been – understood in a variety of ways by a wide range of audiences over a period of several decades, my thesis provides a comprehensive analysis of the many nuances and tensions that lead us to a new

³ The usage of independent and “indie” throughout my thesis are intentional, they are not used interchangeably and should not be considered the same thing. For example, in Chapter 1, when “indie” is discussed in a historical context, the term independent is used, because this was a time period when there were still larger, more dominant developers or publishers, and smaller, less financially powerful developers without publishers. In turn, when discussing “indie”, it is in reference to how independent games have been considered from the mid to late 2000s onwards. However, my thesis acknowledges that in 1998, the IGF (Independent Games Festival) was formed to provide a similar event to the Sundance Film Festival for video games. The late 1990s was also when the term “AAA” was gaining prominence, and the video game industry was beginning to diverge as a singular unit. Nonetheless, it was not until the mid to late-2000s with the rise of digital distribution and the success of indie games like *Braid*, did the meaning of “indie” begin to become a discussion point amongst scholars and video game players. It was at this point that the term “indie” was considered to be more than just an abbreviation of independent, and thus it is these considerations that are the research focus for my thesis.

definition: Indie as process. Indie as process is a consolidation of numerous facets including workstyle standards, game design ideas, and societal values that contribute to a game becoming “indie”. These processes, when considered in isolation – or more potently - together, begin to inform our understanding of the indie game. Within this notion of indie as process, it is possible to identify three predominant themes.

Indie as Aesthetic Process.

Indie games are often distinguished by how they look (Couture, 2016; Resetera, 2018; Juul, 2019), with discussions observing that many indie games employ similar aesthetics, often deriving from 8-bit and 16-bit video game traditions. A historical account of independent games reveals that there were several decades (predominantly 1970s-1990s) of video games looking a specific way. This aesthetic has become inherently embedded in the players and developers who grew up playing these video games. Its roots are in a historical moment, but the modern indie aesthetic process represents more than a retro homage. Thus, my thesis explores the idea that the aesthetic of an indie game stems from an accumulation of active decisions undertaken during production, this process is actively influenced by mindset, limitations, technology, and the developer’s artistic ability.

Indie as Production Process.

A common viewpoint is that AAA games have large teams, budgets and publisher backing, whilst for “indie” it is commonly considered the opposite (Rose, 2011; Barnson, 2013; Graebisch, 2013; Garda and Grabarczyk, 2016; Juul, 2019). Although this may be true in a lot of cases, this rigid viewpoint fails to acknowledge the specifics behind video game production. Notably, there is a lack of research on the relationship between the production process and the indie game. The video game industry is shrouded in secrecy (Davis, 2013; O’Donnell, 2014; Schreier, 2018), and the realities of video game production are often misunderstood. This extends to indie production, and these realities are often not aligned with consumer expectations. Thus, there is a general haziness regarding how the production process contributes to an understanding of “indie”. A closer analysis of indie games reveals the intricacies of indie game production, and its impact on the game’s “indie” status. Indie games are

commonly developed by passionate creators, but with a lack of resources and personnel, this often comes at a cost. It is not unusual for indie developers to work excessive hours with no guarantee of a commercially successful outcome. Which, despite the associates of hobbyism, is an increasingly important – and coveted outcome. Indeed, indie games are increasingly becoming reliant on financial success, for profit is necessary to continue creating games that often take several years to develop. This new research reveals the production process is crucial to identifying what makes an indie game “indie”.

Indie as Community Process

Terms such as “indie spirit” or “indie style” are attempts at defining “indie” by its most crucial characteristics, notably assertions of innovation, artistic freedom, creativity, and originality. These attributes have been adopted by developers and championed by players; they have become embedded in indie communities. These communities have derived from continuous internet growth. However, community is not fixed or rigid, it is active, it is a process. Community is constructed from the communication between people, sharing ideas, beliefs, and values, and the flow of these change. My research reveals that the rise of social video game platforms like Discord has resulted in the formation of hundreds of indie communities. Developers have been drawing on these communities to offset their limitations, with their audiences testing their indie games, providing feedback, and contributing new ideas. This interaction has resulted in indie consumers who are highly invested due to the notion two-way communication, valuing the feeling of being heard. Thus, the indie community process has become crucial to both indie consumers and developers.

The value of defining indie as process is that an indie game can employ one, or a combination of these three processes. The term is not exclusive, and whilst my new and original research reveals all three processes can include different approaches to production, and generate different types of indie games in terms of how they play and look, they can all be argued to be “indie”. While the goal of defining indie as process is to establish a coherent vision of “indie”, as demonstrated through the three different processes, it is a purposefully inclusive definition.

At this point, it will be useful to establish what has already been written on the subject of indie games, and how my thesis either develops upon this extant scholarship or expands the discussion into original territory. To allow the reader to navigate the existing literature in a coherent manner, the review that follows is subdivided into three broad areas of focus: Game studies, indie as a concept beyond gaming, and indie games.

Literature Review – Game Studies

The Open Access, online journal “Game Studies” publishes peer-reviewed articles several times a year. Game Studies claim their primary focus is the aesthetic, cultural and communicative aspects of video games. However, they are generally open to most articles, should they be presenting new knowledge on video games. For example, Game Studies has covered topics on “indie” with Maria Garda and Paweł Grabarczyk’s article *Is Every Indie Game Independent? Towards the Concept of Independent Game* (2016) and Nadav Lipkin’s article on *The Indieocalypse: the Political-Economy of Independent Game Development Labor in Contemporary Indie Markets* (2019) which are both discussed in my thesis. Additionally, *Journal of Gaming & Virtual Worlds* (2009 – 2019) has provided a platform for extensive studies on video games focused on the cultural influence of video games. These journals are agnostic, focused on video games from a variety of platforms, genres, and their online communities and fanbases.

Moving beyond journals, Steven Kent’s *The Ultimate History of Video Games* (2001) remains one of the most in-depth accounts of the origins of the video game industry. Kent utilises extensive research and over five hundred interviews to record how some of the earliest video games such as *Spacewar!* and *Pong* found success, and how the developers behind them laid down the foundations for the video game industry to prosper. Kent’s insight into how these early video games were conceived, from concept to finished project, demonstrates that these historic video games were often the personal labours of either a single person, or very small team. Despite video game developers such as Allan Alcorn being employed by Atari, he developed video games like *Pong* (1972) single-handedly. Thus, Kent’s historical recording demonstrates that these video games had more in common with modern indie developers than AAA studios. However, Kent’s book was written when the term

“AAA” was a recent phenomenon, and thus discussions of indie were uncommon. Consequently, Kent’s book examines how the history of video games gave rise to Sony and Nintendo in the late 1990s and early 2000s. Therefore, it naturally fails to identify how the history of video games also influenced the rise of indie games. Accordingly, Chapter 1 of my thesis revisits the history of video games to identify key moments where it is possible to observe the roots of “indie”, therefore contributing to an understanding of the evolutionary roots of what can now be understood as indie as process.

Anna Anthropy’s *Rise of the Videogame Zinesters: How Freaks, Normals, Amateurs, Artists, Dreamers, Drop-outs, Queers, Housewives, and People Like You Are Taking Back an Art Form* (2012) is a call to arms, an invitation for the newest generation of artistic video game designers to change the landscape of the video game industry, whilst re-establishing who can and cannot make video games. Anthropy criticises the AAA industry for repetitive experiences, and how many of them are offering similar gaming experiences. Anthropy then calls for the new generation of gamers to create new ways to play, for “hobbyists and small game developers” to create personal video games that are meaningful and not just developed for a mass established audience. The games Anthropy is discussing are art games and are mostly non-commercial indie games. Throughout her book, Anthropy discusses the numerous tools currently available to developers, highlighting those that require less technical skill to operate, thus making video game production more accessible. Anthropy’s message throughout her book is clear; for more developers to create personal video games about “Anything. Everything”. Thus, she foresees a future of video game production where developers can “doodle playable games as easily as doodling a comic or writing a simple story”. Anthropy’s book identifies several methods for creating video games outside the “indie” and “AAA” categories. These methods, despite bearing several similarities to indie such as small budgets and team sizes, do not earn the title of “indie” in the eyes of gamers and academics. Notably, Anthropy’s book discusses a method of production known as “hobbyists”, representing an area of the video game industry that is often overlooked. However, Anthropy’s research does not acknowledge how “indie” can be understood alongside “hobbyists”, and how this might contribute to a clearer understanding of

“indie”. In response, my thesis explores hobbyist game production, discussing their production, and how this landscape can be compared to “indie”. In addition, through speaking to hobbyist developers, and analysing their games, the objective is to clarify the differences between “hobbyists” and “indies”. At the same time, this allows us to identify the characteristics of the indie process with more certainty.

Video games are primarily a visual medium, and the recent rise of VR gaming only emphasises one of the greatest aims of the modern video game industry: to increase visual immersion. Nonetheless, the video game aesthetic remains under-researched, and lacks a shared specific understanding amongst academics in the field.⁴ Simon Niedenthal’s *What We Talk About When We Talk About Game Aesthetics* (2009) expressed concerns over the lack of research on video game aesthetics from academics in the field. Niedenthal’s research demonstrates that fewer researchers were tackling the subject, and 10% of papers submitted at DIGRA in 2003 were related to aesthetics, but by 2007 this had dropped to under 4%. In 2017, this remained at 4%. However, the discussion on video game aesthetics has spiked in recent years, rising to over 10% in 2018, and just under 10% in 2019. Notably, video games such as *Red Dead Redemption 2* (2018), which is analysed in Chapter 2, have reignited discussion on aesthetics. Whilst Niedenthal was concerned by the lack of academics tackling video game aesthetics, my thesis argues that the reemphasis on this topic in the last several years demonstrates that there is an answer to be found. Furthermore, Niedenthal stresses that the video game aesthetic is too often considered to be either the graphical quality of the video game, or the style that video game employs. Niedenthal then, argues that the aesthetic meaning emerges from the senses, from touching (the controller), to a combination of pleasurable visuals and the player seeing their efforts translated onto the screen. Graeme Kirkpatrick takes a similar viewpoint in his book *Aesthetic*

⁴ This remains evident in 2019, and there has been little movement in recent years. Jon Robson’s and Grant Tavinor’s collection *The Aesthetics of Videogames* (2018) tackles this subject but discusses it quite generally and reaches no consensus. Most recently, Jesper Juul’s *Handmade Pixels: Independent Video Games and the Quest for Authenticity* (2019) explores the idea of the aesthetic experience as disinterested, meaning it does not depend on the subject having a desire for the object. Juul raises the idea of the video game as three layers: Aesthetics I (as experiences), Aesthetics II (problem solving, improving skill) and Aesthetics III (as more traditional art). Thus, the aesthetics of the video game still lacks a shared specific understanding.

Theory and the Video Game (2011), where he argues that the video game is an aesthetic experience, and the most important thing about video games is how they feel to players. Like Niedenthal, Kirkpatrick argues that the video game aesthetic is not a synonym for graphics (visuals), and instead draws on the history of painting, music and dance to discuss the video games in the context of art, notably comparing dance to the way players interact with video games. He came to this conclusion by observing players' behaviour whilst they were playing video games, and in noting that what they see relies almost entirely on what they do with their hands, he compares this to "dancing with the hands". Both Niedenthal's and Kirkpatrick's research goes beyond solely what a video game looks like, instead exploring how the human body and mind interacts and responds to playing a video game. My thesis acknowledges that like the meaning of an indie game, the meaning of a video game aesthetic is problematic, and more research is essential to drawing a coherent understanding. Nonetheless, to advance the field of game studies, it is less critical to focus on the meaning of the video game aesthetic, and instead to explore the indie aesthetic spectrum. Through my investigation, it is possible to identify the ideas, values, and beliefs behind indie games, therefore informing an understanding of the indie aesthetic process.

"Indie" as a Concept Outside Video Games

"Indie" as a concept extends beyond indie video games. This includes but is not limited to indie music, indie books, and indie film. Vanessa Oswald's *Indie Rock: Finding an Independent Voice* (2019) notes that indie music discussions share many similarities to indie games. Oswald notes that the meaning of indie music lacks a general shared consensus and notes how although "indie rock" is still not properly defined, it has the power to help categorise artists who belong to independent record labels. Like indie games which are later picked up by publishers, Oswald observes that indie bands picked up by major labels raise questions on whether they should still be considered "indie" or "sell outs". Adam Croft's *The Indie Author Mindset: How changing your way of thinking can transform your writing career* (2018) is mostly a guide for authors to change their way of thinking and in turn adopt a determined mindset to improve their writing, helping them to be more productive and reducing burnout. More prominently, Croft emphasises the importance of viewing their writing as a

business to help advertise and market their work more effectively. However, Croft also clarifies what he means by “Indie Author”. He uses “self-publishing” and “indie publishing” interchangeably throughout his book, therefore suggesting reductive understanding of indie authors - those who do not utilise publishers.

Carrie Szabo’s thesis *Independent, Mainstream and In Between: How and Why Indie Films Have Become Their Own Genre* (2010) argues, as the name suggests, that indie films have become a genre. To support her argument, she begins by studying the history of the independent film and the birth of the term “indie film”. Szabo explains that in the 1920s, independent films were less open, and the meaning was almost solely defined by the film’s relationship with a major studio. However, Szabo notes that with each decade the term independent has become increasingly difficult to define. Fast forward to the 1990s, and the relatively new term “indie film” was achieving success and positive public reception, causing subsidiaries of larger studios such as Sony Pictures Classics (1992), Fox Searchlight Pictures (1995) and Paramount Vantage (1998) to be created. The involvement of all these major studios with independents and the rise of the term “indie” had caused the meaning to become increasingly blurred. She argues that whilst the term “indie” was originally an abbreviation for independent, it has begun to connote much more. According to Szabo, the term brings viewer expectations, and these expectations can be compared to genres found throughout film. These expectations remain, regardless of how the film is financed or the means in which the film was produced. Szabo supports her argument with several points and notes that “indie films” differ from most major Hollywood films. Additionally, Szabo notes that movie services such as Netflix advertise many films with the category ‘indie’. Szabo’s work points to a useful approach to nuanced views on “indie”, and my research observes that the term can be explored in a historical context, but also builds on this idea by using this knowledge to explore the multiple facets of indie as process.

Geoff King’s book *Indiewood, USA: Where Hollywood Meets Independent Cinema* (2009) analyses the connection between “indie” and Hollywood. King explains that the term “Indiewood” was devised in the mid-1990s, as a term used to define a film that was too close to Hollywood studios to be considered independent, but also a little too close to “indie” to be considered mainstream. In

other words, a film that drew on elements from both “indie” and Hollywood. Furthermore, it was around this time that the success of films such as *Pulp Fiction* (Tarantino, 1994) and *The Blair Witch Project* (Myrick & Sanchez, 1999) encouraged the larger studios to create subsidiaries such as Sony Pictures Classics or Paramount Classics.⁵ These subsidiaries would eventually become known as “Indiewood”. King argues that those who saw the rise of “Indiewood” as a positive thing would praise the rise of more creative films, whilst others may have seen it as a means for the larger studios getting in on the well-received “indie spirit” of independent film, or as King explains, “a greater cultural worth than mainstream Hollywood film”. Interestingly, the term “Indiewood”, as used by King, is comparable to the term coined by video game studios, “AAA Indie” or “AAA independent”, in the way it combines two oppositional terms together.

King revisits and expands on some of these ideas with new research in his latest book on indie film: *A Companion to American Indie Film* (2016). This book is a collection of essays from several film scholars. The focus here is on King’s own section in the book, and later, Michael Newman’s essay: *Indie Film as Indie Culture* (2016). King’s stance has changed somewhat since *Indiewood, USA: Where Hollywood Meets Independent Cinema*, and he now employs a different method. Rather than looking directly at what “indie film” is, he begins to investigate what it is not. “Indie” is not Hollywood, and through a means of narrowing down and elimination, King believes a greater understanding of “indie film” can be achieved. Throughout the book, King discusses the ways in which the expectations of “indie” have changed over time. Less desirable expectations can be traced back to the mid-1990s, when the term “indie” began to emerge, but was instead viewed as a watered-down version of independence. This stems from the idea that “indie” can be employed in a manner that emphasises its diminutive status, as something smaller and less important, whilst independent can sound more rigorous. He notes that people find it tempting to define “indie” by who is involved in the

⁵ It is worth noting that *The Blair Witch Project* premiered at the Sundance Film Festival (Trussell, 2019), and is commonly considered “indie”. *Pulp Fiction* was published by Miramax Films, one year after they had been acquired by The Walt Disney Company. However, Miramax was reportedly operated with more creative and financial independence than other subsidiaries of Disney, and thus its “indie” origins are complicated (Pam and Owen, 2017).

funding, production and distribution; this “firm line” makes the term simple and easy to manage and understand. However, by limiting the meaning to a few, simple characteristics, much of what could and should be celebrated about indie and its “character” can become lost. King argues that films can be independent without also sharing these distinct “indie” qualities, proposing that “indie” is not the same as independent, although he recognises this will be a contentious statement. Nonetheless, King notes that “indie” is difficult to define. Like independent, both terms have more specific meanings, but attempts for these meanings to be unanimously agreed upon have failed. Whilst King’s research is inconclusive, he nonetheless raises some interesting methods and ideas that my thesis builds on and applies to indie games. Notably, as previously discussed, my thesis explores the differences between “hobbyist” and “indie”. Investigating the different ways in which hobbyist games are observed, produced, and understood will make it easier to recognise what makes indie games “indie”.

Michael Newman’s essay: *Indie Film as Indie Culture* argues that “indie”, like Hollywood, has come to mean more than its name insinuates. Newman acknowledges that indie culture extends beyond “indie film”, and can include a variety of media, including music and video games. He believes that indie culture in these different media acquires its identity in a similar fashion, being a creative production, authentic, and opposing the Hollywood equivalent, which for music would be major labels, and for video games “AAA” production studios. However, his research delves into problems that ensue when “indie” boundaries are considered, explaining that fans, reviewers or academics in the field will often attempt to determine whether a film, video game, or company is worthy of being awarded the title of “indie”. Newman stresses that as a result, some have been reluctant to use the term frequently, with so-called “indie imposters” trying to use the term as a branding strategy. In cases like this, those products are considered “not true indies”. Newman additionally notes that that whilst “indies” do not follow mainstream trends, they require a paying audience and therefore, without profit the indie artist can no longer continue to work. Newman claims that the indie artist often desires commercial success, but as an individual rather than by the larger studios’ terms. Newman draws particular attention to *Indie Game: The Movie* (2012) and how it depicts triumph for indie games, not just through the aesthetic or cultural qualities, but also

commercial success. Newman's research asserts how the meaning of "indie" intertwines between mediums, and how they can be utilised to improve understanding of one another. Evidently, it is crucial to explore other mediums to observe how "indie" is discussed and understood outside of video games, and then drawing on this research to better understand the indie game.

Indie Game Studies

As we have already established, many indie games can no longer be considered to oppose the mainstream. In fact, they now form part of the mainstream, topping sales charts, and sharing the spotlight on the largest stages with AAA games.⁶ Nonetheless, discourse specifically on indie games continues to be found lacking in 2019. Most recently, Jesper Juul's *Handmade Pixels: Independent Video Games and the Quest for Authenticity* (2019) explores claims of handcrafted authenticity in indie video games. The primary means by which Juul explores this idea is through examining the history of winning entries in the Independent Games Festival (IGF) from 1999-2018. This is an extension of his previous study: *High-tech Low-tech Authenticity: The Creation of Independent Style at the Independent Games Festival* (2014), which examined winning entries in the IGF from 2000-2014. Through this study, Juul (2019) raises the idea of an "independent style", this style is a "representation of a representation", and refers to the way in which indie developers are utilising high-tech tools (powerful video game engines, hardware) to emulate simpler, cheaper materials and graphical styles (hand-drawn, pixels). He suggests that video games that employ this "independent style" signal that they are more "honest" and "authentic" in comparison to high-tech, mostly 3D, AAA games. Juul supports this idea of an "independent style" through the winning entries at the IGF from 1999-2018, noting that from 2005-2018, all winners demonstrate a "well-defined" appearance of the "independent style". These video games are mostly 2D side-scrollers with a variety of uncommon aesthetics, and notably from 2010-2014 all utilise a pixel aesthetic. However, one significant drawback to Juul's approach is that by pushing the term "independent style", Juul is trying to suggest a definition of peak indie aesthetic. My thesis argues that an alternative approach is more beneficial,

⁶ See Chapter 1 for my Nintendo eShop research.

by utilising a much larger sample size (150 independent games, compared to Juul's nineteen) and striving to codify the many diverse types of indie aesthetics that exist, provides a more authentic understanding of the indie spectrum. My typology, detailed in methodology and Chapter 2 of my thesis, maps out the different aesthetics used in independent games every year spanning two decades. My research draws on these findings in combination with a variety of methods to demonstrate how "indie" can be defined as process.

Juul (2019) additionally discusses how to make an independent game. This fundamentally serves to explore the meaning of "indie", and he breaks this down into three aspects of "authentic" independence: Financial, Aesthetic, and Cultural. Evidently, there are similarities in how my thesis has recognised three primary themes of indie as process: Indie as Aesthetic Process, Indie as Production Process, and Indie as Community Process. However, Juul draws solely on textual analysis and a small sample of interviews with video game developers and does little to demonstrate how his ideas function in practice. My doctoral research extends beyond the remit of Juul's book in several ways, by drawing on original qualitative data drawn from 966 survey respondents, by employing applied research methods to evaluate a phase of original indie game production, and by conducting a range of semi-structured interviews with indie game developers. This is all contextualised through complementary textual analysis.

Nadav Lipkin's *The Indieocalypse: the Political-Economy of Independent Game Development Labor in Contemporary Indie Markets* (2019) analyses the PC indie game marketplace, which has been deemed to be in a state of crisis by academics, developers, and players, known as the "indieocalypse". This is typically associated with the PC digital distribution platform Steam, which originally required independent games to be "greenlit", meaning video games had to receive enough votes from the audience before they could be released. Steam has since relaxed the entry requirements, essentially allowing almost anyone to release a video game on the platform. This has led to a flood of independent games, many of which are lower-quality video games that are commonly

not even considered “indie”.⁷ However, not all these video games are of low-quality, and there are more indie games being developed in recent years than before. Video game production is becoming easier and faster. This has become associated with the reason why many indie games achieve low sales and thus low profitability. My thesis acknowledges the concerns associated with “indieapocalypse”, and this “crisis” is explored in Chapter 3. However, my research contributes several new ideas to the understanding of the “indieapocalypse”, and through interviews with indie game developers, begins to situate how the current indie production process reveals they have not begun to “crash”, but rather adapt to the changing industry. Additionally, the production of an indie game - through my action research - is used to test, analyse, and reflect on the realities, ideas and concerns shared through these interviews. This data can then be used to identify how the expectations from indie consumers is disconnected from the production process of an indie game.

Mike Diver’s *Indie Games: The Complete Introduction to Indie Gaming* (2016) is split into ten chapters, ranging from looking at the “indie spirit” to highlighting difficulties in indie games, each chapter covers a different topic on indie video games. Diver’s book provides an insightful introduction and is useful for mapping out the multiple facets of indie gaming, whilst celebrating “indie” for the original, sometimes difficult, and sometimes bizarre experiences they provide. Diver’s research provides insights from numerous indie developers, and their contributions offer a different perspective on the many facets of indie games. However, Diver does not just celebrate “indies”, but also observes the misunderstandings and confusion surrounding the term and its definition. Nonetheless, whilst Diver’s book provides a widespread introduction to indie gaming, it also raises many questions without providing answers, a much more in-depth approach is necessary.

The idea “indie” has come to mean more than just an abbreviation of independent is not new in game studies. Roman Graebisch’s study *The Indie Game* (2012) aims to provide a well-defined meaning for “indie”. He notes that evidently, by the ways in which indie games are marketed, viewed, and discussed, that “indie” can no longer be considered independent. Furthermore, a lack of consensus

⁷ See interview with Justin French in Appendix A.

on the meaning of indie prevents the term from maintaining accuracy, and therefore prevents an understanding of the indie phenomenon. Graebisch begins his thesis by highlighting three different aspects of indie - aesthetics, production, and community, with the objective to investigate how the three aspects intertwine for the purpose of a greater understanding of indie games and indie production. He then establishes the relationship between these aspects and the indie game, investigating how and why they can shape what makes an indie game “indie”. As a result, he proposes what he coins the “III Model”, which stems from those aspects to formalise the meaning of an indie game.

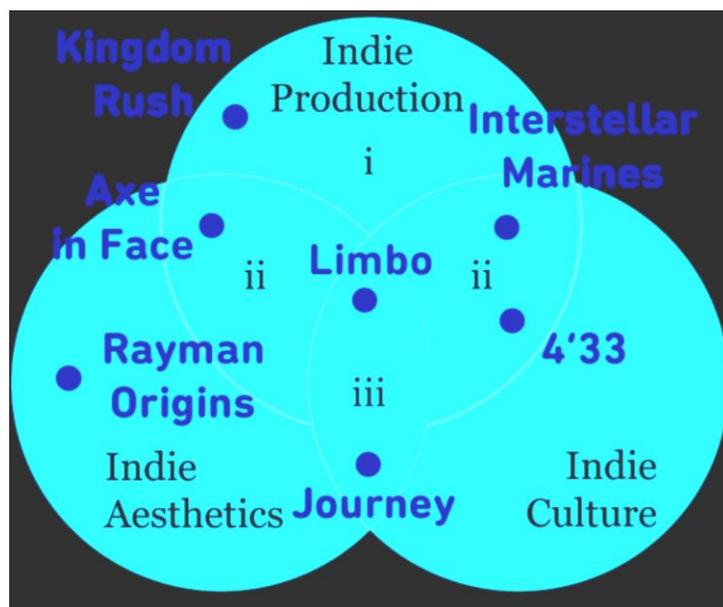


Fig. 0.1. Graebisch demonstrating how video games fit into his “III Model”.

Graebisch draws on interviews, textual analysis, and the creation of his own indie game *Bearadise Hotel* to expand his understanding of indie games and their production to ensure the solidity of his “III Model”. As demonstrated in Fig 0.1, he also carried out several case studies to demonstrate how these video games would fit into the “III Model”. Graebisch concludes that an indie game, utilising his “III Model”, would be defined as: “A game that shares dominant indie aesthetics and is developed to completion without any external control by a single developer or a small team to reach a self-governed, uncompromised, non-pecuniary goal”. Graebisch’s ambitious research attempts to reinstate the meaning of an indie game; he overlooks a crucial perspective: History. In doing so, he fails to acknowledge what “indie” has meant to different people at different times, and how this can inform

our understanding of the term. However, Graebisch should be credited with laying the foundations for future research, and his method of producing his own indie game as a means of research is something that my thesis builds upon and extends beyond. Graebisch's game was produced during a "game jam",⁸ and consequently knowledge of standard video game production is lost when it is condensed into such a small amount of time. Thus, as demonstrated in Chapter 3, the indie game developed during the writing of my thesis was created over a much longer time period, and this experience was documented and compared to existing knowledge, and consequently how this factors into an understanding of indie as production process.

Maria B. Garda and Paweł Grabarczyk's journal *Is Every Indie Game Independent? Towards the Concept of Independent Game* (2016) follows on from the foundations of Graebisch's research. Like Graebisch, Garda and Grabarczyk argue that "indie" is not an abbreviation of independent, and it should instead be understood as "... a distinct historical notion within the wider concept of "independent" video game". They believe that the term "indie" once made sense, which was during the mid-2000s, but has since become overdetermined. Akin to Graebisch's "III Model", Garda and Grabarczyk propose three separate types of independence, financial independence, creative independence, and publishing independence. Like Juul's research, there are similarities with the three dominant themes of indie as process. Similarly, they argue that for a video game to be independent, it would only need to fall into one of the three outlined categories. However, a video game could be considered more or less independent depending on how many types of independence it applies. The core difference here is that they are both intentionally discussing independent games, and not indie games. Indie games as they currently considered, as alluded to in my introduction, emerged around the mid-2000s. Garda and Grabarczyk do not specify what caused them to emerge at this time, but my own research traces it back to the launch of XBLA (Xbox Live Arcade) in 2004, and then *Braid* in 2008. Garda and Grabarczyk argue that during this period indie games all shared a similar theme, looking different in obvious ways, and therefore they were easily identified. Thus, they believe that

⁸ "Game jams" are typically events where video games are developed in a short space of time (traditionally between 28-hours to 72-hours).

during this period “indie” and independent can be used interchangeably. However, they do not specify the specific time this period begins and ends. In part due to the nature of this text as a journal for game studies, despite raising some ground-breaking concepts, it does not tackle the subjects in adequate breadth and depth. The ideas raised throughout are beneficial to game studies, but they are lacking sufficient data and support to draw a conclusive conclusion. As a response, and to push these ideas forward, my research provides a much more in-depth study to these ideas, expanding on them, whilst providing and establishing new ones.

Jamin Warren’s article *It’s time for us to stop calling games “indie”* (2014) shares a similar conclusion to Garda and Grabarczyk. He argues that the term “indie” was a useful way for video games to get noticed and be heard (during an unspecified period of time), but the term no longer makes sense, and now that there is such a large quantity of indie games being released, it no can no longer serve this purpose. He breaks down the common assumptions of what makes an indie game “indie”, and provides counterarguments as to why they never did, or can no longer define an indie game in such a way. He uses video game designer Bennett Foddy’s Tweet as an example: “*Lemmings*, a game made in 1991 by a self-funded team of 4, sold 15m copies—most at full price. Please stop saying indie games started in 2008” (Twitter, 2014). He claims this supports the idea that “indie” is not new, small teams have existed before, and self-funded, financial independent teams have previously found success. The problem with Warren’s argument is that he points towards a historical moment as a means to argue that “indie” can no longer be defined. Adopting this same approach for “AAA”, *E.T. the Extra-Terrestrial (1982)* remains one of the most expensive video games of all time (Rabin, 2012; Hooper, 2016), but it would be problematic to assign it the label of “AAA” at such an early moment in the video game industry. Likewise, Warren’s understanding of “indie” is rigid and assumes that “indie” no longer makes sense because it cannot and has not adapted to the modern video game industry. Instead, my thesis’ definition indie as process is broad and expansive, and within this definition there is no requirement for a game to fit perfectly into a predetermined set of requirements for it to be considered an indie game. In turn, indie as process is explored through three predominant themes across four chapters which reveal how comprehensive the definition is.

Methodology

Broken down by chapters, different methods are used at different times, but ultimately are used in combination to create an overarching picture. For example, Chapter 1 offers a historical analysis of the evolution of independent production and the rise of indie gaming, revealing that how modern “indie” is understood can be traced back to a historical moment, drawing on primarily textual analysis. Chapter 2 combines quantitative and qualitative analysis of game aesthetics to establish an original typology of the indie game form. Chapter 3 combines original practice-based research, original interviews, original audience research (based on a survey of 966 respondents) and textual analysis. Chapter 4 draws on original audience research and several case studies to establish how indie game communities are understood more broadly. The various merits and disadvantages of these research methods are detailed below. It is through the combination of the research methods outlined here that my thesis develops a rigorous definition of indie as process.

Applied Research

Applied research enables a researcher to reflect on and evaluate their own work, leading to a deeper understanding of indie communities and the process of production. There are two main study areas in applied research. The first is practice-based research, where the created object (indie game) would be the focus of the investigation. The second is practice-led research, where the research is instead focused on the practice itself. Here, the indie game is not the focus of my research, but instead indie communities and the process of production. Whilst at times my indie game may come into focus, my research is still defined by the process. According to Gyoko Muratovski (2015), the most effective way of conducting applied research is through action research (see Fig 0.2). Action research can draw on many data collection methods such as interviews and observations. This process of data collection is recurring in nature, and closely follows the design process. Whilst it may appear that this form of research shares similarities with other research methodologies such as qualitative, quantitative, and visual, the main purpose of action research is to improve the design practice and/or field, whilst the other research methodologies instead focus on understanding the external factors concerning the

problem you are attempting to resolve. Furthermore, whilst this methodology is practice-led, the research is still presented in a traditional written thesis.

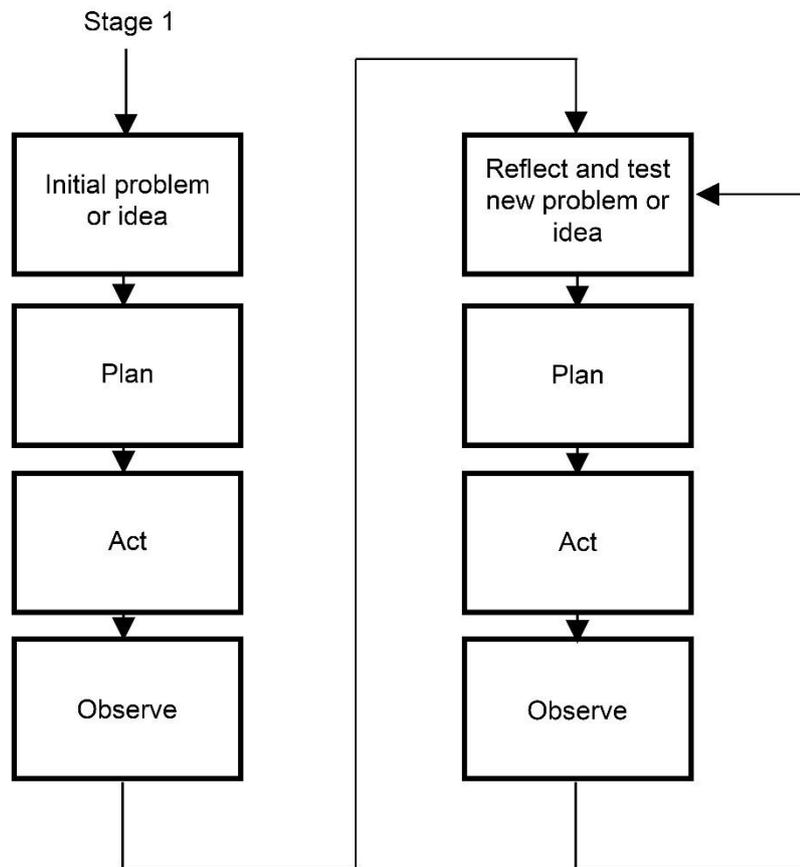


Fig 0.2. A visual representation of Gyoko Muratovski's explanation of action research. Based on: Personal Research.

As demonstrated in Fig 0.2, action research allows me to actively reflect on the data gathered through practical work. Stage 1 represents my initial plan; this is to investigate the unknown or less known areas in game research that I have identified as requiring further research. Specifically, this concerns the process of video game production which is explored in Chapter 2. The initial plan is to use the creation of my own indie game to test these ideas or problems. Video game production is renowned for being shrouded in secrecy (Davis, 2013; O'Donnell, 2014; Schreier, 2018), and therefore the multifaceted process of game production is lacking in academic discourse. Through the creation of my own indie game, I can explore these ideas and problems in a manner that has rarely been done before. For instance, as the sole developer of my game there are many limitations during production. The repercussions of these limitations can be identified, and how they impact the overall style or quality of

the video game can be explored. One initial problem is that it is necessary for many indie developers to seek outside help. How then does outsourcing the graphical design of a game affect the process of production (e.g. style, feel and original vision). Through action research, I can test this problem, reflect on it, and feed those findings into my conclusions.

Action research is not limited to an initial idea or problem, and as demonstrated in Fig 0.2, I am able to continuously reflect and refine to test new ideas or problems. In essence, this becomes a spiral, and at the end of each “stage”, I will take action in an effort to improve existing knowledge on game production, provide solutions to pre-existing problems or identify new ideas and problems in need of research (Putman and Rock, 2016). To further emphasise the intentions behind action research, the steps are broken down as following:

Initial Problem or Idea. The problem or idea is identified through extensive research, this allows the researcher to ensure that this problem or idea requires further examination.

Plan. Through planning, I can ensure that I am well-equipped for the remainder of the cycle, and that the acting phase is effective and resourceful. For example, it is here that I will decide what the most appropriate means for tackling a problem or idea shall be, this will then inform how best to utilise practice-led research.

Act. The acting phase is informed by the plan. This is where I will conduct practice-led research, through game production I will tackle existing ideas or problems that have been extensively planned out. However, this does not suggest that the acting phase is rigid, but instead there is an opportunity for the acting phase to influence or alter the plan. Game production is a long and complicated process, and it is possible that adaptations may need to be made. The goal here is to contribute to the field of game studies in an original way, so therefore any plan must be flexible.

Observe. The data produced through the action phase must be observed. Like the acting phase, the observation phase must be flexible due to the possibility of observing unplanned actions. Thus, the means in which data is best collected will be decided during this phase.

Reflect. The reflection phase is essential to ensuring that the action research cycle continues effectively, whilst also aiming to enhance the field of game studies through new knowledge and ideas. It is possible that when reflecting on the data observed, it may be revealed that the initial cycle was not as effective as it could have been at addressing the initial idea or problem. The solution would then be to begin again, using the experience gained to revise and improve the next cycle. However, it is possible that the initial idea or problem had been tackled to a satisfactory standard, and instead the next step would be to use the data and knowledge gained to shape and inform new ideas and problems in need of research.

The steps outlined above share similarities with other explanations or understandings of action research (Muratovski, 2016; Neugebauer, 2016; Putman and Rock, 2016). The order of steps and their objectives may differ slightly, but the core premise remains the same: Action research aims to inform and change a field to allow people to improve their practice and utilise their expertise more effectively and efficiently.

Action research is a time-consuming process. In the context of my thesis, it is made increasingly time-consuming due to the laborious nature of game production. This meant that it was unfeasible to partake in too many cycles, regardless of their outcomes. Alongside this, action research is highly subjective due to the continuous involvement of the researcher, and therefore it is possible for biases to influence the analysis and outcomes of the data collected. Therefore, to provide increased credibility to my findings, additional research methods are used to offset the drawbacks of action research.

Semi-structured Interviews

In comparison to action research, semi-structured interviews demand less resources, but can still yield meaningful results. The noteworthy characteristic of semi-structured interviews is flexibility. The interview may be carefully constructed with the goal of answering a pre-determined set of research question, but also leave room for interviewees to provide new ideas and for the interviewer to follow-up on these ideas (Cross and Galletta, 2013). Thus, to ensure that the data is plentiful and valuable,

the interviewer must maintain a flexible relationship with the interviewee, and not be limited to the questions prepared beforehand. This “halfway” approach benefits from the consistent results of structured interviews and the flexibility and extended response of in-depth interviews (Muratovski, 2016). The purpose here is to utilise semi-structured interviews to gather data from interviewees that have first-hand experience, knowledge, and beliefs concerning indie games. Semi-structured interviews will be utilised in an exploratory manner, and therefore the purpose is to discover new data beyond pre-existing considerations of indie games. Furthermore, it is important to note my thesis is employing multiple methods, and therefore they are utilised in a manner where they can inform and counterbalance each other. For instance, reflection on questionnaires (discussed later in this section) may reveal that certain areas require further research outside the scope of that method. Therefore, it would be possible to utilise semi-structured interviews in a qualitative manner to provide credibility to existing conclusions or assist in understanding new ideas or problems.

Once the purpose of semi-structured interviews has been finalised, the next step is identifying the most suitable interviewees. Interviewees must be able to not only best answer the research questions, but also have the relevant expertise, knowledge and attitude concerning indie games. My initial strategy was to secure interviewees from both AAA and indie game developers. This decision was informed by other studies focusing exclusively on indie developers, such as with *The Indie Game* (Graebisch, 2012). Despite my best efforts to avoid this same unbalance, I was unable to interview AAA developers. This proved far more difficult than anticipated, with “AAA” typically being secretive over their production strategies and methods, therefore all requests for any interviews were rejected. This is a prohibition that has frustrated several other scholars in the field (Davis, 2013; O’Donnell, 2014; Schreier, 2018). Even if some “AAA” interviews had been secured, it is likely that the interviewer would have to sign an NDA (Non-Disclosure Agreement), thereby preventing the opportunity to openly discuss the interview. Furthermore, not only would there be limitations on what can and cannot be asked, but the interviewees themselves would be limited in what they could and could not say.

The offset this unbalance, my focus shifted to targeting indie developers who had prior experiences working at AAA studios. This would provide the benefit of the interviewee more likely being able to freely discuss AAA production, and therefore able to discuss or compare these experiences to their more recent experiences developing indie games. In total, eight interviews were conducted, and care was taken to speak to both male and female individuals where possible. However, this proved difficult, and as numerous reports reveal, the lack of female developers in the video game industry (Hepler, 2017; Wade, 2019) extends to indie game production too. Nonetheless, as part of research for my thesis, two women were interviewed, who developed the indie game *Squidlit* (2018). Additionally, the extended responses from the interviews have proven crucial to a deeper understanding of how “indies” fit into the gaming industry, enabling participants to express themselves beyond the scope of the limited, but no less important, structured questions.

Semi-structured interviews depend on their interviewees, and therefore there is no guarantee how they will respond to the interview process. In addition, the flexibility and open-endedness of semi-structured interviews means that it is difficult or unfeasible to quantify data. Therefore, comparisons between responses can prove problematic. Thus, the reliability and honesty of semi-structured interviews could be questioned. The approach here was to utilise other methods to counteract the drawbacks of semi-structured interviews that might affect the personal accounts being offered.

Typology

A typology, a study of types or categories is a classification of practice. In the context of games, this could relate to the genres of games available to play, the engines that were used to make them, or their characteristics. In this instance, the typology is primarily being used to study the aesthetical styles of indie games. The importance of this cannot be undervalued, and as noted by Bailey (1994):

...a well-constructed typology can be very effective in bringing order out of chaos. It can transform the complexity of apparently ... diverse cases into well-ordered sets of a few rather homogeneous types, clearly situated in a property space of a few important

dimensions. A sound typology forms a solid foundation for both theorizing and empirical research (cited in Lewthwaite and Nind, 2020)

This renders a typology an extremely useful tool for researchers working with data that has many variables. For instance, typologies have been used in criminology to better understand certain factors in children's upbringings and whether they decrease or increase the likelihood of them committing criminal offences (Siegal, 2017). Thus, a typology is well-suited to the topic of "indie", allowing the researcher to break indie games up into different aesthetic types. Furthermore, a typology enables the researcher to observe whether there are certain conditions or factors behind different indie aesthetics. The purpose here is to identify whether there are any correlating themes between well-known indie games.

Despite indie aesthetics commonly being defined (Graebisch, 2012; Juul, 2019), there is a lack of quantitative data to support these claims. The typology allows me to measure the number of indie games that share a particular "indie aesthetic" associated with claims such as "indie look" or "indie style". This allows me to analyse this data and use to it support theories, ideas, and arguments throughout my thesis. However, this is not the first time that a typology of indie games has been conducted, notably Jesper Juul (2014, 2019) examined the Grand Prize winners of the annual IGF (Independent Games Festival) from 1999-2008. As discussed in the Literature Review, Juul's study is an effort to arrive at a narrow definition of "indie". Nevertheless, my thesis argues that it is more beneficial to codify the type of indie aesthetics to gain a better understanding of the aesthetic spectrum.

The intention of my typology is not to arrive at a definition of the peak indie aesthetic, but rather to map out the varied aesthetic terrain observable across indie games over nearly two decades. Furthermore, Juul's research identified only one video game per year, and my thesis argues that this approach does not sufficiently account for the diverse indie aesthetics for any given period. Thus, my typology has examined the winners of "Visual Arts" category at IGF (Independent Games Festival), alongside the top ten highest-rated

independent games of every year dating back to 2000, resulting in 150 independent games studied in total. My thesis is interested in both the history of the independent game and the contemporary indie game, so therefore my typology embraces almost twenty years of independent game activity.

To identify the highest-rated independent games, my typology utilises website Metacritic.com, which aggregates reviews of multiple media products, including video games. My thesis recognises that there are drawbacks to this method, such as grouping indie games by critic reviews rather than sales, how many people played them, and their impact on the industry. Therefore, it is possible that my typology could be criticised for an element of bias. To counter this, my thesis argues that by focusing the research on aggregate critic scores, it enables my typology to remain consistent throughout almost two decades. This was evident during the years 1998 and 1999, which were originally intended to be included in the typology, extending the typology to twenty-years. However, online critic reviews were scarce during this time period, and the number of video games were much lower. There was not a single indie game that could be included in 1998 or 1999. It would have been possible to draw on “shareware” games⁹ from websites such as dosgamesarchive.com and archive.org. However, this would break the consistency of my typology, and not closely demonstrate how the indie aesthetic has or has not evolved over the last two decades. Furthermore, on the opposite end of the spectrum, there are far more than ten indie games in more recent years that could have been included in my typology. To ensure consistency of approach, when confronted with abundant data the decision was made to follow the earlier sampling size to ensure the data remained even and generalisable.

The data collected, analysed, and codified in my typology was difficult to obtain and has never been carried out to this magnitude before. It was beneficial to my typology that “modern” indies have had enough time to establish their space in the video game industry. For example, had my

⁹ “Shareware” games are discussed and explained in Chapter 1.

typology been carried out five years ago, it would not have been as effective in mapping the way in which “indies” have been able to take advantage of digital platforms and modern technology.

Questionnaires

A questionnaire is a powerful tool for gathering data from respondents through a series of questions. In theory, the way in which questionnaires collect data could be compared to interviews. Like an interview, the respondent is asked a set number of questions for the purpose of gathering information. However, whilst the semi-structured interviews used for my thesis allow for flexibility, questionnaires are fixed with set questions. A questionnaire does not require the interviewer to be present. So, alongside the ability to complete questionnaires through numerous long-distance methods such as the internet or phone, this makes questionnaires a potentially economic¹⁰ research method that a researcher can use to gather a large amount of data.

Notably, questionnaires can contain both closed and open questions. Closed questions only allow the respondent to answer with a pre-decided number of answers decided by the researcher. This allows the researcher to obtain generalisable quantitative data. For example, this is particularly useful for investigation into the usage of specific terms or definitions. Furthermore, the consistency of closed questions with set answers means that the data can be easily analysed and compared amongst all respondents. However, closed questions provide little room for respondents to provide detail outside of the scope of the question. As a counter measure, the questionnaire can employ open questions that allow respondents to provide more in-depth answers. Beyond this, open questions are constructed in a manner to encourage respondents to share their personal feelings and attitudes towards specified topics. This is most suited to questions concerning how the audience perceives the meaning of indie, as this allows the respondent to provide a more in-depth answer.

To date, no comprehensive study of audience perspectives and attitudes towards indie games has been conducted. To establish this missing part of the indie game historical narrative, my thesis

¹⁰ Although not always low-cost, they can also be very expensive when creating, distributing, and analysing complex questionnaires.

aimed to capture this data for the first time. In response, my thesis created a questionnaire¹¹ to discern the real meaning of an indie game. My questionnaire was shared online through Reddit and Discord, and through these networks it was shared amongst four different video game communities and attained 966 respondents. Because these online communities were gaming-focused, my thesis recognises that this could be considered bias. However, due to the research focus of my questionnaire, it would have made little sense to ask those without prior knowledge of video games or “indie” as a concept. The goal of this questionnaire was not only to ask players themselves to define an indie game, but to also share their involvement in communities. Likewise, when defining an indie game, respondents were asked which characteristics are most important to them. In the process, several common characteristics of indie games were purposely not included, such as budget, lack of publisher and team size.

My thesis acknowledges that this may be considered a contentious approach. However, Ian Brace (2008) explains that respondents typically answer with what comes to their mind first. Adopting this viewpoint, my thesis hypothesised that when asked to define an indie game, most respondents will define it as one or a combination of a small team, lack of publisher or low budget. Therefore, to avoid a repetition of answers, these were purposefully excluded to encourage alternative ways of thinking about “indie”. This question, as demonstrated in Appendix C, was asked after respondents were asked to provide a written definition of “indie”, and therefore encouraged them to think about the meaning of the term further. Additionally, the sample profile, due to the nature of online communities consists of respondents from a wide variety of countries and ethnicities, including the Americas, Europe and Asia. Moreover, 95 of the respondents were Female or Other (24), and whilst significantly less than Male (817), they provided additional viewpoints. Likewise, my questionnaire sampled a wide age group, ranging from 14 to 51 years.

This questionnaire has utilised carefully constructed questions and purposefully targeted gaming communities to obtain the highest quality data. Primarily open questions were utilised with

¹¹ The questionnaire in full (and data collected) can be found in Appendix C.

the intention of gaining more in-depth, quality responses. The usage of tight-knit, passionate communities ensures that there are many quality respondents, but there are no guarantees of quality and honest responses. Thus, it is not possible to entirely offset the drawbacks of questionnaires, and this makes it essential that questionnaires are utilised alongside other research methods. Notably, semi-structured interviews provide a means to obtain quality data from reputable interviewees, but at the cost of the audience's perspective and large samples provided by the questionnaires. Therefore, the data collected through my questionnaire is analysed and discussed throughout my thesis. It is used to both support and challenge pre-existing ideas and conventions. Additionally, my data has also raised new ideas, and my thesis has employed them to shape and guide several points of discussion.

Case Studies

A case study, as the name suggests, is when a researcher investigates a case within a specific context. Case studies as a research method are well-suited for complex ideas or problems. They allow the researcher to explore them in-depth. Therefore, case studies are particularly useful when researching within isolated or small numbers. For this reason, case studies are commonly utilised as a research method in topics including, but not limited to; psychology, sociology, anthropology, social work, and education (Yin, 2017). For example, in psychology, case studies have been used to test plausible conclusions. Furthermore, George Dunbar (2005) notes that it is possible that video games can make players violent because they can contain violent gameplay. However, it is not enough to draw conclusions from possibilities, therefore there must be research that supports these conclusions with evidence. Case studies then, would allow the researcher to explore the effects of playing video games. This may prompt other or additional research methods, such as observational research which can shed light on how someone may think or feel during or after playing video games.

Case studies are often acknowledged for providing the means to obtain high-quality, in-depth qualitative data (Dunbar, 2005; Yin, 2017). Throughout my thesis there are hundreds of video games that have been discussed. However, it is more beneficial to talk about certain video games in greater depth. Thus, case studies provide the opportunity to exploring individual games more thoroughly. In

Chapter 2, my thesis has conducted a case study on the indie game *Braid*. *Braid*, as demonstrated throughout my thesis, has been considered an influential game in the video game industry. It is no surprise then that it has been the subject of a significant amount of research and has become known for its artistic and detailed graphics. Despite this, there is a pre-release version almost feature complete and fully playable that existed prior to its artistic makeover. My case study demonstrates that *Braid* existed in a different form before, a form with simpler graphics whilst retaining a very similar gameplay style. Theoretically, it could have launched in this form and still been well-received. Nonetheless, my case study reveals that it was an artistic intervention that was deemed necessary for *Braid*. Thus, case studies are an opportunity to dissect some video games, to pull them apart and think about the agendas that are at play, especially those that have previously been underplayed or overlooked.

Case studies investigate within one person/case or group, and therefore in specific situations, this method could be criticised. For example, if the case study is targeting a specific video game, it is not possible to generalise this data. Consequently, it is possible this method would come under criticism if this data was used in a larger context. This also implies that this data could be criticised for possible bias, the conditions for case studies are specific and so there is the possibility of the researcher influencing the data or the direction of the study. Additionally, due to the specific conditions of many case studies, it is possible that this research will be difficult to replicate and therefore be challenged for its reliability. However, my data retrieved from case studies has not been used to draw conclusions, but instead provided a greater insight into specific production processes of indie games. Furthermore, my insight has prompted areas of further research, and therefore other research methods have been used to offset these drawbacks.

Chapter Summary

In light of the research question “What is an Indie Game?”, and the assertion that indie can be understood as process, my thesis will be arranged into the following chapters. Chapter 1 will analyse the history of independent games, with a particular emphasis on key moments where indie as process can be seen to take root in historical moments. This investigation is essential to identify the areas that will shape the focus of the chapters that come later. Thus, Chapter 1 provides a greater appreciation for the terminological tensions that have existed in the historical accounts of the indie game. Indeed, there is the indie game, and there is the independent game and making this distinction is crucial to understanding the nuances of “indie”. This distinction provides a connection between the three different primary themes of indie as process and how they can be traced back to several key historical moments.

Chapter 2 builds on research from Chapter 1, which established that there is a connection between the aesthetic of some indie games and a historical moment in not only how they look, but also how they are designed to be played. However, further understanding of the aesthetic spectrum is required to understand the relationship between an indie game and their aesthetic. There have been attempts to group the way “indies” look through the coining of terms such as “indie style” and “indie look”. However, this creates an expectation on indie games to look a certain way and has done little to resolve the question of how the aesthetic contributes to any definition of an indie game. To interrogate this relationship, Chapter 2 combines quantitative and qualitative analysis of game aesthetics to establish an original typology of the indie game form with a sample size of 150 independent video games. Through this method, it was possible to establish a spectrum of the indie aesthetic, and therefore identify four primary aesthetical themes: Modern Retro, Authentic Retro, Pixel Art and Hand-Drawn. Thus, this chapter serves to establish that there is no singular aesthetic that is more “indie” than another. Instead, the similarities reside in the process, and although there are several aesthetics more commonly associated with “indie”, indie as aesthetic process reflects how the look of “indie” stems from an accumulation of active decisions undertaken during the production process.

Chapter 3 explores the recent rise of distressing reports regarding excessive working hours and mistreatment of employees within the video games industry. This has further highlighted the secrecy of the production process of video games. This secrecy extends to indie production, where little is known about the working environment, production tools, and financial circumstances. Therefore, the urgency for a deeper understanding of the intricacies of production is crucial to understanding how this could contribute to an understanding of indie as process. In response, this chapter draws on textual analysis, practice-based research centred on the production of an original indie game, original interviews with indie developers, and a survey based on 966 respondents. The variety of methods provides an overarching understanding of the production process of an indie game. Thus, it was possible to establish that there is an expectation for indie developers to produce original and unique ideas, but at the same time not to pursue a relationship with publishers. This results in a dislocation between the realities of a fraught indie production process and the expectations of the consumer. Thus, indie as production process recognises that “indie” teams and budgets can come in different sizes, whilst publisher association is becoming far more common. This does not mean they cannot be used to define or contribute an understanding of “indie”, but there is an acknowledgement that these characteristics can vary and change over time, and therefore are not used as exclusive methods to define “indie”. Instead the specifics are on the various characteristics of the indie production process, including experimentation, risk taking and originality – and how in isolation, or more effectively together, they can contribute to a greater understanding of the indie production process and why it is a predominant theme of indie as process.

Chapter 4 begins to explore the relationship between indie developers and their communities. Drawing on the observation that the audience and the communities they form have rarely been considered significant to the meaning of an indie game. Nonetheless, it is the audience that champions specific values, beliefs, and ideas, and therefore Chapter 4 advocates the importance of how this relationship can provide more clarity. To investigate this appropriately, Chapter 4 draws on original audience research, whilst conducting several case studies to better understand current indie communities. My research reveals that the audience has always played a significant role in shaping

the direction of video games. However, indie developers, unlike “AAA”, are increasingly developing a direct, intimate relationship with their audience. It became clear that the notion of two-way communication and feeling listened to is crucial to the indie community process. It is equally crucial for indie developers, with their communities providing feedback and ideas, whilst playtesting their productions. Further research into other communities, such as hackers and modders unveils their “hobbyist” nature and their similarities to “indie”. For example, “hobbyist” game *Dwarf Fortress* “turned indie” to pursue a wider audience and increased financial success. In turn, providing additional clarification of the business-minded nature of the indie process.

Chapter 1

Reconsidering the History of Independent Games: History as Process

The indie game has become mainstream in recent years. It is no longer locked to specific platforms (such as XBLA) or associated with a few big hits.¹² The introduction to my thesis established that “indie” and independent should not be considered the same thing. Independent then, dates back further with a rich and extensive history, and there was an extensive period where independent games were being developed behind the scenes, away from the public eye. This history reveals that the independent as a collective whole has been building towards something for decades, but only recently has it begun to take shape and break through into the mainstream. Today, “indie” is associated with distinct characteristics after multiple successful indie games prompted discussion and debate about what indie games are and what makes them different. Thus, many casual observers are just as likely to believe that independent games are a new phenomenon, as they are to believe that “indie” and independent are interchangeable. My thesis then, argues that a historical understanding of the origins of independent games should not be used as the sole means by which to define indie as process. Indeed, the industries of each era are scarcely comparable, but rather this historical mapping provides a necessary foundation upon which to establish a deeper understanding of the term “indie”.

This chapter will consider the independent game in a historical context, looking back at the origins of independent production, how the terms “indie” and independent have been previously understood, and how this understanding has changed over time. This chapter will identify why, despite the numerous attempts made by “indies” to establish a viable model for continued video game production, they have not managed to do so until the late 2000s. Furthermore, this chapter will investigate how and why the independent game finally managed to break through into the mainstream,

¹² At the time of writing (May 2021), ten out of the thirty video games in the “Nintendo eShop charts”, which ranks the top thirty best-selling video games of the month, are indie games. Although during the mid to late 2000s the term indie was associated with big hits like *Braid* (Jul, 2019), they are now commonly in the best-selling charts, and therefore must be considered mainstream. The means in which these video games were determined “indie” is the same approach to that of the typology. See my methodology, or Chapter 2’s “Aesthetic Terminology”.

becoming a powerful force in the current video game industry in the process. Independent creators throughout history have utilised a variety of software, platforms, and technologies to develop and distribute their video games. A consistency amongst them is the communities that developed alongside their video games, and like all communities, were constructed from them talking to each other and sharing values and ideas. My thesis acknowledged in the literature review that detailed historical accounts of video games have been done before (Kent, 2001). However, this chapter is less concerned about discovering new past events – instead identifying how key moments in independent video game history can contribute to an understanding of “indie”. For this reason, the historical account in this chapter is selective.

Reconsidering the history of independent games is crucial, it reveals there are several decades of games sharing certain characteristics, looking a certain way, or playing a certain way, and these characteristics have become associated with many indie games. However, history is active, and there is a process of many different ideas and interpretations from individuals on the meaning of “indie”. Therefore, the term means different things to different people, and consequently its meaning has been pulled in different directions. “Indie” needs to be better understood, to be defined or there is a risk that rigid ideas will dominate. As discussed in my thesis introduction, there are numerous rigid views of what makes an indie game “indie”, such as being publisher free or looking a certain way. There are numerous instances throughout this chapter where certain individuals or businesses, such as Activision, started small and independent, but gradually moved across the continuum to “AAA”. Therefore, there is the possibility for “indies” to change, to grow, and to only spend a period of time as “indie”. My thesis defines indie as process, and as outlined in the introduction, it is a broad and multithemed definition. Through a reflection of the contested nature of history, these three themes are identified – Indie as Aesthetic Process, Indie as Production Process, and Indie as Community Process. They are then explored more thoroughly in the chapters that follow.

Independent Origins: 1962 - 1977

The origins of the video game are difficult to determine due to what can be constituted as a video game. *Pong* (1972) is regularly credited as the first video game (Barton and Loguidice, 2009), but

evidence of video games can be traced back much earlier than this. *Cathode-Ray Tube Amusement Device* (1947) could be considered the first electronic game.¹³ By analysing the patent for the *Cathode-Ray Tube Amusement Device* filed in 1947 (patent cited in patents.google.com, 2019), it becomes evident that the device utilised a binary mechanic (on/off) control system and thus has a case of primacy. However, there was no coding, artificial intelligence (AI) or computer-generated graphics, and therefore an argument for it as the first video game is debateable. *OXO* (1952) arrived five years later, an interactive program that more closely resembles video games from a contemporary viewpoint. Developed by then PhD student Alexander Douglas during his studies at the University of Cambridge, the video game is an adaptation of *Noughts and Crosses*, also known as *Tic-Tac-Toe* in the US (Cohen, 2018). Unlike the *Cathode-Ray Tube Amusement Device*, *OXO* was played against an AI on a device named EDSAC (Electronic Delay Storage Automatic Calculator) and used a graphical display (Horowitz and Looney, 2014). Another contender for the first video game is *Tennis for Two* (1958), developed by nuclear physicist William Higinbotham, which served as a science experiment to demonstrate the relevance of his scientific research (Kalning, 2013). The game is played on a 5-inch oscilloscope screen, requires two players and is controlled using two separate aluminium controllers (Wardyga, 2018). The Brookhaven National Laboratory (n.d) notes that there are disagreements regarding *Tennis for Two* - or any of the games that came before it - being the first video games because they do not display video signals. This is a convincing argument, although their resemblance to modern video games, predominantly *Tennis for Two*, is evident.

¹³ My thesis acknowledges analogue (paper) based programming, notably Ada Lovelace (1815 – 1852) who is commonly regarded as the first computer programmer (Cellania, 2015; Grace, 2019). Lovelace anticipated computers that would be able to utilise numbers for more than just quantities, and instead be used to compose music, produce graphics, and assist scientists (Cellania, 2015). In theory, Cellania anticipated the rise of video games through paper-based programming over 100 hundred years before the *Cathode-Ray Tube Amusement Device*.

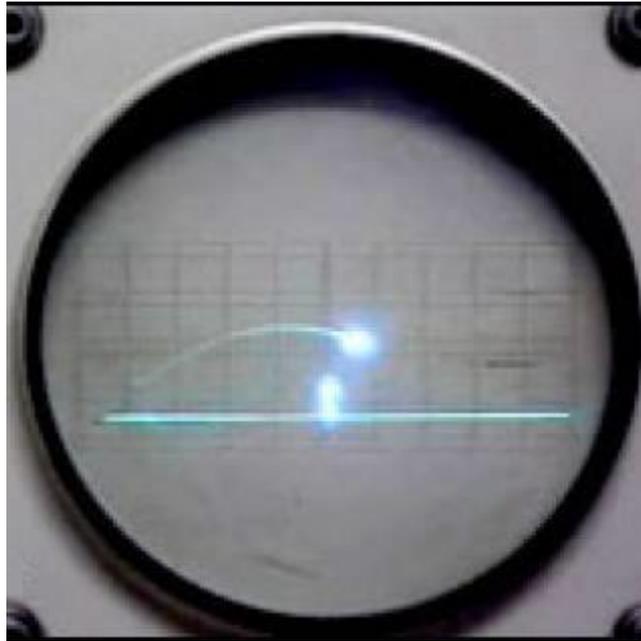


Fig. 1.1 *Tennis for Two* gameplay. (Retrieved from: giantbomb.com)

The first video game to truly demonstrate what video games could achieve was *Spacewar!* (1962).¹⁴ The video game's creator, Steve Russell, notes that depending on how you define video, or computer games, the conclusion of what came first varies. He is aware that interactable programs existed before *Spacewar!*, but argues that because they were not designed as video games, they do not make good comparisons (Russell, cited in Kent 2001). Nonetheless, the influence that *Spacewar!* had on the industry was significant. The initial version pitted two players controlling spaceships against each other, but improved versions quickly followed, incorporating improved graphical effects and scoring (Brandom, 2013). However, these versions were not all developed by Russell, this was before developers could copyright software, and as a result the video game was open-source and had numerous programmers contribute to or “mod”¹⁵ the video game in subsequent years. It was these “mods” and new versions that incorporated new graphics, high-score systems, and even early versions of VR (Virtual Reality) (Brandom, 2013). Thus, *Spacewar!* is not only arguably the first video game, but an example of the possibilities of open source production and “modding”, both of which currently

¹⁴ Interestingly, *Spacewar* is still played by thousands. Valve utilises their own version of the game titled *Spacewar* to test features of their popular online distribution platform, Steam (Grayson, 2017).

¹⁵ “Mod”, short for “Modification”, refers to the way in which video games are modified, commonly post-release and by players/fans of the game. “Modding” and its relationship with “indie” is discussed further in Chapter 4.

share many characteristics with the community process of indie, employing the community to provide new ideas and new ways to play. *Spacewar!*'s modified versions included Player versus Player combat, high-scores and shooting. During my action research, and the creation of my own indie game, it became evident that many of these gameplay mechanics have become essential to the production process of an indie game. Many have become foundations for which video games are created, and as detailed throughout this chapter, are now cemented in developer and consumer expectations.



Fig. 1.2. PDP-1 Computer (Retrieved from: computer-history.info/).

Spacewar! was created on an early, extremely expensive computer from DEC (Digital Equipment Corporation), the PDP-1, a new arrival at Massachusetts Institute of Technology in 1961 (Dellaccio, 2017). Before its imminent arrival, students and university employees brainstormed the best way to demonstrate the power of the PDP-1. Russell, a student at MIT, believed that his “hack”¹⁶ would be an ideal showcase, an interactive video game (Kent, 2001). *Spacewar!* was an extremely successful demonstration of what was possible on rapidly advancing computers, and whilst it is possible to create

¹⁶ “Hacking” in Computer Science does not necessarily mean the same thing in video games, where new programs or revisions of existing ones were considered “hacks” (Kent, 2001). Video game “hacks” are modifying data/files that the developers never intended to be changed, this should not be confused with “mods”, which are often embraced by the developers. Furthermore, “hackers” can also refer to cheaters in video games who use 3rd party programs to cheat in online video games (Bradshaw, 2019).

an argument that *Spacewar!*, and the video games that preceded it were independent, they were never commercial products, and therefore were never theoretically released to the public. This distinction is one way that “indie” and “hobbyist” games are often separated, and as discussed in Chapter 4, “hobbyist” games are less concerned with commercial success. The community and production process of indie is focused on creating an environment where the video game can be seen, and thus increasing its chances to be played. Furthermore, new knowledge has steadily been acquired on older video games, largely due to how they were only generally shown amongst fellow researchers and staff at their universities or institutes (Cohen, 2018). Thus, the early history of video games is subject to change, and it is possible that there are still unrecovered video games that predate those discussed above.

The first known coin-operated video game was *Galaxy Space* (1971), a reconstructed version of *Spacewar!* (Purcaru, 2014), while Nolan Bushnell and Ted Dabney’s *Computer Space* (1971), another video game based on *Spacewar!* (Edwards, 2011), launched a few months later. Unlike *Galaxy Space*, which was not mass-produced and cost over \$20,000 per unit, *Computer Space* was the first commercial video game (Barton and Loguidice, 2009). Although the video game was not a breakout success, co-creator Bushnell was satisfied: “I thought it was a great success, but it could have been better” (Bushnell, cited in Edwards 2011). The following year, Bushnell and Dabney would form Atari (Purcaru, 2014) and hire Allan Alcorn, the engineer behind *Pong* (1972). *Pong* was the first video game to demonstrate the enormous commercial success they could achieve, selling 19,000 units (Edwards, 2011).



Fig. 1.3. Computer Space Machine. Retrieved from: flippers.com

Galaxy Space and *Computer Space* both bore a striking resemblance to *Spacewar!*, consequently it could be argued that they were not entirely original products. Nonetheless, the reliance on alternate versions of the video game would quickly diminish following the success of *Pong*. *Pong* laid the foundations for the first wave of commercial video games, which bore some similarity to the “indies” of today, notably through their self-publishing and micro teams (often just one person). Joyce Weisbecker considers herself the first indie game developer (Edwards, 2017), developing video games for the home console *RCA Studio II*. Weisbecker developed *Speedway-Tag* (1977), submitting the code to RCA; alongside the code was a statement explaining how the video game worked, how many hours it took to develop, and should they wish to purchase and publish the video game, how much it would cost. RCA would go on to purchase and publish the video game.

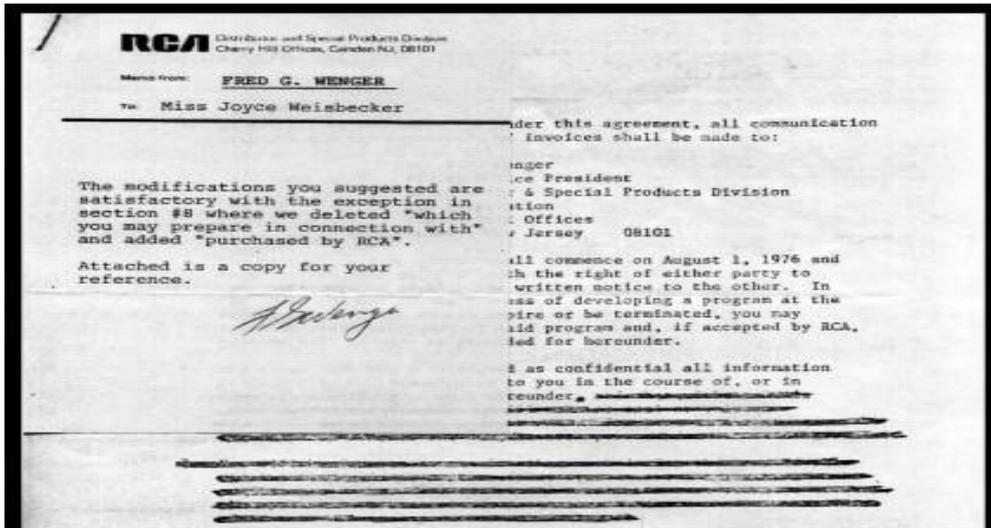


Fig. 1.4. Paperwork documenting Weisbecker's Work (Retrieved from: fastcodesign.com).

This chapter has so far recognised early examples of independent game production. However, my thesis argues that it would be less effective to discuss the independence of *Pong*, or the “indie” characteristics of *Speedway-Tag*, considering the gaming industry was barely established prior to the introduction of home consoles. Therefore, the argument here is that, to identify the importance of independence, it is essential to move to a period when the gaming industry, and most developers, were becoming increasingly dependent on something.

The Beginning of Home Consoles and the Flood of Independents: 1975 – 1980

After the enormous success of *Pong*, Atari launched their first home console endeavour *Home Pong* (1975). *Home Pong* was an immediate success, selling 150,000 units and was the beginning of the home console phenomenon (Maltman, 2010). Because of this success, several other home consoles hit the market shortly after, including the *Fairchild Channel F* (1976) and *RCA Studio II* (1977), bringing in several home console features that are considered standard today, such as colour TV support and interchangeable cartridges (video games).

Home consoles were becoming increasingly common, and the video games often became the deciding factor by which a buyer would choose their console. However, third-party developers were still almost non-existent (Smith, 2017). Console manufacturers such as Atari were opposed to third parties trying to release a video game on their system; their reasoning was that the console itself was

sold at a loss, therefore Atari intended to make their profits by selling software.¹⁷ They believed if third parties released video games for their system, this would be detrimental to their profits (Campbell-Kelly, 2004). Nevertheless, it would not be long before third-party developers would begin to emerge. Activision, founded on October 1st, 1979, were one of the first independent video game developers to resemble independents as they have been commonly recognised in the video game industry. Activision was founded by four developers from Atari: David Crane, Larry Kaplan, Alan Miller, and Bob Whitehead, commonly known as the “Gang of Four” (Fleming, 2007). Because of their experience, they knew how the Atari hardware worked, and how to make video games for the system efficiently. Suddenly, there was evidence of the rise of an “independent attitude” that is at the heart of the production process of indie games. The Gang of Four wanted to break away from the restrictions of production at Atari, desiring creative control and fairer returns for the video games they developed, not dissimilar to modern AAA developers leaving to “go indie” (Grubb, 2017).¹⁸

Crane explains that: “...when I saw a memo that the video games for which I was 100 percent responsible had generated over \$20 million in revenues, I was one of the people wondering why I was working in complete anonymity for a \$20,000 salary” (Crane, cited in Fleming 2007). Atari, knowing that Activision would take a share of their profits, did not want them to make video games for their system. However, all attempts to sue the company would fail, and Activision launched their first video games successfully. In the eyes of the “Gang of Four”, Atari had failed to fairly compensate them for the games they were producing. Activision, by successfully breaking away to create independent games and receiving all the profits, encouraged other developers to follow suit in pursuit of fairer returns. Shortly after Activision’s debut, Bill Grubb, Atari’s vice president of marketing at the time, left the company and founded Imagic, which like Activision, comprised of several employees from Atari. Whilst Imagic was not a long-term success like Activision, it demonstrated a

¹⁷ This is like the strategy that both Microsoft and Sony currently employ. They have, throughout their history, often sold their game consoles at a loss. The strategy here then is similar, to make the money back through other means, such as video game sales and online subscriptions (Srikant, 2019).

¹⁸ Further examples of developers “going indie” are discussed in Chapter 3 and 4.

similar agenda, these developers wanted to break away from the constraints of Atari, they wanted to go against the norm and go it alone as independents (Fleming, 2007).

Miller, sharing how Atari were suing them, claims that Activision were the first of their kind: “They sued us repeatedly. We were the first independent video-game publisher. Before us, games were published by hardware manufacturers...” (Miller, cited in Kent 2001). However, the meaning of independence in the late 1970s differs from the current usage of the term “indie”. Therefore, it is crucial to re-establish the context that informed its initial meaning, and how can this lead to a better understanding of “indie”. Activision were a turning point in the rise of third-party developers, but they were not seeking new philosophical video game design values that were radically different from those seen at Atari. Activision, like Atari, wanted to generate as much revenue as possible, and to do so they had to branch off from Atari and go their own way, permitting them to accumulate a far higher income than would have been possible at Atari, where most of a video game’s profits were not distributed to their creators. The types of video game that Activision were developing were not radically different to those that their developers been previously working on at Atari. Indeed, initial releases such as *Fishing Derby* (1980), *Boxing* (1980), and *Skiing* (1980) share the same themes as several of their Atari releases, *Basketball* (1978), *Bowling* (1979), and *Football* (1979). More recently, as demonstrated in Chapter 3 and 4, breaking away to “go indie” is often associated with creating different types of video games. Instead, these were video games tapping into identified popular markets, focusing on profit, in the same way that they had at Atari. Designers working for Atari were provided creative freedom, and as previously mentioned, the “Gang of Four” were already 100 percent responsible for their video games at Atari. Thus, in terms of creativity, little had changed. The split from Atari was about commerce, and when Activision reference themselves as the first of their kind, they are referring to the rise of third-parties, being the first one to break away from Atari and go it alone, not something akin to titles that would come later down the line, such as FPS (First

Person Shooter) *DOOM* (1993) where the attitude would of the developers would show similarities with the indie process.¹⁹

There is a difference in the independent that Activision defined themselves as, and the way in which independent and “indie” are understood today. As explored above, there is a key moment in history where developers like Activision broke away from platform holder Atari, pursuing new ways of developing and releasing video games. At this point Activision were considered independent, but today Activision are considered one of the largest video game publishers in the world (Pickell, 2019). Activision still self-publish their games, and in this sense - not much has changed. However, the video game industry is a vastly different place; Activision’s video games are much bigger endeavours, demanding enormous budgets and team sizes. This all suggests one thing, considerations of what make something independent can change over time. The same can be said for “indie” – indie games are commonly expected to avoid publishers. However, there is a dislocation between audience expectations and the realities of the current indie production process. Once again, the environment for game production is shifting, production costs are increasing (even for “simpler” aesthetic styles such as 2D pixel art, see Chapter 2) and more indie games are releasing every year. Thus, “indies” are turning to publishers, with many of them often known as “indie publishers”. These publishers are not interfering with the numerous characteristics associated with “indie” such as originality, risk taking, and experimentation. Once again, what the term means to people is changing, and therefore Chapter 3 explores how it can no longer be considered a requirement or expectation for “indies” to avoid publishers.

¹⁹ *DOOM* then, had an “indie like” development attitude. However, in context of the early 90s team sizes, the numbers behind *DOOM* were also comparable to indie. For comparison, *Star Fox* (1993) from Nintendo launched in the same year for the *SNES* and demonstrates the necessary manpower for a game pushing the boundaries of polygonal graphical technology. The development team size of *Star Fox* is not readily available, however by analysing the end-credits of the original video game, it is evident that there are thirteen core developers and three software support staff. The Super FX chip which was required to power *Star Fox* was not internally developed at Nintendo, but was instead outsourced to Argonaut Software, a British development company who specialised in polygon graphics (Arsenault, 2017). Argonaut Software also helped develop the video game and comprised of five credited staff members in the video game’s credits, totalling twenty-one credited staff for the video game. *DOOM* does not contain an end-credits scene, but according to website Gamasutra, the entire company comprised of seven people (Antoniades, 2013). *Star Fox*’s team size may seem small by today’s standards, but it was at least three times the size of *DOOM*’s.

The Flood of Independent Developers: 1980 – 1984

Atari's dominance of software on the Atari 2600 would quickly diminish, and by the time of the well-documented video game crash of 1983, the number of third-party independent publishers for the system had grown from a compact publishing list such as Atari, Activision and Imagic to over thirty publishers (Wallett, 2016). Nevertheless, what should have been a movement that was celebrated as the rise of third-party studios, independent production and most of the profits going to the creators rather than Atari, was instead commonly attributed as being one of the main factors that almost ended the video game industry (Lambie, 2013). Rather than provide considerably more video games for people to experience and enjoy, the market was beginning to overflow with low-quality video games (Lambie, 2013). This is contrasting to the modern indie developer, where the production process is characterised by the opposite - creating innovative, high quality video games that people want to play. Instead, these independent developers were chasing profits following the "video game boom of the late 1970s" (Adams, 2003). Many of the developers were inexperienced, and therefore unable to satisfy consumers, who had understandably begun to anticipate an improved experience in comparison to video games that had released several years prior (Wolf, 2012). Indeed, modern indie developers can be inexperienced, but the production process of an indie game is now associated with accessible game tools. Not only in their affordability, but their ease of use.²⁰ Alongside this, they can utilise online communities to seek feedback from consumers or assistance from other developers.

It was not only the independent developers that had failed to produce quality video games. Atari acquired the rights to produce a port of *Pac-Man* (1980) for the *Atari 2600*, but whilst the video game was extremely anticipated at the time (Chandler and Chandler, 2010), the port was considered a disaster: "Atari's edition of *Pac-Man*, which was a terrible job. It was amazing that they produced such a flickery, unresponsive game. Although they sold many copies, paradoxically the more copies they sold, the more people they turned off" (Katz, cited in Kent 2001). Numerous copies of the *Pac-*

²⁰ Game tools and how they can shape the production process of an indie game is explored in Chapter 3.

Man (1982) port that sold were returned,²¹ and this damaged many consumers' trust in the company (Oxford, 2011). Atari proceeded with another highly anticipated video game - this time a video game adaptation of the extremely popular film, *E.T. the Extra-Terrestrial* (Spielberg, 1982). However, the video game adaptation *E.T. the Extra-Terrestrial* (1982), which used the same name and characters from the film, was another disaster.²²In a period where video games would generally take up to six months to develop, the video game was created from scratch in six weeks, and despite evidence of the video game's extremely low quality, the video game was still released to meet its short deadline (Kaplan, 2013). Following the negative reception of *Pac-Man*, *E.T. the Extra-Terrestrial* failed to achieve anywhere close to the sales expectations, and as a result, Atari was left with millions of unsold cartridges (Arsenault, 2017). Atari found themselves with two consecutive disasters, a flood of low-quality third-party titles, and over \$500 million in losses. Consequently, the company failed to recover and was sold in 1984 (Guins, 2014).

This approach of building anticipation and under delivering is naturally not sustainable, and it is a lesson that feeds into modern game production. Building communities, managing expectations, and gauging consumer demand are key aspects of the community process of "indie". However, there is unfortunately an unpleasant aspect of game production that has remained intact. Tight production times, and unreasonable deadlines have plagued the video game industry throughout its early history. This is now referred to as "crunch", where developers begin working extremely long hours to release their games on time. This may have only hit the headlines in recent years, but looking at the history is essential because it unearths how "crunch" has embedded itself in video game production culture. Chapter 3 explores "crunch" in more detail and identifies that whilst "crunch" is often associated with "AAA", it is unfortunately apparent throughout the entire industry, including the production process of indie games.

²¹ As stated by Kats, the *Pac-Man* port sold over 7 million copies. An enormous success even by modern standards. However, Atari over confidently produced 12 million copies of the game (Bartner, 2012), and thus many copies were left unsold, placing a large dent on the profits.

²² *E.T. the Extra-Terrestrial* also impressively sold over 1 million copies. However, this is less impressive when considering the game remains one of the most expensive video games of all time to develop (Rabin, 2012; Hooper, 2016)

Nintendo's Seal of Quality and the Shift Away from Independent Production: 1985 - 1988

The massive losses Atari suffered, coupled with the diminishing Arcade market resulted in a consensus that the video game industry was almost dead (Taylor and Parish, 2007). When Nintendo were planning to try and revive the gaming industry with their new console, the *NES* (Nintendo Entertainment System), the idea of entering this “dead market” (Hadzinsky, 2014) was absurd to the print media. However, it would eventually become apparent that the release of the *NES* would change the video game industry forever. Not just the quality of the video games, but the way the video games were developed, sold, and marketed (O'Donnell, 2014). Nintendo, unlike Atari, did not want to prevent third parties from releasing video games on their system, and if they had, their software catalogue would have been significantly weaker. However, Nintendo believed they knew why the market had rapidly faded, they claimed that the quality of the software was the main issue and regaining the trust of consumers was one of their priorities (Kent, 2001). Nintendo's most important message was to assure the consumer that the product was of a high quality, and that those who felt they had been sold subpar products on the *Atari 2600* and other consoles would not have the same problem when buying software for the *NES*. Nintendo achieved this by creating the “Official Nintendo Seal of Quality” logo and placing it on each product released for the *NES*, this would be their means to certify that the product was of an appropriate quality (Gard, 2017).



Fig. 1.5. Nintendo's Official Seal of Quality (Retrieved from: redbubble.com).

It was the Official Nintendo Seal of Quality that consumers would see on the *NES* boxes and that would “guarantee” quality, but there was more going on behind the scenes that would shape the future of the industry (O'Donnell, 2014). Nintendo introduced a new licensing business model, which was

extremely restricting, third parties would only be licensed to develop and release five video games on the *NES* per year, and each of the titles released would have to be exclusive to the *NES* for two years. Third parties would also have to purchase their cartridges through Nintendo, and a minimum order was also essential before Nintendo would give the go-ahead to the manufacturing process of the product (Hill and Jones, 1988). This prompted the beginning of a shift away from characteristics resembling the indie production process, such as those seen by third-party developers like Activision following their break away from Atari. At this point, manufacturing costs would prove too costly for smaller developers. This restrictive licence was met with a lot of backlash, including Atari taking Nintendo to court over the matter, however Nintendo would win the case and it could be considered one of the first steps to preventing the video game crash of 1983 reoccurring (Altice, 2015). Whilst this restrictive licensing agreement is deemed archaic by today's standards, similar approaches can still be seen from Nintendo, Sony, and Microsoft. Nevertheless, this licensing agreement would make it very difficult for smaller companies (independents) to develop video games for the *NES*. This was the beginning of the shift towards "AAA" in the video game industry.

The Origins of AAA: 1985 - 2000

As mentioned previously, "AAA" is the way in which the video game industry commonly describes video games developed with a large budget and production team. Like the term "indie", varying factors cause some confusion defining "AAA". This is inevitable when a large amount of discourse revolves around whether a video game is "indie" or "AAA", disregarding any in-betweens or video games²³ that may not fit in to either discussions. For instance, video games that come from larger, "big name" studios but have a relatively smaller team and budget often introduce debate on whether the video game is or is not "AAA" (IGN, 2014; Gamefaqs, 2018). Lewis Pulsipher in his book *Game Design* (2012) argues that it is impossible to develop a AAA game with a small team because of the sheer amount of raw work that goes into such a project, noting that *Bioshock* (2007) contained over 750,000 lines of code, which would take an individual, or small team, years to input. Whilst Pulsipher

²³ Other video games include, but not are limited to "Hobbyist" projects, Flash games, total conversion "mods" and "hacks".

makes a valid point, it is also important to note that as technology advances, and video game engines become easier to use, it becomes increasingly efficient to develop video games (Anthropy, 2012). A video game that took 750,000 lines of code in 2007 will take considerably less several decades on. Therefore, an AAA game should not be characterised by how it looks or plays, but rather by the process of its production, the same way in which my thesis argues “indie” can be defined. As discussed in greater detail later in this chapter, with each console generation the budget and size of production teams expands, and criteria that were used to define “AAA” in the *PlayStation 2* (2000) generation will be evolve in light of the budgets and technical ambition of *PlayStation 4* (2013) video games and beyond. It is unlikely that the term Quadruple-A (“AAAA”), or the unsuccessful attempt by CD Projekt to coin the term “AAA+” (Purchase, 2011) will emerge to demonstrate that studios are now using more resources. Thus, the prerequisites of “AAA” are continuously evolving and adapting to the environment of the video game industry.



Fig. 1.6. *Bioshock* gameplay. Retrieved from: polygon.com

Chad Hadzinsky (2014) believes the term “AAA” derives from a common grading system in America, with each “A” symbolising increased quality/success. However, Hadzinsky notes that the meaning of “AAA” has changed somewhat since its introduction, with studios now commonly deeming their video games to be “AAA” long before they have arrived on the market. In this context, “AAA” has become less about success or reception, but rather the goals of the studio. Comparatively, it would be

akin to a student declaring they intend to achieve the highest grades, whilst supporting this intention through the number of hours and resources they have allocated to their preparation. Nonetheless, despite some confusion, the research conducted throughout my thesis demonstrates that whilst the term “AAA” may not be conclusive, in comparison to “indie” it carries a much more consistent consensus amongst consumers and academics.

According to Warren Schultz (2018) it was the late 1990s when Sony entered the industry with the *PlayStation* and studios began using the term “AAA” at conventions. This point in history demonstrates that whilst use of the “AAA” term began over a decade after Nintendo introduced the *NES*, Nintendo’s Seal of Quality instigated a change in how studios were approaching the production of video games. Additionally, the similarities to “AAA” are clear, Nintendo’s licensing model entailed a sizable budget to tackle production costs, advancing technology and increased expectations ensued larger team sizes. Indeed, this was the opposite of what independents could produce, and consequently was the beginning of the significant divide between independents and “AAA” that still exists today. This division prompted independents to find ways to offset these limitations, giving birth to games produced with smaller teams, reduced budgets and a focus on community that are all now commonly associated with indie. Nintendo’s Seal of Quality conveyed the message of budget, scope and “quality”, and likewise, most large studios that were now developing for PlayStation self-branded themselves as “AAA” to send a similar message (Hadzinsky, 2014). Through the incorporation of CD-ROMs, the *PlayStation* could store far more data than that of cartridges used by other consoles, including the *NES*, *SNES* and *Mega Drive*. Developers quickly began taking advantage of this increased storage by utilising full motion video, pre-rendered backgrounds, and 3D graphical effects (Leone, 2017). Unsurprisingly, this increased the average budget considerably, and as studio budgets were getting closer to that of a blockbuster movie, the term “AAA” was the video game industry’s method of demonstrating that a video game could be the equivalent of a blockbuster film. In 1983, the year that the *NES* launched, *Star Wars: Return of The Jedi* (1983), *Octopussy* (1983), *Superman III* (1983) and *Scarface* (1983) amongst others had budgets of over twenty million dollars (Thenumbers, n.d; Boxofficemojo, n.d). An assessment of the production budget of films is common, frequently

discussed and recorded on websites and printed sources. The production budget of most films is on view for anyone at both Wikipedia.com and IMDB.com, whilst not necessarily providing a guarantee of accuracy, those same websites rarely make any mention of a video game's production budget. There are a few outliers, such as estimates on the production costs of blockbuster games like *Red Dead Redemption 2* (Goldberg, 2018; Takahashi, 2018) or a confirmation on *Cyberpunk 2077's* £217m budget (CDProjekt.com, 2021; Yin-Poole, 2021). However, the reality is that obtaining video game production budgets, estimates or not, is far more difficult.

It is no surprise then, accurately determining the budget of a modern video game is difficult, and this becomes increasingly challenging when investigating video games from earlier moments in history. However, this is not to say it is not possible to make a comparison. The average team size for a *NES* video game was six to seven people, and this had almost tripled for the *PlayStation* (Fullerton, 2014), with some video games like *Final Fantasy VII* (1997) boasting a team size of around 150 (Leone, 2017). Studios also began changing how they sold and marketed video games, with *Final Fantasy VII* investing tens of millions of dollars in marketing on TV and print (Leone, 2017).



Fig 1.7. *Final Fantasy VII* was a technical showpiece in 1997. Retrieved from: polygon.com

It is crucial that the secretive history of the video game industry is understood, for it informs an understanding of the impact made by the modern indie game. Through looking at video games in a historical context, even without specifics it is evident that the budgets of several video games had increased dramatically with each console generation, but the means in which these studios operated on

a day-to-day basis remained shrouded in secrecy. It is not surprising then, that studies like Casey O'Donnell's ethnographic research into the production, publishing and distribution of video games was an extremely rare and unusual insight into the video game production process (see Chapter 3). The arrival of the indie game, and the lack of secrecy in their production process would change the discourse of video game production. Suddenly, numerous indie developers were revealing how video games were produced from pre-production to release, the good and the bad (see Chapter 3 on "crunch"), and ultimately, providing the world with a new understanding of video games. It is through this increased exposure that it has been made possible to begin forming new understandings of "indie", to define indie as process.

At this point, it is useful to return to earlier periods in history to investigate former, less recognised communities and how they are utilised to offset their limitations. Through an analysis of these communities, the intention is to use this research to inform an understanding of the indie community process.

The Rise of Shareware: 1987 – 1996

Nintendo's strong stance against lower-quality video games had a negative impact on independents and smaller companies. Nintendo's licensing requirements made it difficult for independents to manufacture their video games, requiring ten to fifteen dollars per cartridge, alongside the normal manufacturing costs, all of which had to be paid up-front. This would result in an extremely expensive agreement, one that would likely prove too costly for a smaller company (Miller, cited in Kent 2001). Furthermore, on top of all costs required before manufacturing could begin, the costs of production were beginning to increase. For example, *The Legend of Zelda* was the first home console video game to use an internal battery (Harrison, 2012). This enabled the player to save their progress onto the cartridge, and then resume progress even when the console had been switched off. Although this is a normal feature in modern video games, this was considered revolutionary at the time, replacing the previous password system that required players to write down extremely long passwords every time a specific section of a video game had been completed (Barton, 2008). The use of internal batteries would pave the way for increasingly complex video games, video games that could now be far larger

in scope. As a result, video games were increasing in complexity, the graphical fidelity, gameplay options, and AI (Artificial Intelligence) were improving year on year, and consequently, the expertise required from video game developers was increasing (Zackariasson and Wilson, 2014). This increased complexity was changing how the production of video games was being approached. Previously, it was not uncommon for video games to be developed by a single person, whereas several years into the *NES*'s lifecycle, studio production, whilst not entirely the norm, was becoming more common.

This led to independent developers of the 1980s needing to uncover other means to produce and distribute their own video games. In the early-mid 1980s, when, as previously discussed, the video game industry was deemed dying, it was the *Commodore 64* and *Apple IIc* that were considered the systems of choice for video games. When Nintendo showcased their upcoming video game console, the *NES*, they were ridiculed by many video game developers, with the *Commodore Amiga* and *Atari ST* regarded as the best upcoming platforms for video games (Fischbach, cited in Kent 2001). Both the *Amiga* and *Atari ST* were family computers, advertised as “all in one” computers that could play video games and accommodate all business needs, it was assumed that home consoles that were solely for video games were no longer necessary (Oxford, 2012). However, it would be the *NES* that would go on to command most of the market, selling over 60 million units (Detweiler, 2010), whilst the *Commodore Amiga* and *Atari ST* would face fierce competition with the rise of the PC (Reimer, 2005). Even though the *NES* was originally met with little optimism, by the end of the 1980s even dedicated personal computer developers Acclaim would begin to bring their video games over to the machine (Horowitz, 2006).²⁴ While home consoles were dominating the video game market, there were still video games being developed for the personal computers during this period, but these were generally limited to flight sims, and reiterations of golf board games. However, there was a movement that was quietly growing in the background, a scene that would produce some of the most recognisable video games of all time. This scene would give rise to the personal computer as a gaming platform (Clarke, 2009). This movement was known as “shareware”.

²⁴ More PC publishers would begin to move over to consoles with the launch of 16-bit Hardware, such as the *Mega Drive* and *SNES* (Hawkins, cited in Horowitz 2006).

The personal computer was increasing in popularity, and as a result, there were more and more people with the tools for video game creation. “Shareware”, as the name suggests, was a popular term that describes a type of proprietary software that was released by the developers for free and encouraged to be shared during the early eighties and throughout the nineties (Anthropy, 2012). This was during a period where the licence fee for consoles was becoming increasingly expensive and publishers were becoming one of the dominant forces in the industry. Whilst the personal computer enabled anyone with the necessary video game production knowledge to create video games, distributing them was at first seemingly impossible. However, through “shareware”, smaller companies found a way to distribute their video games whilst offloading most of the cost and responsibility to the players themselves. The first step was for developers to share their creations via floppy disks or by uploading their software onto the Bulletin Board System (BBS), where full video games could be downloaded and played, the player would then be encouraged, if they liked the video game, to share it with friends and family (Clarke, 2009). All of this is characteristic of the indie community process, where there is a reliance on their communities to help achieve success. In addition, without the means for many indie developers to broadly promote their games, there is a reliance on word of mouth marketing from consumers.



Fig. 1.8. *Castle Adventure*, developed by 14-year old Kevin Bale (Retrieved from: eurogamer.net).

“Shareware” developers would go to great lengths to encourage the sharing of their video games, because by increasing the number of people sharing them, the number of people aware of the developer and their video game would also increase. However, encouraging gamers to share the video game is only half the journey, getting them to become a paying customer is the end goal. Encouraging recipients of “shareware” to pay for video games was difficult, and if a developer wanted to continue making video games, they needed to be making a profit. A comparable hurdle to “shareware” is evident in today’s mobile video gaming market. Encouraging a consumer to buy a video game for a mobile device is difficult, difficult enough that even big names like *Super Mario Run* (2016) struggle, where only five percent of the people who download the video game would purchase the full version (Frederiksen, 2017). As more and more free video games become available, the amount of time gamers spend on them decreases, and companies must invent new ways of keeping the consumers’ interest long enough to encourage them to continue investing in the video game. Shareware games were originally complete experiences, meaning that it was not a demo, but rather a full, feature-complete video game that was being shared throughout these communities. When playing a shareware video game, the player would often find an accompanying message either separately, or within the video game itself, encouraging them to send a donation to the developer if they were enjoying the experience, and consequently, wanted to support the developers.

Unfortunately, developers quickly realised that encouraging people to become paying customers was extremely challenging, made increasingly difficult because players could play through the entire video game for free. As a countermeasure, developers began incorporating bonuses to players that chose to spend money on the video game. Thus, the recipient of the video game was encouraged to not only share the video game if they enjoyed it, but also send a donation to the developer of the video game and receive a reward for doing so, such as video game support, additional content or updated versions of the video game (Taylor and Parish, 2007). This is reminiscent of the intimate relationship between indie developers and their audience, where the ability to communicate with the developers directly, rather than a faceless corporation has become valuable

to indie consumers.²⁵ However, Apogee Software, now known as 3D Realms, recognised that just offering minor rewards, such as video game support or additional content, would not be enough to encourage most players to become paying customers (Clarke, 2009). Apogee Software had tested the old model with several releases (Plante, 2017), but for their next video game they planned to try something different; they needed to ensure their products were making enough profit.

For Apogee Software's next video game, *Kingdom of Kroz* (1987), this new method was implemented. The video game was released in episodes, with the first episode being released as traditional "shareware". This episode could be downloaded for free, and then shared amongst communities like the "shareware" that had come before it (Plante, 2017). However, the first episode was unlike the video game demos of modern gaming, and was regarded as a full, feature complete video game. This episode could be played from start to finish, offering several hours of gameplay and came complete with most features that gamers would expect from a finished video game, such as multiple weapons, enemies, and areas (Chyou, 2011). However, the drawback here was that only the first episode was released as "shareware", subsequent episodes would require the customer to phone Apogee to purchase, with the first episode typically ending on a cliff-hanger. On the registration screen of *Kingdom of Kroz*, this strategy was implemented:

This is Volume I of the *Super Kroz Trilogy*. *Return to Kroz* is a shareware game, which means it is user supported. If you enjoy this game you are asked by the author to please send an appreciation check of \$7.50 to Apogee Software. This minimal amount will help compensate the many months of work that went into the creation of this game. Also, this registration fee will allow you to order the two non-shareware sequels: *Temple of Kroz* (Volume II) and *The Last Crusade of Kroz* (Volume III)

²⁵ Developer communication and feeling heard was the most frequent response in my questionnaire as to why consumers valued indie communities. This is discussed further in Chapter 4.

Apogee Software’s new method of distributing “shareware” was extremely successful, initially earning the company \$4,000 per month, and which would eventually rise to \$200,000 (Plante, 2017). This strategy became known as the “Apogee Model” (Pinchbeck, 2013). The success of the Apogee Model did not go unnoticed, and by 1991, many video game studios such as id Software, Activision and Epic Megagames (now Epic Games) had adopted Apogee Software’s innovative approach (Chyou, 2011). Remarkably, the Apogee Model can still be seen in effect decades later (see Fig 1.9 and Fig 1.10).



Fig. 1.9. *Life is Strange: Episode One* free example (Retrieved from: store.steampowered.com).



Fig. 1.10. *Resident Evil Revelations 2: Episode One* free example (Retrieved from: Windows 10 Store – Screenshot).

The origins of independent distribution reveal how a reconsideration of this history can influence an understanding of indie as process. More recently, indie developers, like the independent developers before them, are now utilising the distribution methods currently available to them. This reveals a similar theme, and although most indies are no longer utilising models resembling the Apogee Model - many of their goals remain the same. Independent developers utilised “shareware”, and the Apogee Model, to get around high production and marketing costs (see Chapter 3). Today, as is explored

through the case study of *Stardew Valley* (see Chapter 4), the indie community process now involves developers finding new ways to market their games and build trust in their product. “Shareware” was about independent developers utilising the community to achieve things that may have seemed impossible. Now, indie developers are not only utilising new means of distribution, but new means of communication. However, around the time “shareware” was hitting its stride, there was a new and streamlined method to develop video games that would share some similarities to the indie process, *RPG Maker*.

RPG Maker: 1992

In Japan, the best-selling video games of the early 90s were commonly RPGs (Role-Playing Video Games), and big hits such as *Dragon Quest* and *Final Fantasy* spawned an extremely successful series of video games that continue to thrive today. RPGs like *Final Fantasy* are commonly story and character-focused, inviting the player into an entirely new world, containing potentially hundreds of hours of gameplay and many secrets to uncover. As a result, the player would often become invested in these worlds for significant lengths of time, and when they had finally completed the video game, they would dream of creating their own adventures or continuing old ones. Thus, it is no surprise that *RPG Maker* (1992), developed by ASCII, was highly successful, allowing the user to purchase the software and create full-length RPG video games. Thousands of gamers downloaded the engine, believing they could make the next big RPG hit.

Despite *RPG Maker*'s popularity, there remain few well-known video games released using the engine from the sixteen years since it came to the market, and there was no *Super Meat Boy* or *Braid* equivalent. The engine never delivered the next *Dragon Quest* or *Final Fantasy*, that perhaps some expected it would. For many users, their dreams were shattered when they downloaded *RPG Maker* to begin creating video games, and then quickly realised they did not have sufficient technical skills to develop a complete video game, nor the knowledge to create video game art (Zavarise, 2017). The lack of established internet communities would further reduce the chance of developers being able to complete projects. In comparison to the indie production process, and in the context of the

video game created for my action research, an aspiring video game developer has access to thousands of online tutorials, videos, books and online message boards that were not available in the 1990s. Thus, armed with the motivation and determination to learn, amateur developers now have easy access to all the resources required to create a full-length video game. However, ASCII anticipated that this would be the case, and therefore assumed that thousands of their users would not have any prior experience developing video games. As a result, they included many free assets, characters, and code to get beginners up and running quickly.

Degica, the English translator and publisher of *RPG Maker* explained that the idea behind the engine was to supply several free starter packs of assets and then encourage the user to create new assets to expand their options in the same art style (Zavarise, 2017). However, as previously mentioned, there were not many learning resources for aspiring developers, therefore many users did not have the required skillset to create their own art, and instead they would pull art and sprites from popular RPGs at the time, for instance, *Chrono Trigger* (1995). There are similarities that can be drawn with the indie aesthetic process; whilst examples like *Chrono Trigger* are appropriation, indie developers are using an art style from an earlier time. They are borrowing a similar aesthetic to games like *Chrono Trigger*, but re-contextualising it – a self-conscious decision to make their indie game play and/or look a certain way but with some modern gameplay additions. Indie games like *Black Sigil: Blade of the Exiled* (2009) are key examples of this (see Fig 1.12 and 1.13).



Fig. 1.11. *Chrono Trigger* sprite sheet (Retrieved from: forums.rpgmakerweb.com).



Fig 1.12. *Chrono Trigger*. Retrieved from: gamasutra.com



Fig 1.13. *Black Sigil*. Retrieved from: youtube.com

Video game production remains shrouded in secrecy; the true nature of the production process is relatively unknown, with several common myths that, despite how incorrect they are, do not show any signs of disappearing.²⁶ Common myths of video game production include playing video games all day, creating any video game you want, and having access to resources that do not require hundreds of hours to create (O'Donnell, 2014). Unsurprisingly, these myths would have had a far stronger presence in the early 1990s. The secrecy of video game production meant that many aspiring developers were unaware of the hundreds of hours required to create new art, write new code, and test

²⁶ This viewpoint primarily stems from the experience of creating an indie game for my thesis (see Chapter 3). The stories of successful indies portray that making games is possible by anyone, and indeed it is. However, the amount of skill, time, and dedication necessary is severely understated.

and create a working video game. Thus, wishful developers would begin using the supplied free assets but eventually require more. They would come to the realisation that it was too difficult for them to create their own original assets, and would instead resort to pulling them from existing, popular video games. The result was a flood of low-quality, visually jarring video games (Conforti, 2015). It was not only the aesthetics that created issues - the myths of video game production meant that users believed they could get a video game up and running quickly, and using *RPG Maker* they could, but this meant using provided title screens, menus and fonts. Alongside the character and world assets, this would result in almost all *RPG Maker* games looking and feeling very similar (see Fig 1.16 and Fig 1.17).

Following hundreds of low-quality *RPG Maker* games, the engine has accumulated a stigma,²⁷ with the general community quick to disregard video games made using the engine (Steam, 2019). *RPG Maker* and indie games are both commonly identified by how they look. However, a consideration of the aesthetics from indie games *Braid* and *Super Meat Boy* (Fig. 1.14 and Fig. 1.15) and *RPG Maker* games (Fig. 1.16 and Fig. 1.17) demonstrates several key differences.



Fig. 1.14. *Braid* (Retrieved from: mubi.com).

²⁷ There are numerous discussions on the negativity that surrounds RPG Maker (Reddit, 2016; Steam, 2017; Zavarise, 2018).



Fig. 1.15. *Super Meat Boy* (Retrieved from: pcgamer.com).



Fig. 1.16. *RPG Maker* (Retrieved from: rpgmaker.net).



Fig. 1.17. *RPG Maker* (Retrieved from: humblebundle.com).

A common discussion is that many, or most indie games look similar (Couture, 2016; Resetera, 2018; Juul, 2019), but my thesis, using the above images as examples, argues that rather than solely the aesthetic, it is the process that constitutes an important distinction between “indies” and AAA games, therefore making them instantly recognisable. It is evident that both *Braid* and *Super Meat Boy*, as demonstrated above, do not share any resemblance in their aesthetic choice. However, both video games are 2D platformers,²⁸ and both video games are representative of the indie production process – two games that despite looking different, share similarities in their risk taking, experimentation, and distinctions in comparison to “AAA”. Thus, whilst indie games are often praised for providing original experiences not found in AAA games, *RPG Maker* games are usually ignored for the

²⁸ Platformers are a genre derived from video games like *Super Mario*, where the emphasis is on jumping between platforms.

contrary. Furthermore, there are several similarities between both the “indie” and *RPG Maker* scenes, such as personal stories, and a focus on making video games the creator themselves would want to play (Steam, 2019). Once again, all of this is characteristic of the indie production process, where an indie mindset is at the heart of what constitutes as being “indie”. Nonetheless, the existing space for an *RPG Maker* to flourish in the 90s was relatively small, and even though technology advancements created that space, as demonstrated by the rise of the “indies”, *RPG Maker* games still carry a tarnished reputation. This emphasises the consumer’s demand for original experiences; for example, whilst the *Final Fantasy* series may re-use enemy designs from the first to the fifteenth entry, the enemies are always created from the ground-up to suit the tone and style of the video game and its world. Recently, *To the Moon* (2011) demonstrates the potential of *RPG Maker* games, and their potential for success when a developer employs entirely original assets, music, and gameplay.

This leads to a realisation that there is a type of aesthetic blueprint that can be contested in the modern day but has its roots in a historical moment (see Chapter 2). The games being made through *RPG Maker* share many aesthetic properties with modern day “indies”. This is no different when analysing modern day *RPG Maker* games, they too look like those that released decades prior. However, upon closer inspection, the realities of their quality become apparent. Video games are more than a visual piece, and as discussed above, the early *RPG Maker* games were deemed “amateur” and did not deliver the quality of gameplay that fans had come to expect (Zavarise, 2017; Clarke and Wang, 2020). In contrast, the indie process results in video games that meet their audience expectations; not just by how they look, but also how they play. This is evident through the typology (see Chapter 2), where hundreds of indie games utilise an aesthetic that resembles older games, but still achieve critical acclaim, and therefore meet their audience expectations. The *RPG Maker* software itself may have garnered a negative reception, but it was the developers themselves who lacked the resources to create video games that played, and not just looked like the video games they were inspired by. The general consensus is that developers of modern video games have far more resources available to them, and are able to utilise online communities, blogs, and videos to learn how to create video games more effectively (Juul, 2019; Clarke and Wang, 2020). Chapter 3 draws on my

action research to interrogate this further, to establish the connection between the production process and the indie game.

An investigation into the history of *RPG Maker* allows us draw on this research to further understand “indie”. My research demonstrates that similar motivations were at play for *RPG Maker* developers and modern “indies”. However, early *RPG Maker* developers were lacking the resources to achieve their visions, produce, and share their creations. This is no longer the case, and Chapter 3 identifies that there are now superior alternatives for video game production, such as *Unity* and *GameMaker*. Thus, developers who are more serious about video game production will typically use other video game tools. Nonetheless, early *RPG Maker* games were considered inferior alternatives to games that were releasing in the 90s. It would be the arrival of Sony, and then Microsoft, and the arrival of “AAA” that would see the general perception of independent games begin to shift.²⁹

Shift to Studio Production: 1990 - 1994

Studio production, echoing film production, has now become the standard as video games have become increasingly complex. As previously discussed, video games started out small; many video games from the *Atari 2600* and *NES* were created by only a handful of people, and on occasion, a single person (Kent, 2001). Some of the most famous video games of all time, such as the original *Super Mario Bros (1985)* were created by a single designer (Shigeru Miyamoto) and a few programmers (Nintendo.com, n.d.). Not only were the teams smaller, but the production times were much shorter than those often seen today, with a video game rarely taking over six months to completely develop (see Fig 1.18 and 1.19). Tracy Fullerton, video game designer and author, cites Steve Ackrich’s estimates of the increasingly demanding video game production process in her book

²⁹ Following the launch of the Sony’s *PlayStation* (1994), and later Microsoft’s *Xbox* (2001), focus was shifting to state-of-the-art graphics and a more cinematic experience. This shift was made possible by improved technology and contributed to video games becoming increasingly mainstream (Hester, 2019). This new philosophy, which would become known as “AAA”, naturally demanded significantly larger budgets. As a result, this further emphasised a reliance considerable commercial success, a reliance that independents might not share, and therefore could be more experimental and take more risks. Thus, it is no wonder that “indie” and “AAA” are commonly considered in opposition (Cole and Zammit, 2020). Nonetheless, as demonstrated throughout this chapter, it is important to observe that there are still crossovers and not every characteristic is in opposition.

Game Design Workshop (2014). Ackrich, utilising decades of experience in the industry, identifies a trend in the number of personnel required to create a “A-List” video game, in that since the beginning of the video game industry, the average production team size has steadily grown.

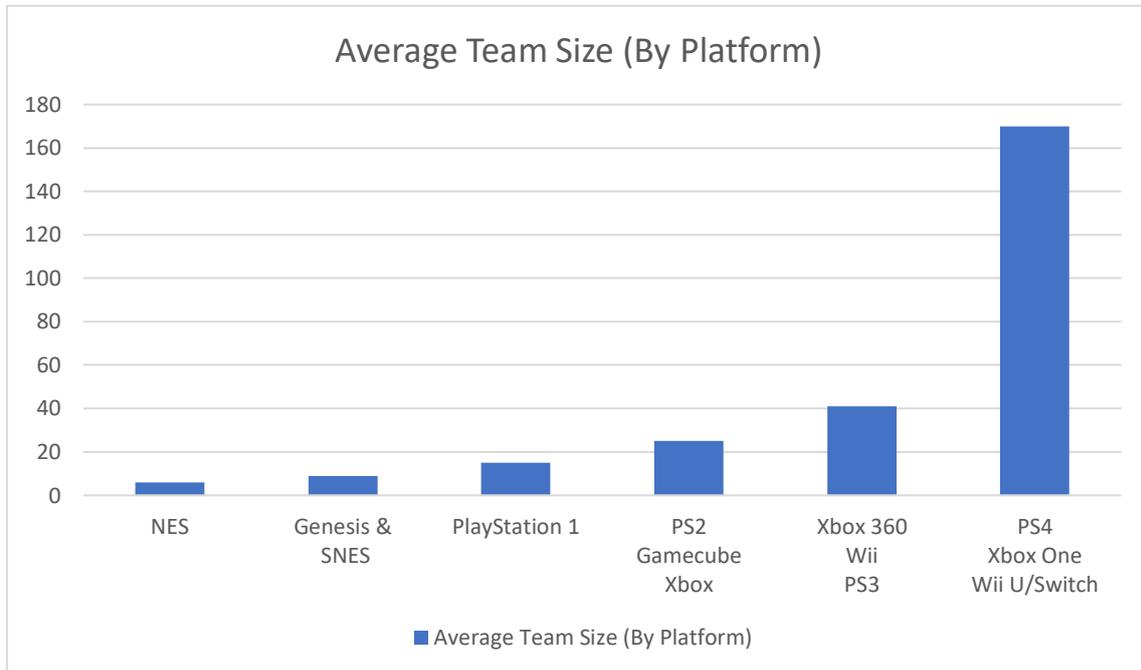


Fig. 1.18. Average team size (NES – PS3 data retrieved from: *Game Design Workshop* (Fullerton, 2014)). PS4/Xbox One/Wii U/Switch data gathered through additional research conducted for my thesis.

Ackrich’s estimates do not include the current generation of consoles, a generation being the shift from one console to its successor, e.g. *PlayStation 3* to *PlayStation 4*. Thus, my thesis analysed fifteen well-known and successful video games to include more recent consoles: the *PlayStation 4*, *Xbox One*, *Nintendo Wii U* and *Nintendo Switch*.³⁰ The video games surveyed included “AAA” franchises such as *The Legend of Zelda*, *Super Mario*, and *Call of Duty* because Ackrich’s estimations were based on “A-List” video games. “A-List” typically means something that is at the top of popularity and/or sales in their field. This emphasis on examining long-running franchises was due to new franchises having to create entirely new worlds and characters, and the possibility of them requiring longer production times (Sherr, 2017; Schreier, 2018). Thus, it is likely that new franchises would not represent the growth of team sizes as accurately as a franchise that has spanned multiple generations.

³⁰ The team size data collected for my thesis been collected from over 20 sources across a multitude of interviews, websites, and reports.

Furthermore, in view of the small sample size, video games with abnormally large teams, such as *Grand Theft Auto V* with a team size of one thousand (Mudgal, 2013) were omitted from this new data to avoid a deceptive average. Moreover, this data only includes the “in-house” production team, seeing that studios commonly outsource motion-capture (Rausch, 2017) or assets (Campbell, 2017). Ubisoft video games are also excluded due to their method of utilising multiple studios around the world that collaborate to ensure a video game is worked on 24-hours a day (Weber, 2013; Beaudoin, 2016).

Tracy Fullerton (2014) observes that team sizes have steadily grown with each generation of consoles. Therefore, upon observing this data it is surprising that team sizes have increased dramatically in the current generation, and consequently no longer support Fullerton’s analysis of a gradual increase. Nearly all data was obtained directly from the developers themselves. This data was unable to utilise exact figures, but rather close estimations, with developers often citing the sizes as “just over” (Reiner, 2015) or “about” (McWhertor, 2016). Nonetheless, my data is retrieved from reliable sources. Naturally, such large studios will also have a higher turnover of staff which means numbers are constantly fluctuating. This provides context to the current environment of “indie”, and as previously established, “indie” is commonly considered in opposition to “AAA”. Thus, this data establishes how the disparities in team size continue to grow larger with every console generation. Smaller teams are often associated with “indie”, and any impact this can have on the indie production process becomes increasingly prominent as the division between the two continues to grow.

It is crucial to recognise why these numbers have grown so high in the latest generation. In recent years, many gamers and journalists have observed the decreasing number of single-player video games, this has led to numerous discussions questioning whether single-player AAA games are dying (Reddit, 2017; Osborn, 2018; Quora, 2018). This debate is not unwarranted, upon observing the increasing expenditures from generation to generation, it is evident that the financial risk of developing video games is increasing. Alongside this, more and more video games are releasing “as a service” (Strickland, 2017), meaning that they want to keep gamers playing and/or returning to their video games. Multiplayer big-hits like *Fortnite: Battle Royale* (2017), *Call of Duty*, *FIFA*, and *World*

of *Warcraft* (2004) all try to keep as many people playing their video games for as long as possible. It is becoming progressively difficult to pull gamers away from these video games to purchase and play new ones. Consequently, studios (even if once deemed “AAA”) that do not have the pulling power of a long-running franchise, or the financial might of studios like EA, Activision, or Nintendo will struggle to compete. To suggest that single-player AAA games are dying is untrue, but there are fewer than there once were, and those that remain are utilising more resources than ever (Thier, 2017). Thus, whilst this data suggests that the average team size has increased dramatically, it could also be deceiving. It is evident that AAA team sizes continue to grow, but as most of the video games that fell below the average were no longer produced, those video games on the higher end make a larger contribution to the average. The number of personnel working on video games on the higher end has not necessarily experienced an enormous increase. For example, there were several AAA video games with huge teams consisting of 400+ employees in the PS3/Xbox 360 generation (Ponce, 2013), but the average was likely offset by the smaller AAA studios.

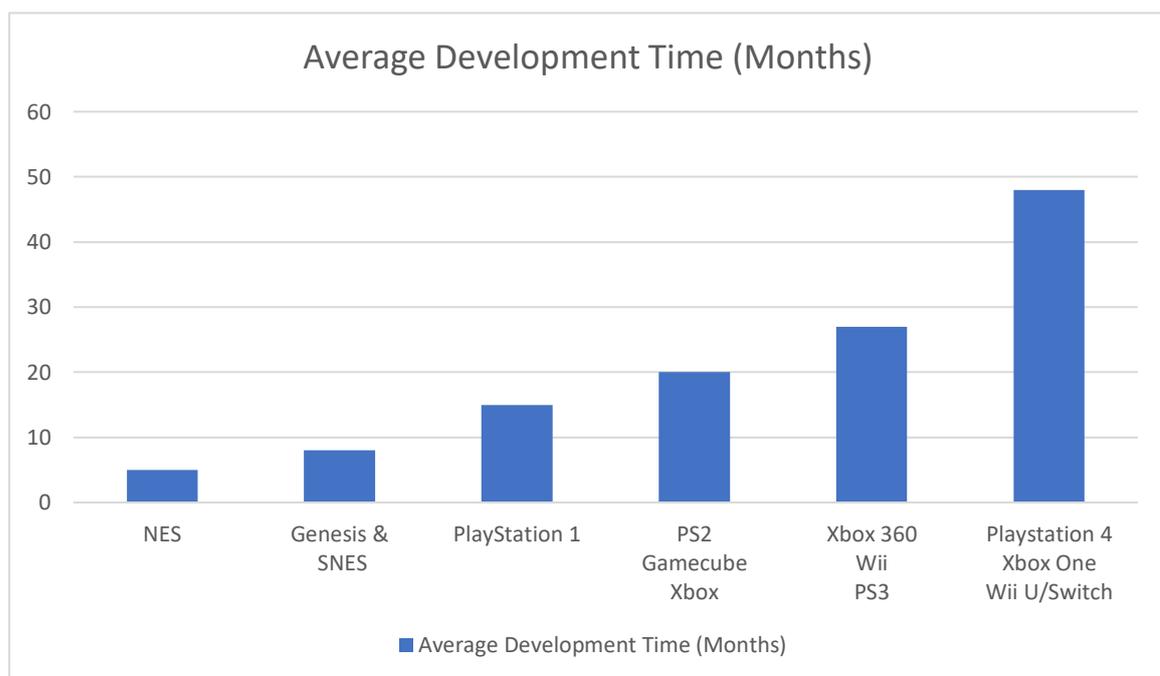


Fig. 1.19. Average production time (NES – PS3 Data retrieved from: *Game Design Workshop* (Fullerton, 2014)). PS4/Xbox One/Wii U/Switch data retrieved from additional research conducted for this thesis.

Ackrich’s estimates also suggest that correspondingly, production time has steadily risen since the early stages of the gaming industry. Once again, additional research was carried out to provide data

for the latest generation of consoles. Similarly, as there were omissions for team sizes, several well-known video games were deliberately removed due to their unusually long production times. This includes video games such as *Final Fantasy XV* (2017), which had an infamous ten-year production cycle (Mackey, 2016; Walt, 2017), and *The Last Guardian* (2016), which was announced in 2007 but released in 2016, taking almost ten years to produce. (Robinson, 2016). Unlike team sizes, production time has seen a less radical increase that is comparable to previous generational leaps. However, production time can also vary depending on how developers interpret a production cycle. *Horizon: Zero Dawn* (2017) started with a few staff members whilst production on another video game was completed, scaled up to twenty for several years, and then ultimately pledged a “full team” to the video game (Schreier, 2018). In total, *Horizon: Zero Dawn* took over six years to produce and demonstrates the importance of the concept stage to the overall production time. This becomes increasingly problematic when not all developers are willing to elaborate on the length of production (Rumphol-Janc, 2017).

My data, while not exact, provides the groundwork for further research into how team sizes can influence and shape the indie production process.³¹ The typology created for my thesis builds on this and provides data more specific to indie games, utilising the findings to form a greater understanding of how indie games are produced (See Chapter 2 for the typology breakdown). This historical understanding begins to identify three types of production that emerged in the 1990s, small teams (independents, “shareware”), larger teams (“AAA”), and then “hobbyists”, one-person teams creating games in their spare time. However, beyond this, each type of production has their own community, and a historical snapshot of these communities is essential to understanding how they

³¹ Additional findings include how although team sizes have significantly increased, development time, whilst increasing, has not done so as significantly. Modern day “AAA” priorities include more than just high-end graphics, and can include post-release updates, DLC (downloadable content), microtransactions, in-game stores, social media support and online multiplayer. To ensure resources are not spread too thin, and thus increase development time, multiple development teams are often utilised. *DOOM* (2016) outsourced their multiplayer component to studio Certain Affinity (Barker, 2018), whilst video games like *Dead Space 2*, *Grand Theft Auto 5* and *Assassin’s Creed 4: Black Flag* (2013) all have separate, dedicated parts of the team/studio working on multiplayer (Reilly, 2010; Reilly 2017; Hartup, 2017).

have changed over time. Most importantly, how communities began to transition from pre-internet, physical engagement into online communities and web-based interactions.

Sony's Net Yaroze: 1996

In 1996, two years after the *PlayStation* had hit the market, Sony launched the *Net Yaroze*, which enabled consumers to develop their own video games for the *PlayStation*. The *Net Yaroze* needed to be connected to a PC and developers could then begin creating video games using the C programming language (Priestman, 2015). In 1996, developing for consoles was near impossible for inexperienced developers. Licensing agreements had to be confirmed, distribution costs were high, and before any production could even begin, an expensive production kit would need to be purchased (Szczepaniak, 2012). Therefore, the *Net Yaroze* was extraordinary, allowing anyone who purchased it to create video games on a console for the first time; although it is worth noting that by not having an official developer licence, Yaroze creators could not independently distribute their video games on CD-ROMS. However, this does not mean distribution was impossible, and a selection of *Net Yaroze* games would be included on the cover of Official PlayStation Magazine, permitting a wider audience to play them (Ciesla, 2017).



Fig 1.20. *Net Yaroze*. Retrieved from: gamasutra.com

The *Net Yaroze* was well-received, and Sony's contribution to aspiring developers played a significant role in the first video game production course in the United Kingdom. Sony distributed free *Net*

Yaroze's to universities, including around forty to the University of Abertay (Owen, 2013). The influence that this could have had on these developers cannot be understated. Many video game engines and/or tools must be created by the developers themselves, potentially requiring months of hard work (Antoniades, 2013).³² To many consumers in the 1990s, developing video games would have been unachievable, but for some, *Net Yaroze* was the answer to this problem, allowing aspiring developers to acquire the necessary skills and knowledge to pursue a career in the video game industry. Several current video game developers have since praised *Net Yaroze* as the reason they now work in the video game industry, with some working for “AAA” studios, Sony themselves, and others opening their own studios (Owen, 2013; Chamberlain, 2015).

According to Sony, *Yaroze*³³ means “let’s do it together” (Close, 2013), and therefore the term “*Net Yaroze*” is likely about enabling creators to cooperate and share their work via the net. The community surrounding the *Net Yaroze* is commonly cited as one of its strongest aspects (Szczepaniak, 2012; Owen, 2013; Chamberlain, 2015). Everyone who owned a *Net Yaroze* was provided with their own dedicated private online forum. Additionally, they were provided an individual web space to share their production processes, video games and knowledge (Priestman, 2015). The community for *Net Yaroze* was considered small, but tight-knit, full of users who were like-minded and wanted to help each other succeed (Chamberlain, 2015). This is comparable to how the indie community process – explored in Chapter 4 – is crucial to the success of an indie game. This includes indie developers building small, tight-knit communities which are becoming increasingly necessary. Likewise, during my action research, communities for game engines, like with *Net Yaroze*, were instrumental for new developers to speak with other indie developers using the same engine. Thus, allowing the indie developer to seek advice, feedback and build a relationship with likeminded developers. The accessibility of the internet and video game production means there these communities are more common and larger than those found with *Net Yaroze*. In addition, many towns

³² See Chapter 3 for analysis on video game tools

³³ My research identified that やろうぜ (*Yaroze*) means “Let’s do it!” in the casual volitional in Japanese. The “Ze” at the end of “*Yaroze*” is an emphatic particle that implies youthful informality (Prassol, 1999). It is possible that this is done to make it seem more approachable.

and cities throughout the UK have a local “indie” scene (meetup, n.d) and/or reoccurring “game jams” (indiegamejams, n.d).³⁴ It is unlikely that an indie developer in the UK is ever far away from a small, local scene.

The *Net Yaroze* shares several characteristics that have been cited as major contributing factors to the indie game’s success. Some even consider those who developed for the *Net Yaroze* to be the first “indie” console developers (Szczepaniak, 2012; Owen, 2013). However, the *Net Yaroze* is a relatively unknown, underappreciated part of independent game production history (Close, 2013) and perhaps, a case of too much too soon. The *Net Yaroze* cost £550/\$750 in 1996 (Szczepaniak, 2012), over triple the price of the *PlayStation* at the time, which was retailing for \$199 (IGN, 1998). To put this into perspective, *PlayStation*’s main competitor at the time the *Nintendo 64* launched at a price of £250 in early 1997 in the UK, but struggled to achieve adequate sales and dropped to £150 just two months later (Welsh, 2017). Evidently, an asking price of £550 was extremely high, likely too high for many interested buyers. As of 2015, most teenagers use a personal computer or laptop, with one source claiming that this figure is as high as ninety-eight percent in the United Kingdom (Sevakis, 2016). Furthermore, developers can now begin creating indie games with hardware as basic as a low-end laptop (Iwaniuk, 2018), and therefore almost anyone in the UK can begin developing a video game - using equipment that most people have access to. An exploration of the indie production process reveals how this contributes to the frequency of new indie games. Chapter 3 identifies how small teams can and have created indie games with not only affordable hardware, but utilising free and/or inexpensive game engines.

A significant drawback of the *Net Yaroze* was distribution. As discussed previously, a handful of *Net Yaroze* developers had their video games featured in the Official PlayStation Magazine. For the rest, there was no way to ensure their video games were available to a larger audience. It is no surprise that, as my thesis alludes to in Chapter 3, the rise of indie games occurred during an era where developers could distribute their video games through digital platforms such as Steam, PlayStation

³⁴ See Chapter 4 for more analysis on “game jams”.

Network and Xbox Live. There was no long-term career for a *Net Yaroze* developer, and any developer who was serious about making video games for a living would have to move on. Following on from the video game crash of 1983, it is unsurprising that Sony did not allow anyone else to distribute their video games. Allowing *Net Yaroze* developers to create and distribute their own CD-ROMS could have resulted in numerous security issues; including the opportunity for anyone to start up their own *Net Yaroze* distribution service, selling video games without the involvement of Sony (Chamberlain, 2015). Furthermore, with no control over the quality of these video games, it could lead to a flood of low-quality video games, akin to those involved in the crash.

The *Net Yaroze* demonstrates a moment in history where there is evidence of a “independent scene”. In addition, this was a time where developers and the players were going through a shift from physical, face to face correspondence into an online focused era. It is possible to see elements of this transition in the manner that games were distributed (through magazines), whilst the developers were provided with an online space. Likewise, this community was only for owners of *Net Yaroze* with no way of communicating with an audience. Communication with consumers, and consequently forming communities are key characteristics of the indie community process (see Chapter 4 for analysis on how indie developers utilise their communities), however the *Net Yaroze* demonstrates how the theme of community was present at this moment in history. More recently, the community process of “indie” reveals the importance of open communication platforms, including social media and gaming platforms like Discord. This creates a space for communities to thrive and for developers to communicate with their audiences – or for the players to communicate amongst each other. At this point, my thesis begins to explore what came after *Net Yaroze*, and how developers were still seeking a stable environment to create their independent games.

The Rise of Indies: 2008 – Present

Braid is commonly referenced during discussions of the rise of the indie game and is usually cited as the breakthrough title that began to push independent games into the mainstream (Horti, 2018).

Notably, the way *Braid* looks has become synonymous with what it means to be “indie”, representative of aesthetic experimentation, a conscious decision for indie games to look a certain

way, to strive for individuality - all of which are characteristic of the indie aesthetic process. It is worth noting that many indie games, including *Super Meat Boy*, can be traced back to Adobe Flash games. Following the shift to Web 2.0,³⁵ people were excited about sharing all types of content. The notion that someone could create something, and then share it with thousands of people was new and exciting. Furthermore, those users could then rate and share their experience with the product. There were communities dedicated to sharing all types of user-generated content such as videos, drawings, and animations; one of the most popular methods of creating this content was through Adobe Flash. “Flash”, unlike video game engines, came pre-installed on most computers or was easily downloadable, making it accessible for most users. Unsurprisingly, “flash” became popular amongst amateur game developers, and would give rise to simple styles such as the “stick-man” style (Adobe.com, 2011).

These early flash games, whilst evidently creations from amateur developers, would give rise to a new generation of talented animators and video game designers (Murray, 2014). Flash games have had an underrepresented impact on the “indies” of today, bearing many similarities in the process of production. Edmund McMillen, one of the two designers who developed *Super Meat Boy*, made his start in video game production through “flash”. Moreover, unknown to many, *Super Meat Boy* is a sequel to *Meat Boy* (2008), released exclusively on the “flash” platform. McMillen, true to the nature of short and simple video games made using the software, has to date released over 40 flash games and add-ons (Newgrounds.com, 2018). *Alien Hominid* (2004), developed by The Behemoth, is another successful video game that began life as a flash game, utilising the same name, *Alien Hominid* (2002). *Alien Hominid*, one of the first video games to cross over from “flash” to home systems, has to date racked up over 20 million views on Newgrounds (Newgrounds.com, 2018). However as previously conversed, there were many movements in the video game industry occurring

³⁵ Web 2.0 shifted from Web 1.0. This had a direct influence on “modding” and independent video game developers. As noted by Becky Livingston, Web 2.0 “allows people to collaborate, interact and share information online” (2010). The ways in which people are doing this is through wikis, forums, message boards, social media websites (Facebook, Twitter), and previously mentioned websites GameBanana and Mod DB which allow users to upload and share their own content. However, whilst technological advancements enabled the creation of Web 2.0, the term itself is not a technological advancement, but rather refers to the way in which websites are created and interacted with. Therefore, the internet was not simply upgraded to Web 2.0, but rather slowly transitioned to it during the 2000s.

simultaneously. The current generation of consoles during this period were the *PlayStation 3* and *Xbox 360*, and both consoles did not allow users to download full-size, AAA games at launch, with digital distribution still a growing technology (Lowensohn, 2009). Furthermore, the *Xbox 360* launched in 2005 with two options, a core model with no storage, or the standard model with 20gb (Surette, 2005). The *PlayStation 3*, which was launched one year later, did not improve on these options significantly, offering either a twenty gigabyte or sixty gigabyte model (Osborn, 2016). Regardless of which option the consumer chose, the storage provided simply was not enough to support full AAA game downloads on either system. Thus, the most suitable video games to be stored with such space constraints were smaller titles, and these limitations would unintentionally aid the rise of “indies”. *Braid* was originally launched exclusively on XBLA (Xbox Live Arcade), a digital distribution service for the *Xbox 360*. The service has been widely credited with aiding the growth of indies, launching in 2004, before other major contributors like the Apple App Store. XBLA was focused on providing smaller, cheaper experiences, costing between five to twenty dollars, but typically ten dollars or less (Qualls, 2017). XBLA also enforced a size limit on its titles, originally set at an extremely trivial fifty megabytes,³⁶ it was raised to 150 megabytes, 350 megabytes, and continued rising steadily over time (Lowensohn, 2009). Due the repercussions of the XBLA size limit, AAA developers were unable to release their video games digitally for several years, having to wait for network capabilities to support larger downloads.

³⁶ Megabyte, also known as “mb” is a measure of hard-drive storage capacity.

The limitations of XBLA meant that it was primarily “indies” and ports of older, retro³⁷ video games releasing on the service. AAA studios had little presence on XBLA, and therefore “indies” were not overshadowed by the next blockbuster hit. Instead, “indies” had their own space, only competing amongst themselves, not launching into a crowded, competitive market as had begun to happen with the Apple App Store. In 2019, when launching digital distribution services such as the Xbox Marketplace, PlayStation Store or Steam, it is not uncommon to witness large banners advertising the next graphical spectacle.³⁸ In the early years of these consoles however, they would find a large quantity of unique indie games on equal footing. These smaller video games were released every Wednesday and at a more affordable price than gamers had become accustomed to (McCaffrey, 2015). Nonetheless, even with lower prices, it is understandable that some users may have been sceptical downloading video games from developers they had no prior experience with. However, Microsoft were aware of this inevitable hesitancy, and it was mandatory that all XBLA games included a free, playable demo. This enabled the user to test the video game before purchasing it. Therefore, even if the video game or developer was unknown, gamers could judge first-hand whether the latest releases were worth the purchase (McCaffrey, 2015).

Braid was developed and designed by Jonathan Blow. In 2004, Blow had been working as a programmer for over a decade. Blow desired an opportunity to develop video games that were more personal, more creative and something that would harness his passion for design (Blow, cited in IGN 2016). *Braid* is a puzzle-platformer, most famous for its unique art style and time-reversal mechanic,

³⁷ According to Oxford English Dictionary (2021), the word “retro” most likely stems from the French word “rétro”, which means it “imitates or evokes a style from the relatively recent past”. Retro games are commonly associated with video games from older consoles such as the *NES*, *SNES* and *Mega Drive*, theoretically every video game will eventually become retro using the Oxford English Dictionary definition. Nevertheless, how old a video game must be to qualify for the title of retro is not clear. Several video game theorists have identified the difficulties in defining a retro game (Guffey, 2006; Chalhoub, 2010, Morris, 2019). The “r/retrogaming” community on the popular discussion website Reddit (2021), consisting of over 200,000 “gamers”, only permits discussion on retro games that follow their definition. They define a retro game as anything that released before 2000. However, new video games that are released for consoles that released prior to 2000 are acceptable, such as *Pier Solar* (2010), a video game developed and released in 2010 for the *Mega Drive* which launched in 1988, despite the console being officially discontinued in 1997. My thesis recognises the problematic nature of the retro definition, and whether dominant retro communities will extend their guidelines to later consoles is yet to be seen, but for the cohesion of my thesis, the usage of the term “retro game” will follow similar guidelines to those set by the retrogaming community.

³⁸ At the time of writing, *Star Wars Jedi: Fallen Order* (2019) was present on the PlayStation Network, and *Sekiro: Shadows Die Twice* (2019) on Steam. No access to Xbox was possible.

where the player can reverse time whenever they choose, even after dying. Blow explains that the title's most well-known mechanic was inspired by video games such as *Prince of Persia: The Sands of Time* (2003), which was released a year before production of *Braid* begun (Kumar et al, 2012). Blow and several other video game designers had a keen interest in time-reversal. Nonetheless, they believed the mechanic had not been designed well in the last few video games it had previously appeared in. In response, the plan was not only to try to do it differently with *Braid*, but better (Parkin, 2008). However, Blow's desire for originality and innovation eventually took its toll, and production would take a further three years than anticipated. Indie as production process outlines these same qualities – flexibility, originality, risk taking, and creativity have become central to what constitutes as indie. Furthermore, when Blow was nearing the completion of *Braid*, he also had a mounting debt (Blow, cited in IGN 2016). Despite nearing completion, Blow had no funds to market *Braid*, and therefore the future of the title seemed bleak. This was made worse when Blow discussed the idea of releasing the title on Steam with Valve, who rejected the proposal. According to Blow (2016), Valve did not believe an independent game would be successful on Steam, and even claimed the video game would likely sell less than 5,000 copies (IGN, 2016). Although Blow had no marketing budget, *Braid* was showcased at video game conference GDC multiple times and won the IGF design award in 2006 (Carless, 2007). This was evidently enough recognition for Microsoft to become aware of the video game, and they reached an agreement with Blow to release *Braid* exclusively on the XBLA platform. XBLA had a regular release schedule, and the service also saw several remasters of older video games, such as *Alien Hominid HD* (2007) and *Rez HD* (2008). Not only that, but many companies were porting their older, retro games to the service (Perron and Wolf, 2009) and consequently, XBLA was lacking in original content. However, it would not be long before Microsoft began gearing up for their first original hit. When *Braid* was ready to launch in 2008, Microsoft had the stage set and primed for XBLA's first big hit (Matulef, 2015).

Braid was a huge success, selling over 50,000 copies in its first week (Blow, 2008) and achieving a 93/100 average review score (Metacritic, 2018). *Braid's* unexpected critical acclaim led to a changed perception of the XBLA platform, but more importantly demonstrated what “indies” were

capable of to both the industry and gamers alike. Whilst Microsoft's XBLA was crucial to "indies" exceptional growth in 2008, the company does not have the healthy relationship one might expect with "indies". Rami Ismail, founder of "indie" studio Vlambeer, claims that: "...Microsoft has a terrible reputation within the scene" (Ismail, cited in Farokhmanesh, 2013), whilst Blow has since shared his distaste towards the company: "They threatened to ruin my life, and I am not the only indie they treated this way..." (Blow, cited in Usher, 2014). Thus, even though Microsoft was largely responsible for introducing indies to the mainstream, other companies followed and expanded the "indie" scene. Valve subsequently regretted their decision to decline *Braid* and began hand-picking "indie" titles, launching them through the Steam platform (Campbell, 2017). This success, and the number of titles wanting to release on the platform eventually led to Valve launching a new service, Steam Greenlight. This allowed users to vote on which indie games they wanted to see launched on the platform (Kroll, 2017). Sony and their *PlayStation* console also changed their attitude towards "indies", and before long, were the first console platform to allow them to self-publish and self-price their video games (Farokhmanesh, 2013).

Blow's *Braid* is often credited as a primary factor in the rise of indie games, and it is not uncommon to see videos or articles with titles such as: "...One Man Changed the Video Game Industry Forever" (IGN, 2016). However, it is important to acknowledge, credit and understand several movements that were happening simultaneously, all of which contributed to the rise of "indies" in the mid-late 2000s. To simplify such an extraordinary industry transformation would come at a loss of a greater understanding of the movement. For instance, *Castle Crashers* (2008), The Behemoth's second video game, launched on XBLA in the same year as *Braid*, outselling it by over two million copies (Langley, 2012). Further, *World of Goo* (2008) also launched in the same year and was self-published on PC and *Nintendo Wii*. Both these titles would have been in production long before *Braid* was released. Instead, my thesis argues that *Braid* was launched at the right moment, when the industry and technology was ready for such a video game. This is not to suggest it does not deserve the credit it received, *Braid* was an exceptionally well-received and unique indie game. *Braid* undoubtedly contributed to the rise of the indie game – and now in my research - to an understanding

of indie as process. Nonetheless, there was more than one person who contributed to the movement, including hundreds of dedicated independent developers who had been consistently struggling to break into the mainstream audience for decades. More importantly, this was only made possible by the technological advancements that made such an infrastructure achievable, and the steps that the video game industry took to ensure “indies” could continue to have a space to thrive. This began with Microsoft and Apple in 2008, and was followed by the later efforts of Valve, Nintendo, and Sony to ensure that “indies” could remain entirely self-sufficient.

Conclusion

Chapter 1 has explored independent game developers in a historical context dating back to the first video games. In the process, this historic account has established that whilst the origins of video game production were very much independent. The “rebirth” of the industry with Nintendo’s Seal of Quality was the beginning of the shift away from independent game production on consoles and therefore their inclusion in the mainstream. However, “shareware”, *RPG Maker* and “modders” demonstrated that independent game creators never vanished completely, and much of how they functioned shares many similarities to how “indie” can be understood today. Furthermore, with the arrival of Sony and Microsoft’s focus on cinematic gameplay, and consequently larger budgets and team sizes, the divide between independent developers and larger studios increased, giving rise to the term “AAA”.

In the introduction to my thesis, indie is defined as process, but there are three different types of process at play: Aesthetic, production, and community. Indie games could utilise any of those three, none are more valid than the other, but they provide different ways of working, and they generate different types of indie games in terms of how they play and look. Nonetheless, they are all considered “indie”. As seen throughout this chapter, these three themes have their roots in historic moments. Now, it is essential to explore these three themes more thoroughly in the chapters that follow.

Chapter 2 primarily explores indie as aesthetic process, following on from the key moments established above. These points in history reveal how many indie games utilise an aesthetic that has

bears a similarity to video games developed several decades prior. However, it is unlikely that all indie games will utilise the same aesthetic, and therefore further interrogation is required to rationalise why grouping indie games under one aesthetic label is problematic. To achieve this, Chapter 2 will utilise a typology of 150 games to better understand the aesthetic spectrum of indie games.

Chapter 2

Towards a Typology of “Indie”: Aesthetic as Process

For over a decade now, video game journalists, academics and players have debated what makes an indie game “indie”. These discussions include, but are not limited to: Creativity and gameplay (Dutton, 2012; Cooper, 2018; Juul, 2019), the production process (Welsh, 2012; Kovanto, 2013; Lipkin, 2019), team size (Rose, 2011; Barnson, 2013, Juul, 2014, 2019; Hansen, 2016), independence and relationship with publishers (Lipkin, 2012; Graebisch, 2013; Garda and Grabarczyk, 2016), and aesthetics (Parker, 2013; Westecott, 2013; Juul, 2019). These perspectives will all be explored throughout my thesis, with aesthetic considered first. The idea behind this starting point is a hypothesis that the aesthetic is closely linked to the process, this theory stems from speculative discussions (Couture, 2016; Resetera, 2018; Juul, 2019) arguing that many indie games employ similar aesthetics, commonly inspired by older video games - such as those alluded to in Chapter 1. If the intention is to mimic earlier video games, then this decision would be established early and feed into the processes that come after.

In Chapter 1, through a historical account of the video game aesthetic, it became evident that many indie games share a resemblance to predating video games in both how they play and look. However, indie games like *Braid* are closer to that of a watercolour painting than that of a game from the 1990s. Thus, not all indie games will share the same aesthetic or graphical style, nor will they all share the same camera perspective (first-person, third-person, etc) or dimension (2D, 3D). Nonetheless, there have been efforts to characterise indie games with an indie aesthetic, describing them as using an “indie style”, “indie look” or “authentic style” (Garda and Grabarczyk, 2016, Juul, 2019). This does little to inform an understanding of the indie aesthetic, the specifics of these styles often remain unclear. This becomes increasingly uncertain when larger studios have developed video games with an aesthetic that is believed to resemble indie games, thereby leading to the coining of a new term “Indie-AAA” (Sinclair, 2013). Evidently, there is a reason these games are being grouped together, but when the games can all look vastly different, concluding a definitive “indie style”

becomes difficult. Instead, my thesis explores the indie aesthetic as process, considering the role of the aesthetic, noting that what a player sees in a finished video game is an accumulation of decisions made during production. The intention here is to explore the aesthetic process and identify the characteristics that lead to indie games looking a specific way.

Aesthetic Terminology

To establish the process behind the indie aesthetic, this chapter will explore several indie games and their visual styles. To establish a foundation for how these indie games can be discussed, and the terminology which can be used to describe how they look, my thesis draws on my primary research to establish the key terms. Firstly, drawing on the questionnaire data,³⁹ the indie aesthetic is one of the most common characteristics discussed by respondents. In this discussion, there are several predominant terms used throughout to describe the indie game aesthetic. The most used term throughout the questionnaire was “Retro”. The term retro can be used to characterise not just how the game looks, but also how it plays. For example, when prompted to explain why *Shovel Knight* was their favourite game, respondent 479 explained: “Retro gameplay updated for modern systems”. Nonetheless, it was most commonly used to describe the aesthetic – on the question asking how respondents would define an indie game, respondent 629 noted: “...often featuring a retro aesthetic...”, whilst respondent 16 stated “...Graphics are oftentimes simpler (8 or 16 bit retro style

³⁹ In the methodology section of my thesis (p22), the pros and cons of closed and open-ended questions were explored. My questionnaire primarily employed open-ended questions to obtain meaningful insights into consumers experiences, feelings, and perceptions of “indie”. This approach allowed me to uncover opportunities for further research that were not anticipated, such as the importance of developer communication to indie consumers. However, this presents an obstacle of limited generalisability, and therefore my data had to be analysed manually. For example, the analysis of dominant justifications for being invested in indie communities was initiated by searching for key words such as “developer”, “personal”, “heard” and “communication”. Each response would then be analysed within context to ensure it was relevant, and this would then allow me to begin organising the data. I would then manually check the remaining respondents to identify whether there were any relevant responses overlooked. In addition, this allowed me to confirm that were not any other emerging ideas or patterns. The drawback to this approach is the subjectivity of determining the relevancy of responses, and therefore different interpretations of my data could vary. However, the findings of my research are not intended to be considered conclusive; this data is used to identify problems or new ideas, and supplements other methods employed throughout this chapter.

for example)...”. The typology data provides a similar conclusion, where “retro”⁴⁰ is the third most cited style since 2008 and was used in seventeen indie games as seen in Fig 2.1.⁴¹

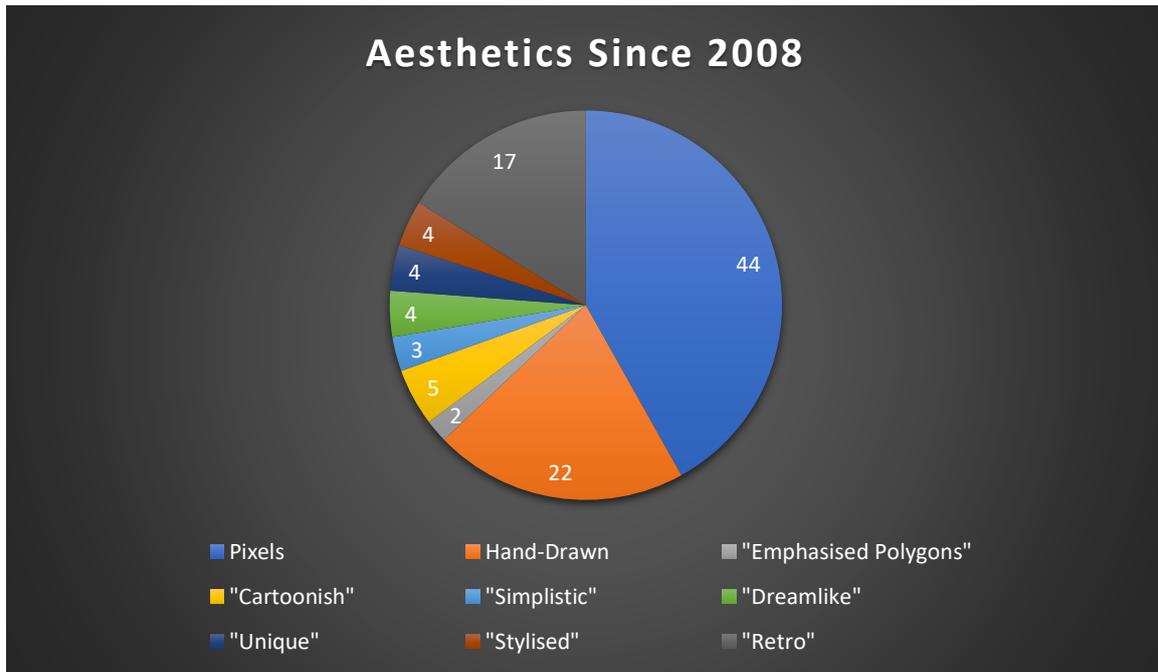


Fig 2.1. Aesthetics since 2008. Based on: Typology.

In addition to the questionnaire and typology, my thesis draws on my interviews, and although a much smaller sample size than the questionnaire and typology, retro is a term used by Alex and Samantha, developers of *Squidlit*, who acknowledged their game as a “retro recreation”. However, the usage of term retro reveals two conflicting philosophies. There are indie games that employ a retro aesthetic, but also make use of modern gameplay innovations,⁴² or indie games that do not look retro, but play

⁴⁰ Although the typology spans almost two decades, the data here is sourced from indie games since 2008. The reasoning here aligns with the distinction between “independent versus indie” established in the introduction. My thesis is focused on defining indie in the here and now, and therefore draws on indie games coinciding with the rise of the term “indie”. Conversely, the typology reveals a very different terminology framework from games released prior to 2008, with terms such as “retro” not being used a single time.

⁴¹ As discussed in my methodology section (p22), a typology is a study of types or categories. In this instance, it is the study of indie aesthetics. The purpose here is to identify whether there are any correlating themes between well-known indie games, to codify the type of indie aesthetics encountered, and thereby better understand the aesthetic spectrum. As specified when introducing indie as process, indie games often display retro or pixel aesthetics, and therefore evoke a connection to a historical moment. This claim has been made before, but through generalisation and personal experience, rather than through extensive research (Hill-Whittall, 2015; Swalwell and Ndalians, 2017; D'Aprile, 2019; Juul, 2019). Now, through my typology, there is an opportunity to move beyond this hypothesis and work with more certainty.

⁴² *Shovel Knight* employs an “8-bit retro aesthetic” (Webster, 2014; Payne and Huntemann, 2019), whilst utilising modern gameplay improvements such as a save system in opposition to passwords common in 8-bit retro games.

similarly to a retro game.⁴³ Alternatively, there are indie games which strive to emulate a retro environment, this could include developing video games for older systems, or entirely embracing the limitations of a chosen retro platform.⁴⁴ My thesis proposes both philosophies would be best explored separately, and are therefore identified as “Modern Retro” and “Authentic Retro”.

The questionnaire data reveals that the term “Pixel Art” is the second most used term, and whilst retro can be used to describe the gameplay or aesthetic, “pixel art” is only used to reference a video game’s aesthetic. When asked to define an indie game, respondent 389 notes “...when I hear the words indie game, pixel art games are usually what come to mind”, whilst respondent 264 defines indie as: “Non AAA, non AA, often pixel art”. The typology reinforces this terminology, as depicted in Fig 2.1, a pixel aesthetic is the most common indie game aesthetic since 2008. Likewise, during my interviews, the term “pixel art” was used most frequently. Tim Constant, when asked why his indie game looks the way it does, he responded “...due to a love of pixel-art”. Justin French (2018) observed that many indie developers are creating games which stem from a love of games they grew up playing, observing this occurs “...especially with the pixel art sort of style games”. Lastly, Dave Cooper (2018) shared that his indie game’s “pixel art” aesthetic stems from his artists lack of time to create something else.

Hand-drawn is the third most used aesthetical term from my questionnaire data. This term was often used to compliment *Shovel Knight’s* aesthetic, with respondent 685 noting that their favourite characteristic from the game was its “Hand drawn art”. Likewise, respondent 889 praised the game’s aesthetic, noting that: “It’s beautiful with hand drawn animation”. Respondent 36 observed their preference for hand-drawn indie games: “I love when developers use hand drawn sprites over pixelart”. Once again, the typology supports the predominance of this term, with hand-drawn being

⁴³ *Cuphead* (2017) is one example that plays like a retro game but does not look like one. Although the video game does look like a 1930s cartoon, in terms of video games - this is not how they used to look. In turn, *Cuphead* takes “retro to the cutting edge” (Linneman, 2017), employing numerous modern creative methods and techniques to achieve its unique aesthetic. Nonetheless, *Cuphead* plays like a retro game, with the developers themselves noting it is a “retro game at its core” (Moldenhauer and Moldenhauer, cited in Suszek 2014).

⁴⁴ *Squidlit* was developed in an environment emulating the technological limitations of a *Gameboy* game, whilst as noted previously, *Pier Solar* was developed and released for a console that had been discontinued over a decade prior.

the second most used aesthetic in indie games since 2008. This term was also used in my interviews,⁴⁵ Dave Cooper shares that he was experimenting with how his game *Blockships* (unreleased at time of writing, June 2021) might look with a “hand-drawn art style”, despite the game eventually using “pixel art”.

My thesis has drawn on my primary research to establish the four most prevalent terms used to describe the indie aesthetic: Modern Retro, Authentic Retro, Pixel Art and Hand-Drawn.⁴⁶ These four aesthetic themes will be explored throughout this chapter, identifying key games where these aesthetic styles are employed. The focus here is on the aesthetic process - active decisions made during the production of indie games that result in an indie game employing one of the four aesthetic themes.

Aesthetic Agenda: Indie Versus AAA

Although so far, the aesthetic process has been discussed in relation to “indie”, it is important to acknowledge that the aesthetic process is essential to “AAA” too. However, there are differences in the agenda. To establish this disparity, my thesis explores the aesthetic process of renowned AAA game *Red Dead Redemption 2*. *Red Dead Redemption 2* (2018) is the most recent release from Rockstar Studios. The video game, which had shipped twenty-four million copies by May 2019 (Sinclair, 2019), has been an enormous talking point in the industry. There have been numerous

⁴⁵ As noted in my methodology section (p22), the flexibility and open-endedness of semi-structured interviews makes it difficult to generalise or quantify data. However, the focus on “indie” interviewees allowed me to draw on the knowledge, experience, and concepts from current indie developers. The data gathered was analysed to identify any themes or new ideas, which were then used to drive the focus of my thesis, notably Chapter 3 and its subsections. In addition, my interview data, such as the reoccurring emphasis on building communities influenced the structure of my questionnaire. Therefore, the limitation of a small sample size was offset through my audience research, allowing me to test these patterns and new ideas through 966 respondents.

⁴⁶ My thesis acknowledges the philosophical challenges of trying to establish a stable understanding of the text (video game). Adopting the ideas of Roland Barthes *Death of the Author* (1967, cited in Seymour 2018), an author might claim ownership to the text because they believe those words and ideas are their own. However, when an author’s work is created it is not done so without outside influence; that person’s experiences, culture, ideas, and beliefs are amassed from previously existing texts. The idea here then, is that the author is the reader. The text (object) may remain static, but the reader’s experience of it is ever-changing due to their unique worldview shaping the text afresh with each new encounter. When these ideas are applied to my thesis, the idea of categorising indie games without being problematic may seem contentious. However, it is nonetheless necessary to advance the field of indie game studies, to open this study for interpretation by different audiences, and to encourage new ways of thinking about the indie aesthetic.

discussions both pre- and post-launch, such as the developers working mandatory overtime (Wade, 2018), video games and realism (Corden, 2018), and how video games are developed and designed (Leslie, 2018). Many of these discussions are criticisms, from the large team size working overtime, to whether video games can become too realistic and begin to lose what makes them fun. However, one area of the video game that has drawn little criticism is how the video game looks. There are in-depth studies (Gies, 2018; Linneman, 2018), and reviews and discussions (Reilly, 2018; Robinson 2018) on the beauty of *Red Dead Redemption 2*. These analyse and discuss the lighting effects, water, world design, character design and animations, among other features. Almost every part of *Red Dead Redemption 2* has been broken down, analysed, and discussed. Peter Suderman (2018), writing for New York Times, describes *Red Dead Redemption 2* as “true art”,⁴⁷ arguing that the video game “As a technical achievement... has no peers”, with “breathtaking digital vistas”. In his 2018 review of the video game for website Eurogamer, Martin Robinson believes that the video game’s visuals will not be surpassed – not even in the next generation of consoles. He ends his review with a confident claim: “Is this its richest, most beautiful open world? Of that there's not a single doubt”. Suderman’s and Robinson’s discussions are lacking in content, and therefore feel a little underdeveloped, but they demonstrate how the video game’s visuals have been a talking point in many discussions.

Arthur Gies (2018), a writer for video game website Polygon, analyses the art in *Red Dead Redemption 2* more thoroughly. Gies avoids comparison to other moving image mediums, instead comparing the video game to painting. Gies notes how Rockstar art director Aaron Garbut explained the aims and influences of the video game’s aesthetic, and how they were trying to create something unique. Garbut clarifies how they wanted the player to feel: “...so the player can almost feel the wind, rain, and mist on their face as they ride across the landscapes. From the gusts of wind blowing

⁴⁷ Although some critics openly argued that video games can never be art (Ebert, 2010; Samyn, 2011; Jones 2012), the discussion on video games as art has progressed quickly, and video games are now embraced as art at highly prestigious galleries such as the Museum of Modern Art (MoMa), the V&A and the Tate. Some scholars still engage in the debate of whether video games can be considered art (Ahmed, 2018, Humphreys 2019). However, this is akin to modern art discussions. There are critics who are classicists who argue that Damien Hirst’s work is not art (Spalding 2012; Jones, 2014), and Tracey Emin’s messy bedsheets are not art (McGrath, 2004; Warde-Aldam, 2019), and there exists a similar prejudice or “elitism” that is being directed at video games. Although my thesis does not intend to tackle this debate, it does recognise that the industry has largely accepted video games as art (Orsini, 2015; Solariski, 2017; Anable, 2018).

through the grasslands, to the clouds scudding around the mountain tops casting shadows on the plains below” (Garbut, cited in Gies 2018). Whilst many AAA games attempt to be immersive, Gies quickly establishes that he believes the video game’s visual inspiration moves beyond other video games and movies. It is no surprise then, that the video game’s lighting director, Owen Shepherd, was inspired by renowned pastoral and landscape painters such as Joseph Turner and Rembrandt van Rijn. (Garbut, cited in Gies 2018). Turner and Rembrandt were important in the Romantic movement, the Romantics used, in Gies’ words: “...the wonder of the natural tableau for various symbolic purposes”. The Romantic movement was not exclusive to paintings and was a movement in the art and literature of the time, such as poets William Wordsworth and William Blake, who whilst not necessarily sharing the same views or beliefs, both explored the beauty of nature. This then, is about the studies of nature and the sublime, and *Red Dead Redemption 2* is arguably an extension of that, in that the video game is about the incomprehensible grandness of nature in the mind of man.



Fig 2.2. J.M.W. Turner, *Calais Pier* (1803). Retrieved from: polygon.com

However, Gies believes that the Hudson River School landscapes were an even bigger influence for *Red Dead Redemption 2*. A movement from the mid-nineteenth century led by a group of landscape painters who themselves were inspired the Romantics. as the name implies, the paintings originally mostly depicted the Hudson River Valley and the surrounding areas, but would eventually expand to the American West, New England, or South America (Millhouse, 2007). Gies observes that the way in which Rockstar have constructed *Red Dead Redemption 2*'s world is like the way in which the Hudson River School depicted nature, large spaces and their relationship between men. This comparison, as seen in Fig 2.3, can be seen in almost every area of the landscapes in the video game. The video game has a darker, more atmospheric environment design, with a great amount of effort invested in ensuring that the fog and humidity simulate that of real life. *Assassin's Creed Odyssey* (2018) is one of few video games to come close to *Red Dead Redemption 2* in AAA game production, with extensive video game production times, team size, and budget. However, as demonstrated in Fig 2.4, whilst the video game is also praised for its superb high-end graphics, and similarly utilises fog and humidity to create a convincing sense of distance, the video games have a considerably different environment design and aesthetic.

There is a difference in the aesthetic process here to create the scene from *Red Dead Redemption 2* depicted in Fig 2.3, but as noted by Gies, one of the most important is the use of colour saturation. *Red Dead Redemption 2* uses colour saturation to establish space and depth, and unlike *Assassin's Creed Odyssey*, the colours become less saturated the further they are away from the player. Additionally, these shapes become bluer in colour, a method employed in the Hudson River School's paintings. *Assassin's Creed Odyssey* in comparison employs the use of brighter colours, where the environments and characters almost "pop" out of the screen. These are just several examples of a much larger list of influence found in *Red Dead Redemption 2*, other potential inspirations include C.M Russell, in the way he utilises colours, with colours closest to the centre of the player's view appearing more saturated. John Singer Sargent, a portrait painter who was known for his "phenomenally believable sense of form and flesh to his subjects" (Gies, 2018), and the characters in *Red Dead Redemption 2* employs a similar technique to faces and flesh.

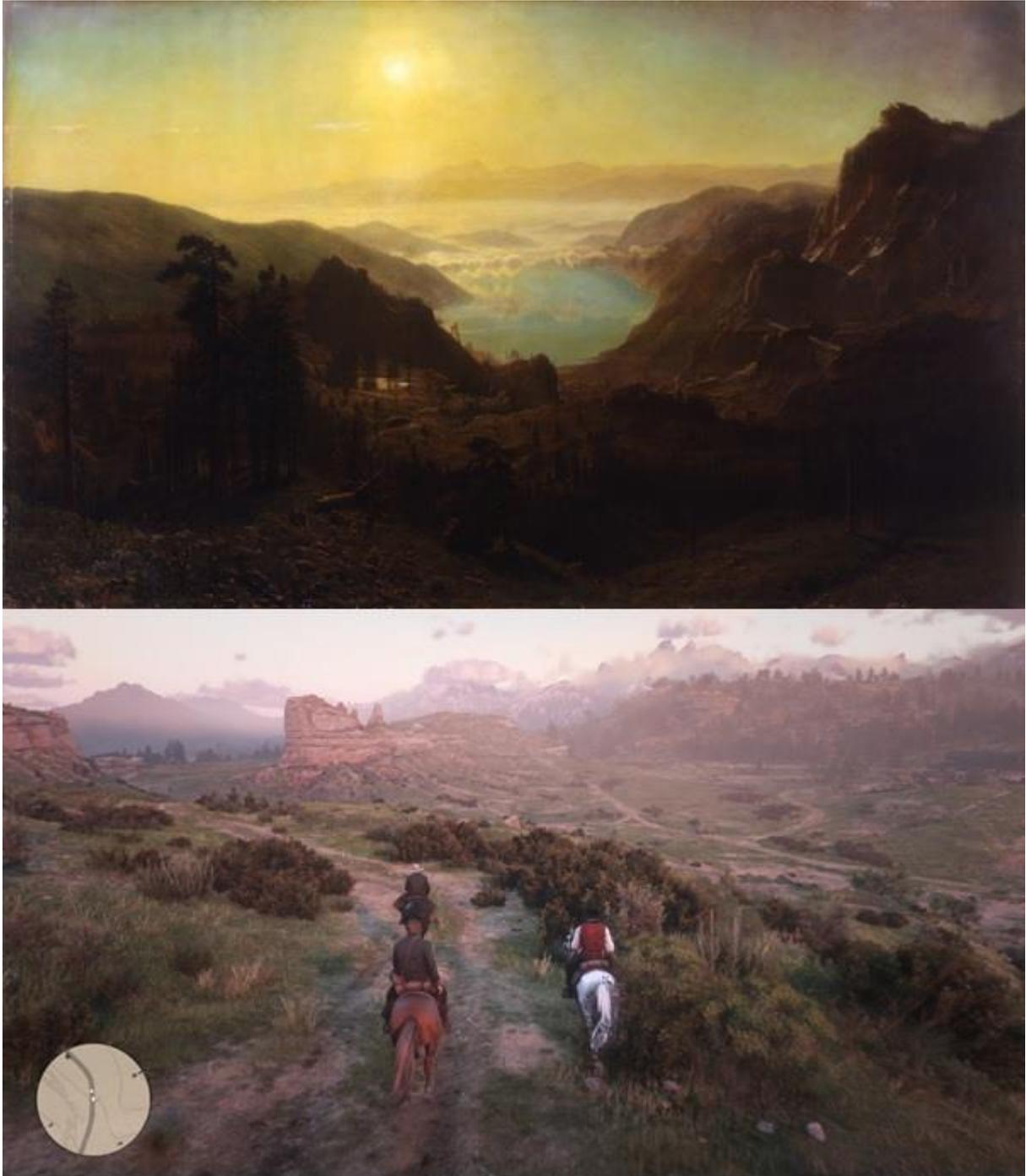


Fig 2.3. Albert Bierstadt (top) and *Red Dead Redemption 2* (bottom) comparison. Retrieved from: polygon.com



Fig 2.4. *Assassin's Creed Odyssey*. Retrieved from: eftm.com

In view of the above analysis, it becomes clear that *Red Dead Redemption 2* can be considered at the high-end of “AAA” in graphical fidelity, team size and budget. Video games do not come bigger than this, but there is an aesthetic process, and the result is evocative of Romantic art, the Hudson River School, and the power of nature and the sublime – an artistic achievement. Indeed, the aesthetic process is crucial for “AAA”, but despite these similarities, “indie” is often defined in opposition to games like *Red Dead Redemption 2*. In one hand, indie is working against games like *Red Dead Redemption 2*, it has had to find its own space in the industry, its own aesthetic, its own gameplay, its own story. In the other hand, there are similarities, notably in how the aesthetic process is crucial for both “AAA” and “indie”. However, there is a differing agenda; *Red Dead Redemption 2* is about pushing the technological limits, pushing the graphical fidelity as close to photorealism as possible. Whereas “indie” is less concerned with what the technological advancements can do for their game, instead there is a focus on smaller, simpler productions. There is an increased emphasis on personal creation, such as employing analogue materials to create a hand-drawn aesthetic, or with a root to historic moments employing modern technology to self-consciously recreate and represent older

technology through the retro and “pixel” aesthetics. The specifics of these aesthetics and the processes at play will be explored throughout this chapter.

Aesthetic Spectrum

The analysis of *Red Dead Redemption 2* identifies that “AAA” and indie games do not exist in different universes, there are similarities, crossovers, and comparisons to be made. To make sense of this, my thesis employs an aesthetic spectrum that plots several video games across different measures.

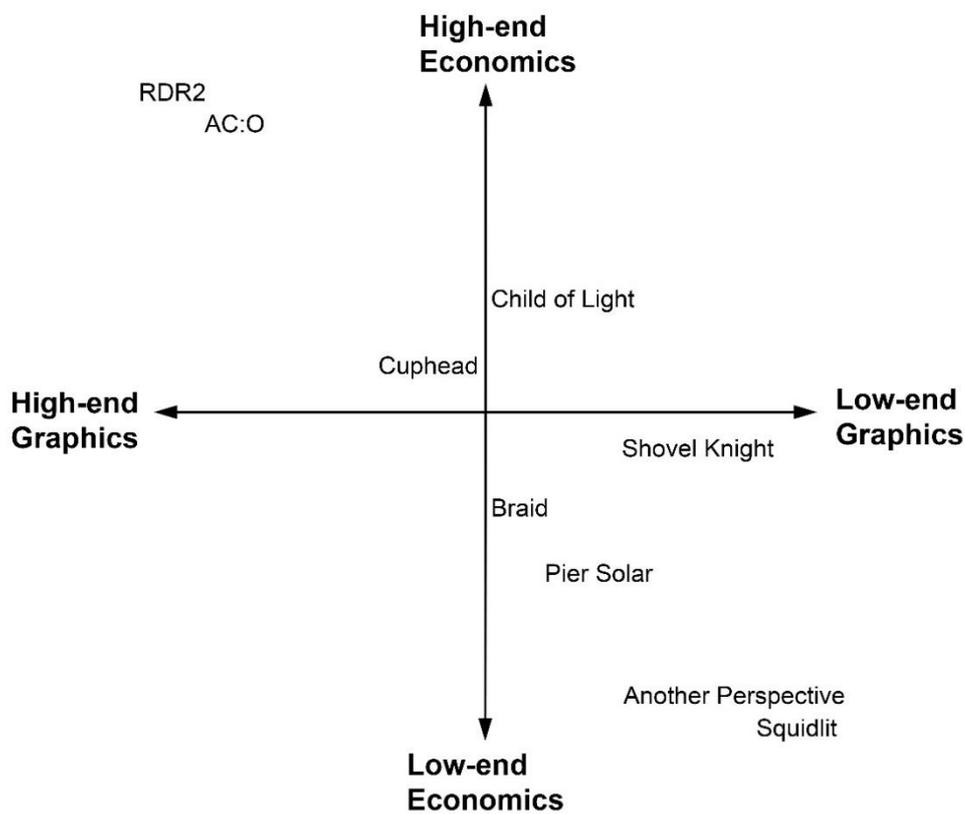


Fig. 2.5. Aesthetic Spectrum. Based on: Personal Research.⁴⁸

The video games named in this spectrum have or will be discussed in relation to aesthetic as process throughout this chapter. Thus, the four aesthetic themes will be explored in relation to their aesthetic process, with each theme discussed through one or more of the key games cited in the spectrum.

⁴⁸ Some titles were shortened for the continuum. RDR2 (*Red Dead Redemption 2*) and AC:O (*Assassin’s Creed Odyssey*). Furthermore, the placement of these games is based on data collected from several sources across published sources, websites, and interviews.

Modern Retro Aesthetic: Shovel Knight

Jesper Juul (2019) argues that indie games commonly employ aesthetics from earlier times. This includes indie games employing a retro aesthetic, particularly inspired by the 8-bit and 16-era. However, Juul also acknowledges the rise of indie games with analogue representation, identified above as the hand-drawn aesthetic. This aesthetic is commonplace, *Rime* (2017) employs a watercolour effect, *Cuphead* is hand-drawn and closely resembles a 1930s cartoon, and *Snipperclips: Cut It Out, Together!* (2017) as the name implies, features a variety of objects that look like they are cut out from children's drawings (see Fig 2.6 and Fig 2.7). In both cases, Juul argues that indie developers are using high-tech equipment to emulate an old-tech aesthetic. In summary, they are using modern equipment (and software)⁴⁹ that can produce high-end 3D graphics, and instead using it to create small 2D video games. Through employing these 2D aesthetics, indie developers can convey a message to players; indie is in the process, regardless of whether the developers had a higher budget, or a larger team, the game would not be inherently superior. Therefore, whilst these indie games have a much smaller budget, smaller teams and much less reliance on processing power, they are not simply cheap imitations, but a result of carefully planned and conscious decisions. Thus, Juul argues that because these video games are small-budget and "indie" by choice, it is the aesthetic of the video game and the production process that is authentic and honest.

⁴⁹ Notably, the *Unity* engine - employed to develop *Cuphead* and many more indie games.



Fig. 2.6. *Cuphead*. Retrieved from: pcmag.com



Fig. 2.7. *Snipperclips*. Retrieved from: nintendo.co.uk

Shovel Knight is widely considered an authentic *NES* video game by players and video game journalists. Yacht Club Games are open about the reality of *Shovel Knight* not being a one-to-one recreation of 8-bit *NES* video games, instead it is meant to offer a “...rose-tinted view of an 8-bit game” (Angelo, 2014). The idea here was to develop a video game in an 8-bit style, appealing to gamers with a nostalgia for a bygone period of gaming. Whilst *Shovel Knight* met expectations of how an 8-bit video game should play and look, and therefore appeared to be authentic, the reality is quite different. *Shovel Knight* might look simplistic, and consequently inexpensive to produce, but the aesthetic spectrum (Fig 2.5) reveals that *Shovel Knight* is distant from the lowest end of economics.

Following the release of the game, Yacht Club Games revealed that the studio estimated the production costs as 1.4 million dollars, despite only achieving raising \$311,502 through crowdfunding platform Kickstarter (Pearson, 2014). To release the indie game, the studio was required to work for five months without a salary. So, what is going on behind the scenes that required hundreds of thousands of dollars? *Shovel Knight* implements numerous “quality of life” improvements from modern day video games. Although the idea of *Shovel Knight* was to recreate an experience from the past, a consumer’s memory of how older games look and play is likely different to reality (Wulf, 2018). Retro video games were infamously less forgiving, often requiring the player to restart the entire level on death (or on occasion, the entire video game), being able to save the video game was a rarity and the use of passwords was commonly used instead. Such unforgiving gameplay systems are rarely found in video games today. If a modern video game fully embraced retro gameplay systems and design philosophies, therefore emulating the nature of retro in its entirety, it is possible this could prove irritating even for the most enthusiastic fans. This sets the scene for the design philosophy of *Shovel Knight*. Indeed, the title bears many similarities to a retro, 8-bit video game, but there is a self-conscious decision not to entirely emulate how they played. Thus, the aesthetic process of *Shovel Knight* stems from Yacht Club Games spending considerable effort to ensure the aesthetic looks as close to retro video games as possible, whilst retaining modern video game design influences.

There are numerous instances in *Shovel Knight* where the developers skilfully blend the nature of retro games and a modern experience, and as demonstrated below, this requires technical skill and knowledge to execute effectively. *NES* games were extremely limited in how they could process larger characters. Therefore, characters were often of comparable size to the player character. Nonetheless, there were exceptions to this rule, but when larger enemies were present, the developers had to utilise techniques to ensure they could run on such limited hardware.

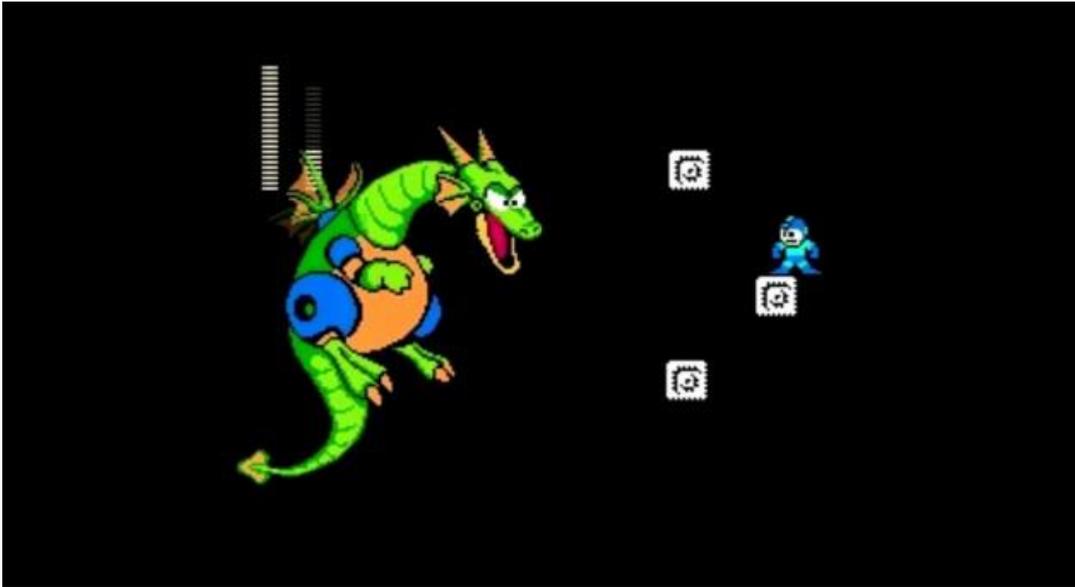


Fig 2.8. Demonstration of *NES* hardware limitation. Retrieved from: gamasutra.com



Fig 2.9. *Shovel Knight* boss background example. Retrieved from: gamasutra.com

For example, the renowned developers for the *Mega-Man* series were often praised for getting the most out of the *NES* hardware, delivering some of the most impressive-looking titles on the system (Saas, 2015). *Mega-Man* (1987) contained some of the largest boss battles found on the *NES* system, a feat that would have appeared impossible when analysing the *NES* hardware. The *NES* hardware was not designed to cope with larger characters, with enemies commonly being around the same size as the player. This imposed limitations when developers wanted to create larger characters, most commonly for boss battles. *Mega Man* overcame this limitation by classifying the larger character as an animated background instead of a traditional sprite. However, this clever technique would come at

a cost. Since the backgrounds are the boss, and the *NES* hardware only allowed one background layer (Craddock, 2018), the developers were unable to include a “real background”, therefore these larger characters were encountered on black screens. To capture the same look and feel, a black screen was re-used in *Shovel Knight* for the boss fights (Fig 2.9). Yacht Club Games were not limited by the same technical limitations that *Mega-Man* was and could have utilised multiple background layers for bosses. Thus, this conscious decision to emulate a limitation is crucial to the indie aesthetic process – the goal here is to be retro, to be “indie” - to look a specific way and therefore to achieve a specific aesthetic.

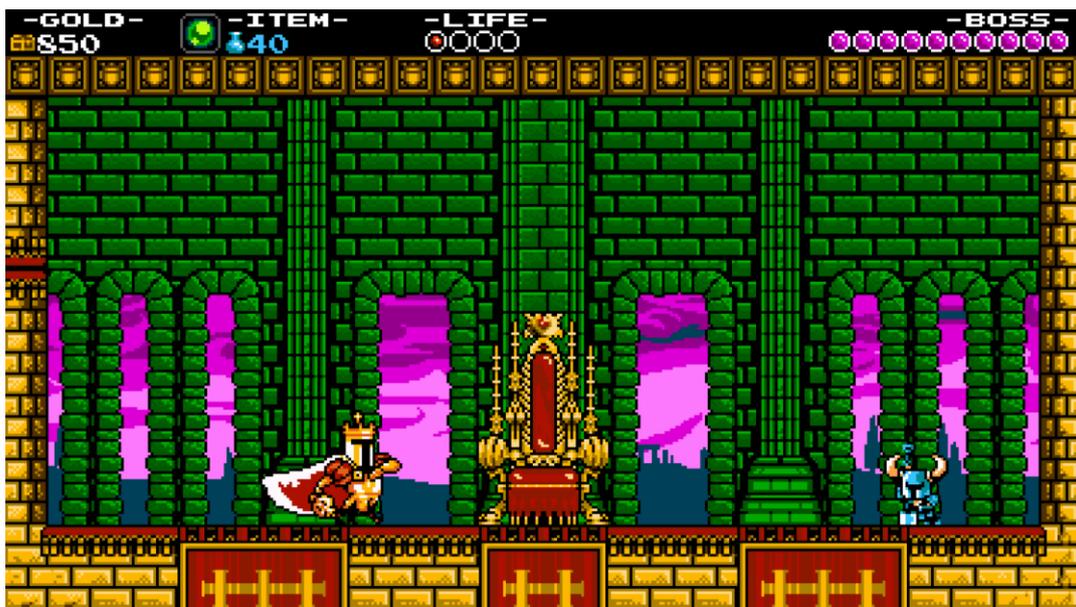


Fig 2.10. Example of multiple layers in *Shovel Knight*. Retrieved from: kotaku.com

There are occasions in the video game when multiple background layers are used. One such instance is the Pridemore Keep area as demonstrated in Fig 2.10. Whilst this is a graphical alteration, it can have a significant impact on the gameplay experience. For example, David Craddock (2018), writer for gaming website Kotaku, notes that: “Players disappear behind the keep’s elaborate red-and-gold banners when they walk past, an interaction that permitted Yacht Club to treat banner-covered areas as puzzles”. Whilst it would be understandable to believe that Pridemore Keep is possible on *NES* hardware, noting that the graphics remain 8-bit, *Shovel Knight* developer Sean Velasco notes that “The whole thing is far outside of NES restrictions” (cited in Craddock, 2018). Yacht Games set out to create an aesthetic that closely resembled that of a *NES* video game, and as demonstrated, this

aesthetic process required considerable planning and technical skill to achieve. Indeed, there are numerous gameplay and graphical differences between *Shovel Knight* and original *NES* video games. Despite this, many journalists and gamers claim that *Shovel Knight* is an authentic 8-bit experience (Webster, 2014; Payne and Huntemann, 2019). The nuances and technicalities matter little to the overwhelming majority that consider *Shovel Knight* an indie game. The game, through the many aesthetic processes it employs to create a unique retro experience, has received little to no pushback regarding its “indie” status. However, as proposed previously, there is a difference between an indie game like *Shovel Knight* and a game that might pursue a more “authentic” retro experience. At this point, my thesis explores two indie games that fit these criteria, and accordingly how their aesthetic process can contribute to a greater understanding of “indie”.

Authentic Retro Aesthetic: Squidlit and Pier Solar

Squidlit (2018), developed by Alex Barrett and Samantha Davenport, is a platformer that pays homage to Nintendo’s handheld, the *Game Boy* and is at the lowest end of the continuum in both economics and graphical fidelity (Fig 2.5). The handheld arrived over a year prior to the *SNES* when the *NES* was still the dominant console. The *NES*, as previously discussed, suffered many hardware limitations. Thus, it would have been understandable to assume the *Game Boy* would not be well-received, considering it could only display one-third of the pixels that the *NES* could (Wright, 2006). Furthermore, the LCD screen was extremely limited, and, unable to achieve a basic black and white display, is best described as a grey screen with a green/yellow tint.



Fig 2.11. *Gameboy* screen example. Retrieved from: racketboy.com

Despite these hardware limitations, Nintendo had two main goals - keeping the price as low as possible, and ensuring the handheld provided hours of usage, advertising that the battery could last up to thirty hours on four AA batteries (Stuart, 2014). Nintendo had to make several compromises to ensure these goals were met, a strategy that Nintendo has used throughout the years. Despite these hardware limitations, the strategy worked. When the *Game Boy* arrived in 1989, it was extremely popular, selling over thirty million units in the first three years. Unsurprisingly then, there are millions of gamers who have nostalgic feelings towards the system. *Squidlit* is a video game that aims to emulate the original experience of playing a *Game Boy* video game. The developers claim that the sound effects for *Squidlit* were all made on a real *Game Boy*, and that the indie game is made using the original four shades that the developers nicknamed “grelow” (Emerle-Sifuentes, 2018). *Squidlit*, in opposition to *Shovel Knight*'s approach - deliberately excludes a save function, with the developers noting a genuine *Game Boy* video game of this size would not have this feature due to the expensive nature of adding a battery backup to *Game Boy* cartridges (Barrett and Barrett, 2018).



Fig 2.12. *Squidlit*. Retrieved from: gamasutra.com

Evidently, there are some key differences between *Squidlit* and *Shovel Knight*. Whilst *Shovel Knight* is designed to look like a *NES* video game, it is also designed to be integrated into the modern video game environment. This includes taking advantage of modern controllers, HD (High-Definition), widescreens and save support. *Shovel Knight* is designed to feel like an 8-bit video game created in the modern day. Conversely, *Squidlit* aims to play and look like it was designed for the *Game Boy*, including maintaining the same aspect ratio, resolution, button inputs and limitations. *Squidlit* has been hailed as “authentic” (Couture, 2018), with the developers themselves claiming the indie game “doesn't do anything that a Game Boy can't” (Barrett, cited in Couture 2018).

...We have played the first couple of levels of the game *Shovel Knight*. While we did enjoy it, the game bothered us that the aspect ratio of pixels was not the same throughout the game. As collectors of retro games, we decided that someone needed to make a Retro Recreation that was completely accurate to the time-frame it was claiming to call from (Barrett and Davenport, 2018). **Alex Barrett and Samantha Davenport full interview in Appendix A.**

There are differences in the design philosophy behind both *Shovel Knight* and *Squidlit*, but there remain similarities in the aesthetic process. Both indie games have their roots in historical moments, and both are making numerous self-conscious decisions to make their games look and play a certain way – this is the indie aesthetic process. *Red Dead Redemption 2* approaches technology from the

perspective of how far it can push them to greater heights, whilst *Shovel Knight* and *Squidlit* approach this technology with a mindset of how this technology can be employed to take them back. *Squidlit* faithfully recreates the effect of playing a video game on the original *Game Boy*, but it is not entirely emulating the *Game Boy* production process. *Game Boy* games were developed in black and white - it was the *Game Boy* LCD that resulted in the “grelow” effect. Therefore, it is not solely the hardware limitations emulated in *Squidlit*, but using modern technology, the LCD screen of the *Game Boy* itself. When discussing indie developers and authenticity, it is commonly the developers themselves and their processes that are part of the discussion. In the context of *Squidlit*, the video game itself plays remarkably like an official *Game Boy* game. However, the production process is radically different, developed in a modern engine - *GameMaker*, and therefore is using modern tools and programming languages.

Retro-like games such as *Shovel Knight* and *Squidlit* are both developed and designed to be played on modern devices. Despite claims that *Squidlit* could be played on a real *Game Boy*, there is no way for a player to do so. However, there are “homebrew” developers⁵⁰ who view the idea of playing on retro consoles as part of the experience, and therefore they do things differently. Whilst *Squidlit* does not theoretically do anything in terms of graphics, effects, or memory that the *Game Boy* could not process, it is created in a modern video game engine and therefore would not – in its current form - function on a real *Game Boy*. Rather than purely emulating retro games, retro “homebrew” developers commonly emulate the production landscape itself, including all technological limitations. This includes the usage of the original programming language, such as 6502 assembly language which was designed around 8-bit systems, including the *NES* (Barbara, 2016). Through this method, retro

⁵⁰ The term “homebrew” means to create a video game for an older system. These systems are typically proprietary hardware, and therefore are accessible without authorisation. In other words, “homebrew” is about creating “homemade” video games for hardware where this was not intended. Thus, the homebrew developers discussed in this chapter are those that create video games for older systems and should not be confused with illegal “homebrew”, where retro video games can be played illegally through software that emulates older hardware.

game developers can develop video games that can run on old hardware, such as the *NES* and *Mega Drive*.

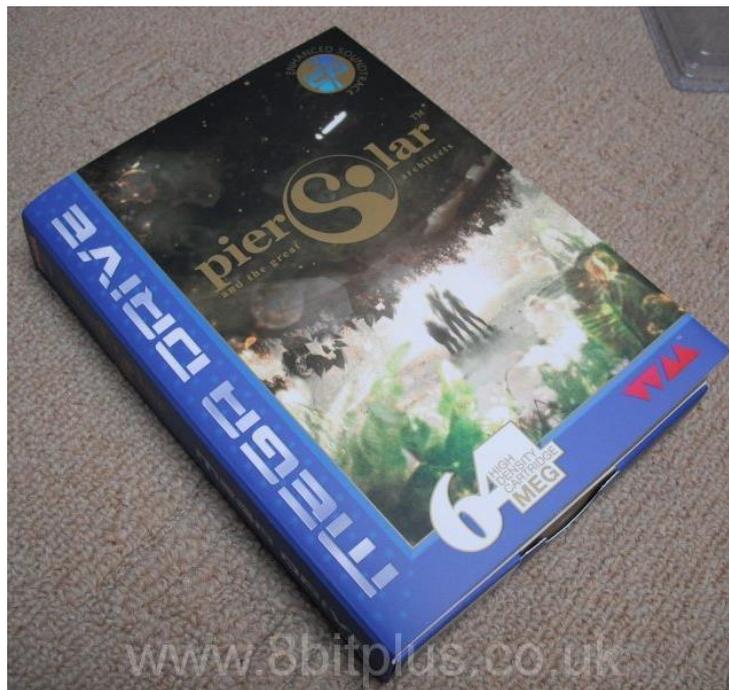


Fig 2.13. *Pier Solar and the Great Architects* box art. Retrieved from: 8bitplus.co.uk

Originally released exclusively for the *Sega Genesis*, a console that was discontinued in 1998 (Schreier, 2012), *Pier Solar and the Great Architects* (2010) hit the headlines when it launched over a decade after the system had ceased production. There are multiple motives behind developers who continue to release video games for retro platforms. Some developers have an affection for the console they grew up playing, with many fond memories of video games they enjoyed playing. Others might have an interest in experimenting with older programming languages and platforms, or it could be a mixture of both nostalgia and curiosity (Webster, 2017). However, when considering the consumer experience of a retro homebrew game, there is one key differing characteristic - the physical aesthetic experience. Indie games like *Shovel Knight* and *Squidlit* might look and play like retro games, but there is one major aspect missing, physical representation. There is only one way to legally play *Pier Solar*, and that is by purchasing the physical cartridge (Fig 2.13), which includes the cartridge box and video game manual. The experience of travelling to a local store, purchasing a video game, and then returning home to play it on a console was part of the overall experience that many players look back on with nostalgia (McFerran, 2012). This is characteristic of the indie

aesthetic process, a self-conscious decision to produce a video game with the physical aesthetic experience is crucial for some consumers. It remains possible to purchase physical video games, but due to a movement to become more environmentally friendly that begun with developer and publisher Ubisoft in 2010, video games now mostly come packaged solely with a box and disc. As demonstrated in Fig 2.14, the video game manual was often a large physical presence in a video game box, and many gamers have expressed their disappointment at their removal (Reddit, 2018; Ware, 2018). Furthermore, the video game industry has been gradually moving away from physical distribution entirely, with 80 percent of all video game sales being digital in the UK in 2018 (Yin-Poole, 2019). Thus, despite *Shovel Knight* and *Squidlit's* retro aesthetic, there is a physical presence missing. This is unsurprising, as noted in Chapter 1, distribution was one of biggest hurdles for independent developers, and therefore the costs of physical distribution are often too high for most indie developers. It is unsurprising then, that when indie games do release physically, it is commonly after a successful digital launch. For example, *Shovel Knight* only became available physically in October 2015, over a year after the successful release of the digital version.



Fig 2.14. *Pier Solar* Manual. Retrieved from: 8bitplus.co.uk

All three titles explored above: *Shovel Knight*, *Squidlit* and *Pier Solar* employ different design philosophies. *Shovel Knight* provides an experience that whilst resembling a retro game – also incorporates modern video game influences, employing the technology that is now available to video game developers. *Squidlit* emphasises a focus on providing an authentic *Game Boy* experience, looking, and playing as if it had released several decades prior. *Pier Solar* goes even further to provide an authentic retro experience, emulating the digital and physical aesthetic experience of a retro video game.⁵¹ All three indie games explored above share a similarity in their employment of a retro aesthetic, there are differences in how look and play, but they all have their roots in historical moments. Indeed, they all employ new technology to emulate older games, and this is done in different ways, with each game comprising a different level of constraint. However, the goal here is not to determine which is the most “indie”, but to acknowledge that despite these different ways of working, all these games are representative of the indie aesthetic process.

The next theme to be explored is the “pixel art” aesthetic. There are similarities to the retro aesthetic, considering many indie retro games employ pixel art, including those discussed above. However, they all have a retro theme that feeds into the way the game looks and plays. Although the pixel art aesthetic has its roots in a historic moment, the intention is not always to be retro, and therefore the way a “pixel art” indie game plays can differ drastically from indie retro games.

Pixel Art Aesthetic: Braid

Daniel Silber (2015), in his book *Pixel Art for Game Developers*, argues that in most cases, anyone can create “pixel art”. He notes that due to the relative simplicity of “pixel art”, creating video games utilising this style is much more achievable than with many other art styles – notably those that are 3D. Silber supports this argument with several examples, including low cost of software, requiring less powerful hardware, and a less time-consuming process of creation. However, whilst Silber is theoretically correct in that almost anyone can create “pixel art”, there is a vast difference between

⁵¹ It is worth observing that despite these efforts, it is near impossible to emulate them in their entirety – notably the production mindset. The environment that *Pier Solar* is striving to emulate consisted of developers, who like those working on *Red Dead Redemption 2*, were more focused on pushing the technological limits of the time. Now, they have moved onto producing far more technologically demanding video games for newer hardware.

creating “pixel art” and creating great – or even good – “pixel art”. Whilst Silber does note that employing “pixel art” “heavily limits the amount of work that is needed to create production quality artwork”, the idea that creating pixel art is “easy” is questionable. Without a certain level of quality to achieve, creating 3D could also be considered “easy”. Whilst Silber’s assertion that creating “pixel art” is much easier than styles like 3D is supported by many people, including developers who have created video games in multiple styles and dimensions (Fleischauer, 2013; Rancea, 2019), in fact many of the most popular indie games are often praised for their intriguing worlds and charming graphics, and many of them have skilled artists behind them.

“Pixel art”, as the name implies, is where pixels are highly visible. A pixel is one of many small squares on, for example, a PC monitor. A 1080p monitor would have 1,080 pixels horizontally, and with each pixel being able to display its own colour, the more pixels available, the more detailed the image can be. Naturally, the more pixels that are available to the developer, the more hardware power that is required to display them. Older consoles, such as the *NES* and *SNES* which were 8-bit and 16-bit respectively, were hampered with hardware limitations that significantly limited the number of pixels that could be used. With only a handful of pixels available, each individual pixel was visible to the player as demonstrated in Fig 2.15. Blake Reynolds, a pixel artist at DinoFarm Games, has produced “pixel art” for several video games. Reynolds, through his blog, aims to clear up confusion surrounding what makes good “pixel art”. He notes that developers working on older hardware were extremely limited, and therefore good artists saw this limitation as a problem to be solved, and an obstacle to overcome to create something as close as possible to what they or the director had envisioned.



Fig 2.15. Closeup example of individual pixels (squares). Retrieved from: dinofarmgames.com/

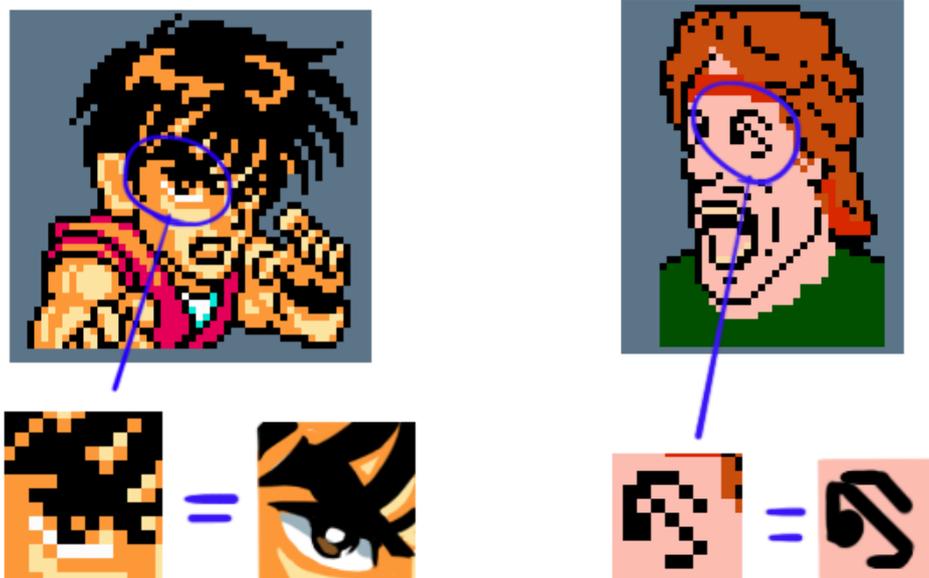


Fig. 2.16. Good and Bad Pixel graphics Example. Retrieved from: dinofarmgames.com

Reynolds uses Fig 2.16 as an example of “good” and “bad” pixel graphics. For both images Reynolds has re-drawn the eyes of both Guy (left) and Rambo (right) in significantly higher resolution. Guy’s eye is created in such a way to create an illusion, Reynolds (2015) reveals: “By strategically grouping

colors and observing their relationships, more complex shapes and forms were implied. The use of flesh tone under the eyelash and on the iris even implies other colors”. In other words, Guy is created with the goal of the consumer believing the art is more detailed than it is. To demonstrate this, as seen in the bottom half of Fig 2.16, Reynolds redrew Guy’s eye based on the original pixel art, and he was able to produce a much more realistic eye that still closely resembles the source material. However, with Rambo, there is little Reynolds could do to make the eye look more realistic, even when utilising a much higher resolution – and therefore, stressing the importance of good “pixel art”. Reynolds notes that current “pixel art” is a choice of style, in the same way as retro – the “pixel art” aesthetic is a self-conscious decision.

The aesthetic process of *Braid* can provide an insight into how some indies utilise the pixel aesthetic. *Braid* as shown in the visual continuum (Fig 2.5), is close to a middle point in terms of both economics and graphical fidelity. In terms of graphical fidelity, that was not always the case - Fig. 2.17 and Fig. 2.18 exhibits “indie” hit *Braid* before and after the video game’s only programmer, Johnathan Blow, hired dedicated artist, David Hellman to overhaul the video games simplistic “pixel art” aesthetic (Hellman, 2008).



Fig. 2.17. *Braid* utilising “pixel art”. Retrieved from: gamasutra.com

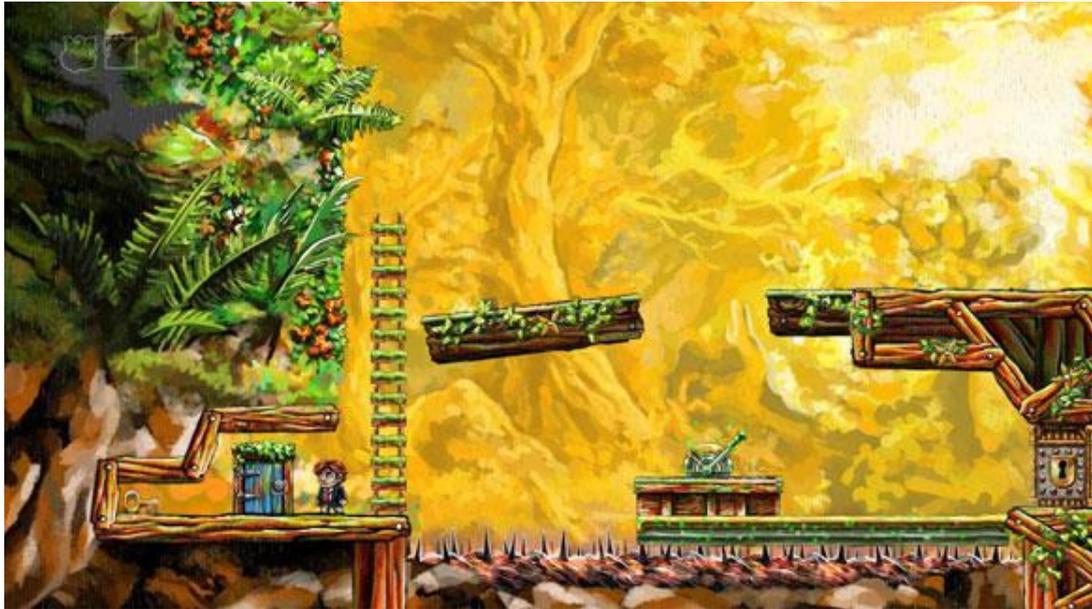


Fig 2.18. *Braid* after graphical overhaul. Retrieved from: gamasutra.com

Braid is known for its artistic and lush graphics (Horti, 2018; Meslow, 2018), but Fig 2.17 is not the *Braid* that most people will be familiar with. Fig 2.17 is not *Braid* in an early stage of production, before Blow had spent any significant time on developing the video game, but rather *Braid*'s gameplay, mechanics, story and overall video game structure were nearly complete when this screenshot was taken. Thus, the aesthetic shown in Fig 2.17 was due to an awareness from Blow that he lacked the sufficient technical skill to create anything other than simplistic "pixel art" – thus, resources can be a factor in the aesthetical choice of a video game. In addition, *Braid* is an example of an indie game that was not held back by its budget, and therefore was able to overhaul its graphical fidelity to match that of Blow's original vision. In a 2008 interview with Gamasutra, Hellman's interview provides some insight to this process.⁵² Hellman deconstructs the process of overhauling Braids simplistic "primitive" pixel art style. When he was hired, Hellman did not immediately begin overhauling the graphics in his style; this process was a long and challenging collaboration. As shown in Fig 2.19, there were numerous aesthetic styles that were trialled for *Braid*. After each attempt, Hellman would send his work to Blow who would then provide feedback. This feedback was not as simple as Blow either liking or disliking it; but rather both Blow and Hellman were striving for a specific aesthetic, and they were not going to stop until they found it. Although there were many

⁵² Blow and Hellman were contacted for further insight; unfortunately, neither responded.

unused styles, many of the ideas that Hellman experimented with were used in other parts of the video game (Hellmann, cited in Gamasutra 2008).



Fig 2.19. *Braid's* experimentation with graphical styles. Retrieved from: gamasutra.com

In Fig 2.20, Hellman developed another prototype; as a graphics designer he was focused on making the scene look good. When this screenshot was sent to Blow, he highlighted the terrain that had been cut out from the middle platform. As a puzzle video game, with many intentional placements of items and terrain, Blow believed that if areas of the video game were suspicious then players may believe that this terrain had a rectangular cut out for a reason and was perhaps crucial to solving that area's puzzle. This is also evident in Fig 2.21, where Hellman created a cliff that while appearing interesting, could detract from the gameplay. As noted by Hellman's reflection upon further feedback from Blow: "In this concept, the background extends the cliff further right. This interferes with the immediate perception of the cliff the way it really is" (Hellman, cited in gamasutra 2008). Hellman was approaching *Braid* from a graphic designer's point of view, whilst Blow was looking at it from a

gameplay perspective. Thus, the aesthetic process could appear dissimilar to that of the retro indie games discussed previously, but the indie aesthetic process means more than just connection to older video games. The aesthetic process here is representative of another characteristic of indie - aesthetic experimentation, a video game that looks unfamiliar, and therefore represents originality.



Fig 2.20. *Braid* platform example. Retrieved from: gamasutra.com



Fig 2.21. *Braid* background example. Retrieved from: gamasutra.com

As mentioned above, *Braid* is widely known for its lush graphics and artistic elegance. Therefore, the crucial intervention for *Braid* was arguably an artistic intervention. Blow, knowing that the aesthetic was crucial to his aesthetic vision, brought in Hellman to achieve it. Although not the focus of this chapter, we can begin to see the connection between to the three themes of indie as process – unlike “AAA”, the indie production process can extend the time available for radical aesthetic changes, and as demonstrated above – a process of back and forth re-visualisation. Indeed, *Braid* lost its “pixel art” aesthetic, a style commonly associated with “indie” – but it did so through the indie process, and consequently would become synonymous with “indie” in other ways. At this point, the discussion will move to the fourth and final aesthetic theme, hand-drawn. At the same time, through *Cuphead*, my thesis begins to explore whether an association with “AAA” publisher Microsoft complicates claims of being an indie game.

Hand-Drawn Aesthetic: Cuphead

Cuphead (2017), a side-scrolling “run and gun” indie game, has garnered a lot of attention for its aesthetic. Like *Red Dead Redemption 2*, *Cuphead* has been broken down, analysed, and discussed (Linneman, 2017; Webster, 2017; McGowan, 2019). *Cuphead*, in the visual spectrum (Fig 2.5), is at a considerable distance from AAA games like *Red Dead Redemption 2*, but it does get significantly closer than most other indie games. There are some similarities between the two, like *Red Dead Redemption 2*, *Cuphead* looks to the past to create an aesthetic that has rarely, if ever, been seen in video games. Despite this, there is a difference in the aesthetic process. *Cuphead* employs an aesthetic that looks like a 1930s American cartoon, and like the cartoons of that era, the video game is hand-drawn and animated on paper and then digitally transferred. The only area handled digitally is the colourisation, and therefore the video game was created in an almost entirely traditional 1930s process (Linneman, 2017). Thus, whilst *Red Dead Redemption 2* required hundreds of personnel to create its

look, *Cuphead* instead relied on a few immensely talented artists.⁵³ Similar characteristics can be seen in the aesthetic process of indie games discussed previously, such as originality and employing modern technology to emulate older technology. There is a difference here though – *Cuphead* is not just emulating older technology, but through its hand-drawn 1930s aesthetic, also employing analogue materials in the aesthetic process.

Cuphead is widely considered indie (Gutiérrez, 2019; Webb, 2019), the developers themselves have stated they own the IP (Hall, 2017), and the video game is listed as developed and published by Studio MDHR. However, *Cuphead*, like many other indie games, is not without objections to the claims of being “truly indie”. *Cuphead* launched exclusively on consoles for Microsoft’s *Xbox One*, and developers Studio MDHR noted that “...without Microsoft’s help and support, it would be hard to get to where we’re at today” (cited in Makedonski, 2017). Whilst the specifics of this exclusivity contract are unknown, Studio MDHR endorsed Microsoft as one of the key reasons *Cuphead* was able to achieve the quality and scope that it did. Thus, it is crucial to look at this relationship more closely – identifying if and how this could complicate an understanding of indie as process. *Cuphead* is often cited as being in production since 2010 (Gilyadov, 2017; Webster, 2017), but according to the video game developers themselves, this was in fact a five-year production cycle (Leone, 2017). Thus, whilst there had been experiments beforehand, the video game began production in 2012 and launched in 2017. Before this, the two main developers, brothers Chad Moldenhauer and Jared Moldenhauer, were inspired by the success of other recent indie games like *Super Meat Boy*. They had attempted video game production before, but this mostly consisted of “hobbyist” projects or unsuccessful attempts at a commercial video game. They began by

⁵³ Team sizes have been a focal discussion area in discourse surrounding indie games, including whether this could define the aesthetic (Barnson, 2013; Oakley and O’Connor, 2015; McAuley, 2017; Ivănescu, 2019). Indie games are commonly associated with small teams (Rose, 2011; Barnson, 2013; Juul, 2014; Hansen, 2016). This does not mean that all indie production studios are small, my typology identified that *INSIDE* (2016) and *Battlerite* (2017) were developed by thirty-five and forty-five team members respectively. Nonetheless, these video games are an exception to the rule, and my typology revealed that the average indie team size was seven, in comparison to 170 for AAA. Indeed, the team size can influence the indie aesthetic process, as seen with *Red Dead Redemption 2*, a larger team means more possibilities to push the technology – but this also means increased production costs. Consequently, this can impact the process, resulting in less likelihood of risk-taking and originality such as those seen with *Cuphead*, “AAA” must target the as large of a market as possible to recoup those costs.

experimenting with different art styles, such as a video game in which the art style changed based on which school grade the player was currently in. However, they would eventually settle on the 1930s cartoon aesthetic seen in the final video game.

The early production phase of *Cuphead* is where several foundations are established, including its original, hand-drawn aesthetic.⁵⁴ This unusual appearance was eye catching, and therefore it is no surprise following the success of Microsoft's partnership with Johnathan Blow, creator of *Braid*, that they were once again interested in other unique indie games. Come Christmas Eve 2013, a few months after StudioMDHR had posted the first trailer for *Cuphead* on YouTube, Microsoft contacted the developers and informed them that they would like to see the video game on the *Xbox One* console (Moldenhauer and Moldenhauer, 2014). This was the start of the deal that would see Microsoft securing exclusive console rights to the video game. Naturally, it was unlikely this deal was completed in 2013, and therefore was finalised in 2014. Similarly, the effects of this deal, such as extra financing and promotion, were unlikely to influence *Cuphead* immediately. Nonetheless, the video game was developed from 2012, not 2010 as commonly reported (Leone, 2012), and therefore Microsoft's involvement came reasonably early in the production cycle. Thus, for at least three of the five years *Cuphead* was in production, Microsoft were involved. Despite this, as demonstrated in Fig 2.22 and Fig 2.23, the video game looks very similar before and after Microsoft became involved.

⁵⁴ *Cuphead* is also known for its difficult, unforgiving gameplay. A common characteristic in retro video games, but a rarity in a modern video game.



Fig. 2.22. *Cuphead* in 2014. Retrieved from: <https://www.engadget.com>



Fig. 2.23. *Cuphead* at launch in 2017. Retrieved from: polygon.com

Outside of a clearer image, several UI (User Interface) changes, and a bat boss that did not appear in the final release, much of the gameplay and aesthetic were almost identical from 2014 to 2017.

However, throughout 2014 and 2015, there would be one area that Microsoft would play a significant role in the success of *Cuphead*. At the E3 presentation for indie games coming to the *Xbox One* in 2014, Microsoft showed a few seconds of *Cuphead* footage – despite this minimal exposure, it was enough to ensure thousands of consumers were now aware of the video game’s existence. In 2015, Microsoft personally invited the studio to show off *Cuphead* at the 2015 Game Developers Conference. After two well-received showings, *Cuphead* was now starting to build a large following

and the video game would gradually become one of the most anticipated video games on the *Xbox One*.

Studio MDHR have since reflected on their original vision, noting that it was much larger in scope than what they believed they were capable of. Thus, they were originally creating a different *Cuphead*, but following the backing of Microsoft, and the positive reception discussed above, there was now the possibility to return to this original vision. Studio MDHR began to hire additional staff, and by 2016 the team size had expanded to fourteen people, consequently raising the amount of content they intended to include in the final video game (Leone, 2017). However, this did not solely stem from Microsoft's financial backing – it has since been revealed that more funding was required to achieve the original vision. To hire additional staff, Chad and Jared would gamble and pursue bank loans to hire additional staff and fund this now increasingly ambitious video game (cited in Leone, 2017). Thus, success became increasingly crucial. However, as noted previously, a reliance on financial success is often seen in “AAA”, but there is a key difference here – whilst “AAA” commonly strives for familiarity, and therefore to maximise chances of success, as demonstrated above, *Cuphead* was doing the opposite and therefore success was less likely.

In Chapter 1 my thesis proposed the idea that it is possible to spend a period of time as “indie” – “indie” is not rigid, and therefore there is a possibility for an indie studio to transition into “AAA”. Though, this is not what is happening here – the moment Microsoft became involved does not suddenly cause StudioMDHR to become “AAA”, nor for *Cuphead* to transition into a large, sprawling 3D video game with a huge team pushing the latest technology. Through indie as process this conclusion can be reached with more certainty; including the aesthetic process discussed here, but also more broadly through indie as production process and indie as community process. *Cuphead* had a small team size and employed originality not just through its aesthetic, but through its immensely difficult “retro run and gun” gameplay (Linneman, 2017). In addition, despite its association with Microsoft – StudioMDHR, as discussed above, still had to pursue additional funding. Lastly, through my typology, it became evident that *Cuphead* had always been marketed and seen as an indie game by StudioMDHR, Microsoft, consumers, and journalists, and therefore accepted as such by indie

communities. Thus, this is the advantage of the indie as process definition – it provides a broader, inclusive understanding of what makes an indie game “indie”.

Conclusion

My typology revealed that the “pixel art” aesthetic is the most used indie aesthetic – despite this, the objective was not to establish the peak indie aesthetic, instead my primary research was employed to establish the four most prominent indie aesthetic themes. Although all four themes are shown to produce indie games that look and play different, through my definition indie as process - they can all be considered indie games. At first glance, it could appear contentious to declare that a video game backed by Microsoft, and a video game developed almost single-handedly by one developer are both “indie” – but there is a common thread which runs through their aesthetic process. Indeed, in contrast to *Shovel Knight*, *Braid* strived to move past its “pixel art” aesthetic - but both games were the result of self-conscious, planned decisions. Notably, they were both employing modern technology to represent older technology. Look even deeper, and both games are pushing to look a certain way, pursue originality, and take risks.

In addition to these conclusions, it became evident – particularly through the analysis of *Cuphead*, that by establishing three predominant themes within indie as process, and exploring the above games more broadly, they can be defined as such with more certainty. Accordingly, Chapter 3 begins to explore the second theme of indie as process - the production process. It became clear in this Chapter that the production process can be influenced by several of the same factors – mindset, budget, and team size. However, as established in Chapter 1, there is a secrecy to video game production that can make it difficult to determine the realities of the production process. To counter this, Chapter 3 draws on several sources to provide new knowledge and perspectives on the indie production process. This includes the production of my own indie game, a survey with 966 respondents, original interviews with indie developers, and this discussion is supplemented with textual analysis.

Chapter 3

Making Indie Games, Making Games “Indie”: Production as Process

In my thesis introduction, it was discussed that there have been discussions surrounding expectations of “indie” (Szabo, 2010; King, 2016). This extends to the production process of an indie game, where indie developers are not typically expected to partner with publishers but are expected to employ increasingly accessible game tools to create original and unique games. However, more and more “indies” are “failing” every year (Ismail, 2015; Rose, 2018; Johnson, 2018), and therefore an opportunity for “indies” to remain financially independent is becoming less likely (Taylor and Lowthorpe, 2017; French, 2018). In addition, there is a rise in discussions surrounding unethical working conditions usually focused on major publishers like CD Projekt Red and Rockstar Games. Notably, discussions focus on excessive working hours and a distressing number of women being mistreated. The majority of these discussions are recent – which comes as no surprise considering that the production process of video game studios is shrouded in secrecy (O’Donnell, 2014), and “AAA” studio’s secrecy is taken so seriously that NDAs (Non-Disclosure Agreements) are commonly agreed before journalists, testers, or the developers themselves can discuss or witness anything that is not public knowledge (Schreier, 2015; Lane, 2016). As alluded to in my introduction and Chapter 1 (Davis, 2013; O’Donnell, 2014; Schreier, 2018), this mystery extends to indie developers, and the realities of their production are still relatively unknown. As previously discussed (p69; p92), “indie” is often considered in opposition of “AAA”, but through my original research, this chapter explores the indie production process to determine whether this conclusion can be reached with more certainty.

Through my primary research it is clear how production secrecy and indie consumer expectations has led to several incorrect but common assumptions regarding the indie game production process. My questionnaire data reveals that 81 respondents claim that “indies” are defined by their uniqueness, originality, and general ability to offer new experiences. Respondent 17 notes: “I like games. Specifically good games. I find more originality in indie games and stops them becoming samey”. Respondent 767 shares a similar viewpoint: “I play indie games because the smaller game

developers take more risks and create original game concepts...”, whilst respondent 635 defines indie games through their pursuit of new and original ideas: “Game developed by a small group of persons trying to bring new and original ideas for games”. Likewise, my interviews reveal that the idea that “indies” pursue originality is prevalent with the developers themselves. Nick Sherman, sole developer of *Retro Football Boss* (2016), notes that: “Indie breeds originality, you can’t compete with big software companies on existing genres and ideas, so you have to come up with something unique”. Eric Barone, sole developer of *Stardew Valley* (2016), shares that viewpoint, noting: “Indies will always be the ones who pursue novel and unique ideas. I think that’s very important”. Thus, there is a clear belief that indie games are and will remain focused on delivering unique and original experiences. However, at the same time, my questionnaire data reveals that 147 respondents define an indie game by their relationship with a publisher. Some respondents defined an indie game as not having a publisher at all, such as respondent 302: “An independently developed game, so no publishers or investors influencing design/production decisions” and respondent 748: “I would define it as a game developed by a small team that has no publisher. Like a 1-20 person team”.

This data reveals the conflicting expectations from the consumers; indie games are commonly associated with being unique or original, and publishers are often seen as a threat to this mindset. However, as noted above, an increased failure rate now means more “indies” are seeking funding. In addition, not all consumers defined “indie” through their avoidance of publishers, but rather through the publisher’s size. For example, many respondents defined “indie” through not partnering with a “large” or “big” publisher, such as respondent 149, who defines “indie” as: “Created by small team without money from big publisher” and respondent 357: “A game that is developed by a small studio and does not have a large publisher”. However, *Journey*, which is published by Sony, and *Cuphead* which, as discussed in Chapter 2, has input from Microsoft. Nonetheless, both video games are still considered “indie” (Avard, 2019; Gutiérrez, 2019; Webb, 2019). Chapter 2 identified, through *Cuphead*, that a relationship with major publishers is not as rigid as some consumers believe. However, this does not mean large publishers cannot interfere with the indie production process. In

response, this chapter explores the rise of “indie publishers” and why they have become preferable for indie developers.

There are four prevalent themes identified above with many uncertainties and misconceptions in how they contribute to making an indie game “indie”. These four themes – Funding and Publishers, Working Conditions, Game Tools and Originality are explored in this chapter through my original primary research⁵⁵ to better understand the intricacies of the production process of an indie game.

Funding and Publishers

As discussed above, indie games are commonly regarded as video games without support from a publisher. With the arrival of indie hits like *Braid* and *Super Meat Boy*, the immediate difference was their lack of publisher, leading to discussions focused on their independence. As discussed throughout my thesis, there are numerous characteristics that can be associated with indie games, but due to the term “indie” often being considered an abbreviation of “independent”, much of the attention has been on publisher independence. However, the video game industry was a much different place when *Braid* and *Super Meat Boy* launched – through XBLA – with little to no competition. That is no longer the case, there are significantly more indie games releasing every year (Rose, 2018; Johnson, 2018), and thus indie developers are having to do much more to achieve success – and in the process - seemingly becoming less comparable with those from the late 2000s (Spalding, 2018). Notably, there is an increasing need for indie developers to be more business-minded if they want to stay in business and continue making indie games (Taylor and Lowthorpe, 2017, French 2018). In response, there has been a rise of “indie publishers” in recent years, providing indie developers with funding and providing them the opportunity to launch in multiple markets (French, 2018). However, more importantly, they

⁵⁵ Alongside my original interviews, these discussion points will be supplemented by original survey data gathered as part of my doctoral research. These findings will be tested through my action research, the development of my own indie game. This game, developed in the *Unity* engine for the purpose of research, makes it possible to situate the ideas and theories that arise from the interviews and questionnaire in relation to practice. It therefore allows me to test and compare the discussion points of this chapter against the first-hand experience of developing an indie game. This investigation into the indie production process, drawing upon these three perspectives, provides new and original insight into the realities of the video game industry.

assist developers in porting their indie games to a variety of platforms (Barone, 2018).⁵⁶ Thus, indie developers partnering with publishers is not only becoming more common, but also increasingly necessary in the current market (French, 2018). Although there are numerous indie developers who have not partnered with publishers, according to French (2018) they have achieved success through sheer luck, developing the right indie game at the right time and place. As noted in the introduction to this chapter, many consumers believe that indie games are those that do not partner with publishers, and consequently there is a strong possibility that many of these indie developers will be questioned on whether they are truly “indie”. Evidently, there is an unrealistic expectation that despite increasing financial demands, and/or low revenue - indie developers can continue to create video games that are experimental, creative, and original. However, if indie developers are not achieving enough revenue by themselves, nor do they have the expertise to market and sell their video games, it is not feasible for them to remain publisher independent (Taylor and Lowthorpe, 2017). Justin French (2018) believes that indie developers need to partner with publishers if they want to release in different markets, and in the process increasing their chances of success through increased financial gain.

As discussed throughout my thesis so far - indie as process is a broad and inclusive definition, and therefore there is no rigid requirement to be publisher independent. However, do indie developers need to pursue an “indie publisher” to be considered indie? *Cuphead* suggests they do not - despite a partnership major publisher Microsoft, *Cuphead* remained characteristic of “indie” through its indie aesthetic, production, and community process. The idea here that has been building throughout my thesis is that there is no one defining attribute to being “indie”, and therefore partnering with a large publisher will not automatically transform an indie game into something else. However, as noted above, this does not mean that the involvement of a large publisher cannot impact the processes that make an indie game “indie”. Firstly, it is crucial to identify the role of video game publishers. In simple terms, a video game publisher can fund, market, and distribute video games (Greenspan,

⁵⁶ Video game porting, which is the nature of “porting” a video game to multiple video game platforms, is a commonly overlooked process of video game production. It is also a very difficult one (Wawro, 2014), and therefore for indie developers with no prior experience of doing so, “porting” their video games to other platforms is a tremendous task (Tighe and Longhurst, 2019).

2013).⁵⁷ This could be third party developers, or a publisher could have one or more internal production teams.⁵⁸ Thus, when for example, a third-party developer begins a relationship with a publisher, there will have been certain agreements in place (Greenspan, 2019). After all, a publisher's primary goal is to make money, and consequently a publisher will need to believe in the video games financial success, whilst trying to ensure the studio completes production in time without going over budget (Yin-Poole, 2016; Schreier, 2020). However, this is where indie consumers distaste towards major publishers comes into play – major publishers demand financial success, and consequently risk-taking, experimentation and originality are minimised or avoided (Wilson and Zackariasson, 2012; Semuels, 2019). Instead, emphasis is on mass-market appeal – popular genres, gameplay mechanics and aesthetic styles with a focus on sequels to established franchises (Pereira, 2017). In addition, major publishers will expect a developer to deliver a video game on time, and should the schedule overrun, they can commonly be forced to release the video game in an unfinished state (Gilber, 2014; Stanton, 2015).⁵⁹ This is in direct contrast to the indie production process, there is an emphasis on the opposite – risk-taking, experimentation and originality are at the heart of what constitutes as “indie”. Thus, it is no surprise that consumers struggle to comprehend a successful relationship between “indie” and a major publisher.

What then, is the difference between a publisher and an “indie publisher”? *Hotline Miami* and *Enter the Gungeon* are two indie games that partnered with “indie publisher” Devolver Digital. Mike Wilson (cited in Takahashi, 2019), founder of Devolver Digital, shares what he believes contributes to their appeal: “I think it's still a first choice if you're an indie, because we still give everybody a really screaming deal. Whether we've never worked with them before or whether they're the *Hotline Miami* guys, they get pretty much the same deal”. The term “deal” is vague in this context, but as discussed

⁵⁷ In some instances, a publisher will provide funding before or during production, whilst other times with video games like *Stardew Valley*, they handle the distribution, porting and marketing side after the video game has been developed (Greenspan, 2013).

⁵⁸ See third party examples like From Software, who have partnered with multiple major publishers including Sony, Activision, and Namco Bandai. Alternatively, major publishers like Ubisoft have internal studios all over the world.

⁵⁹ This is not always the case; some major publishers will agree to production delays – however this must be agreed upon with the developer.

above, can encompass numerous agreements such as financing, schedule, and direction. Wilson notes that when they started out in 2009 ownership was a real problem in the industry, and “indies” were being taken advantage of and given bad deals - but they were one of the few publishers that ensured the indie developer remained the owner of their IP. Wilson (cited in Takahashi, 2019) notes that this situation has improved dramatically: “But now it feels like the crusade is over. People know what a good deal is now. The indies know. They know they should own their IP”. Nonetheless, Devolver Digital remain a very attracting prospect due to them understanding the production process of indie games, Wilson notes: “We’ve helped make a lot of indies rich without messing with their art or owning anything”. In addition, head of production Andrew Parsons (cited in Valentine, 2019) reveals that they allow developers to be flexible with their production schedules, and that they are free to experiment and restart production without repercussions.

It is not only “indies” choosing publishers, but “indie publishers” choose what games they want to publish; Devolver Digital choose to work with “independent developers from all over the world to produce and promote some of the most original, eccentric, and beloved games” (devolverdigital.com, 2021). In addition, Devolver Digital remains small, as of 2019, they have sixteen employees (Valentine, 2019), and therefore like many indie developers, they want to stay small and embrace their limitations: “We don’t want to do everybody’s game. We can’t” (Wilson, cited in Takahashi 2019). Devolver Digital are small, partner with indie developers they believe are pursuing original gameplay, provide full ownership whilst allowing flexible deadlines, and consequently encourage risk-taking and experimentation – this all sounds very characteristic of “indie”. Indeed, it is easy to see how a relationship with a “indie publisher” supports the indie production process. There are indie games like *Journey* and *Cuphead* which have successful relationships with major publishers, but there are also, as noted above by Wilson, instances of “bad deals” where major publishers can interfere with the indie production process. Thus, “indie publishers” share many of the same characteristics with indie developers, and therefore understand and support the indie production process.

The rise of “indie publishers” is in no small part due to rising production costs and increased competition. Indeed, Chapter 2 explored the production of *Shovel Knight* which revealed the indie game required hundreds of thousands of dollars to develop. In addition, *Braid*’s \$200,000 production budget (Gibson, 2009) in 2008 is large even by today’s expectations for a single developer. However, these numbers could seem contentious alongside the term “indie”, for example Juul (2019) cites a critical review from Zero Punctuation which argues that this large budget undermines the meaning of “indie”. Indeed, 204 respondents defined “indie” as having a small budget. Respondent 32 notes: “An indie game is a game by a small developer with a small budget”, whilst Respondent 153 defines indie as: “A game made by a small independent studio, with a much smaller budget than those of AAA games”. Respondent 153 makes a good observation – budgets like *Braid*’s \$200,000 may seem large for a single developer, but as identified in Chapter 1 (Fullerton, 2014), in comparison to the tens of millions demanded by “AAA”, it is a relatively small sum. Despite *Braid* releasing over a decade prior, it was listed as a favourite indie game by eight respondents. To many indie consumers *Braid* was “indie” – it met their expectations, it looked and played like an indie game. Indeed, there are inconsistencies in the expectations of indie consumers, and much of this stems from a lack of awareness to the realities of the indie production process. Indie budgets will continue to rise, more indies will partner with publishers, and budgets will begin to commonly exceed millions of dollars. The goal here is not to establish a ceiling for an “indie budget”, but instead, by defining indie games through the process by which they are produced, we can move beyond indie definitions with inconsistent measures.

Publishers are not the only option for “indies” that require financial assistance. In 2013, *Shovel Knight* launched a crowdfunding⁶⁰ campaign on the platform Kickstarter,⁶¹ achieving \$311,502

⁶⁰ Crowdfunding, in the context of video games, is where large numbers of people support a video game proposal over the internet.

⁶¹ Kickstarter, launched in 2009, is a crowdfunding platform that allows a variety of creative projects to seek funding, and one of the most frequent projects are video games. People who “back” these projects are commonly provided numerous rewards, such as their name in the credits, a copy of the game at the launch, and early access to the game as it develops. Furthermore, Kickstarter projects are usually accompanied with several financial “stretch goals” that incentivise people to back the project. Stretch goals are usually gameplay focused and promise numerous improvements and additions to the game they are backing should they be met.

(Kickstarter, 2013). In the years following Kickstarter's launch there were a few game projects that were successfully funded. Those games, such as *Code Hero* (unreleased at time of writing, June 2021) were relatively small in nature and received little mainstream attention (Purchase, 2017). The first high-profile Kickstarter video game success would come in 2012 with Double Fine's *Broken Age* (2014) achieving an enormous 3.3 million dollars (Kickstarter, 2012). *Broken Age* was headed by Tim Schafer, founder of Double Fine. In his Kickstarter video, he notes that "'If I were to go to a publisher right now and pitch an adventure game, they would laugh in my face'" (Schafer cited in Kickstarter, 2012). As noted above, Devolver Digital were still in the early stages of their "crusade against the industry", and thus "indie publishers" were not as prominent as they are currently. Therefore, Schafer was alluding to the fact that there had been no adventure games from any large or major game studios since the early 2000s (Brown, 2012). For Schafer and Double Fine then, Kickstarter was able to make an "impossible" game, one deemed too risky for publishers, and too expensive for most inexperienced and/or smaller studios, possible. *Broken Age*, like many indie games, was able to offer something different from what the large publishers were developing and releasing, Like with the "indie publishers" discussed above, the millions obtained through Kickstarter did not transform *Broken Age* into something expected from the publishers Schafer was referring to. Instead, the crowdfunding platform was supporting the indie production process, providing the means to take risks, and like the retro indie games discussed in Chapter 2, return to a genre not seen for many years.

Broken Age's importance in history is not solely down to its influence on future Kickstarter projects or its pursuit to revive the Adventure genre, rather Double Fine proposed something that very few studios had considered. The Kickstarter page details the creation of a documentary that follows the production process of *Broken Age*.

This documentary series will strive to make the viewer as much a part of the process as possible by showing a game grow from start to finish, with all the passion, humor, and heartbreak that happens along the way. Double Fine is committed to total transparency with this project, ensuring it is one of the most honest depictions of game development ever conceived (Double Fine, cited in Kickstarter, 2012)

Double Fine’s documentary provided a rare opportunity for those outside the gaming industry to gain an insight to how a game studio operates. The documentary highlights several reasons why studios remain secretive - throughout the twelve-and-a-half-hour documentary, there were numerous ups and downs. At first glance, one could assume that due to Double Fine raising over three million dollars, despite only asking for \$400,000, the game would have a relatively smooth production process. However, even with millions of dollars – the production process of *Broken Age* was filled with many obstacles to overcome.⁶² There is a sense of community championed throughout the documentary. Whether it is through team members elatedly witnessing the reactions of fans playing *Broken Age* for the first time, or the hurdles of complicated code and game design; the team’s passion for their video game was always evident.⁶³ Despite the title raising over eight times its original funding goal, Double Fine would still require further funding later in the project. In an open letter to the backers of *Broken Age*, Schafer notes “Even though we received much more money from our Kickstarter than we, or anybody anticipated, that didn’t stop me from getting excited and designing a game so big that it would need even more money” (Schafer, cited in Ligman, 2013). It is not unusual for games to raise more funding than expected, but still eventually require more. This includes *Star Citizen* (unreleased at time of writing, March 2021), *Shroud of Avatar* (2018) and *Crowfall* (unreleased at time of writing, June 2021) (Purchase, 2017; Kickstarter, 2020), or even worse, fail to release at all: *Unsung Story*, *Last Life and The Stomping Land* (Werner, 2018; Kickstarter, 2020). Evidently, budgets and production times can often spiral out of control. Major publishers are often seen as the “bad guys”, but it is no wonder that they often impose such strict agreements – they are experienced at what they do –

⁶² Kickstarter has also since proved to be misleading in how much funding a studio receives. War Balloon Games had a much more successful campaign than expected, achieving \$36,967 whilst they only asked for \$20,000 (Narcisse, 2012). However, whilst it may have appeared that War Balloon Games would have almost double the amount of funding they originally needed to develop their video game, after providing all the incentives to customers, deducting taxes and Kickstarter fees, the indie studio was left with only \$6,000 (Narcisse, 2012).

⁶³Double Fine’s documentary also shows the skills, roles, and people behind game development. Indeed, it is easy to forget that it is real people who passionately spend thousands of hours creating games (Boffa, 2015), and thus at the same time highlighting the need to explore how this passion can be exploited through unethical working conditions.

making money. Indeed, the indie production process would not be so closely associated with taking risks if there was not a possibility production would not always go to plan.

Later in Schafer’s letter, he notes: “Asking a publisher for the money was out of the question because it would violate the spirit of the Kickstarter” (Schafer, cited in Ligman, 2013). Schafer does not specify what this “spirit” is, but it is probable that he is referring to the way in which crowdfunding, and specifically Kickstarter, is a means of developing a game without publishers interfering with the production process. Like the “indie spirit” alluded to in my introduction, the “Kickstarter spirit” embodies a production process that delivers something different from what most AAA developers are releasing. Alongside that, they promise to work alongside the fans, or in their own words: deliver an “adventure game from Tim Schafer, Double Fine, and YOU!” (Double Fine cited in Kickstarter, 2012) – likewise, reminiscent of the indie community process explored in Chapter 4.⁶⁴

Working Conditions

Working conditions in the video game industry have been a topic of much discourse throughout the last several years. Many discussions include negative insights into working hours and reports of inappropriate treatment of employees (notably sexual and emotional abuse) (Ruggill et al, 2016; Kelley, 2016; Schreier, 2016, 2017). For example, in 2018 staff were reportedly working “100-hour weeks” (Forsdick, 2018) on Rockstar’s *Red Dead Redemption 2*. As recently as December 2020, with the release the most anticipated game of 2020, *Cyberpunk 2077* (2020), it is the working conditions of employees and forced “crunch”⁶⁵ that dominate the headlines. In May 2019, in light of discussions

⁶⁴ Kickstarter is widely known and praised for the community it creates around its projects (Mollick, 2016; Purchase, 2017; Young, 2020). Indie as community process explores the communities surrounding indie games and how they are crucial to their indie identity. Kickstarter allows “backers” to communicate with each other and the developers, sharing ideas, voting on changes, and contributing to the development of the game. However, Kickstarter has begun to dwindle recent years, but the communities have not. Chapter 4 explores the rise of communities elsewhere – such as development communication through social gaming platform Discord. An understanding of indie as process acknowledges that this is an insight into a historical moment where Kickstarter was thriving. However, as noted previously, these communities are continuously evolving.

⁶⁵ “Crunch” is a period in video game production when, due to a variety of reasons such as new ideas or missing deadlines and goals, studios begin working excessive hours. Examples of “crunch” will be discussed throughout this chapter.

criticising the working conditions of employees like those working on *Red Dead Redemption 2*, CD Projekt Red claimed they were more “humane” than other AAA studios, and therefore would not force “crunch” on their employees (Schreier, 2019). Instead, optional overtime would be available for those who want it. This commitment to the well-being of their employees was reinforced one month later (Iwiński cited in Schreier, 2019).

In January 2020, CD Projekt Red announced the game had been delayed from April 2020 to September 2020, noting that the video game required additional time to make it “perfect” (Badowski and Iwiński cited in Twitter, 2020). The same day of the announcement, during an investment call, when asked the question of whether employees would now be asked to “crunch”, Adam Kiciński, CEO of Projekt Red responded “to some degree, yes – to be honest. We try to limit crunch as much as possible, but it is the final stage. We try to be reasonable in this regard, but yes. Unfortunately” (cited in Good, 2020). This was the first instance of *Cyberpunk 2077*'s troubled production, and the developers breaking their promises – naturally, this received a negative response from journalists and consumers (Arguello, 2020; Lyles, 2020; Reddit, 2020). In June 2020, CD Projekt Red would announce their second delay, with the game now expected in November 2020, and the additional time being used to “...properly go through everything, balance game mechanics and fix a lot of bugs” (Badowski and Iwiński cited in Twitter, 2020). Understandably, with the studio's previous promises, it would not be unreasonable to hope that this delay was made to avoid mandatory “crunch”, and to protect their employee's wellbeing. However, in September 2020, a leaked email revealed that all employees were now required to work 6-day weeks, and that some employees had already been working excessive hours for over a year (Phillips, 2020). It was no longer down to speculation; the truth was out there, and numerous reports on the damaging and immoral working conditions on *Cyberpunk 2077* have since surfaced (Schreier, 2020; Lee, 2020; Hernandez, 2020). Despite this, the game would be delayed once again, this time from November to December (Badowski and Iwiński cited in Twitter, 2020), eventually releasing on December 10th, 2020.

A common criticism of “crunch” is how, mandatory, or not, it is a part of video game production culture, and consequently it is commonly accepted and expected. Rockstar employee Rolo

Le Ghoulo shared on Twitter: "...It's easy to fall into that trap, if you leave on time, and see other people still working, or read a comment about a 100-hour week, to feel guilty. To question if you're doing enough, to start staying longer (Ghoulo, cited in Twitter 2018). This is a stance echoed by Jason Schreier, who notes "Anyone who's experienced or written about crunch culture knows that it doesn't have to be 'mandatory' to be mandatory" (Hernandez, 2020). Thus, both Ghoulo and Schreier note that "crunch", whether forced or not, it is still very much part of video game production culture. Therefore, despite employees seemingly being given the choice, the reality is that once it is accepted in the office, it is inevitable an employee will need to "crunch". "Crunch" has become normal and expected in "AAA", Patricia Hernandez, writer for Polygon notes that "If anything, after years of reading similar reports, it's starting to feel like some video game fans have normalized crunch" (2020). Similar reports surrounded *Red Dead Redemption 2* in 2018 (Gurwin, 2018; Forsdick, 2018; Watts, 2018), another game that, like *Cyberpunk 2077*, was highly anticipated. Indeed, the outcome looks unpromising when despite these reports, the biggest video games continue to enforce "crunch". In light of these reports,⁶⁶ it is unsurprising that indie consumers – as discussed earlier - cannot imagine indie developers working with large publishers. The production environments discussed above do not appear suitable for risk-taking and experimentation, and therefore unsupportive of the indie production process.

Regardless of whether it concerns deadlines, expectations, or funds, "crunch" in video game production stems from a reliance on meeting specific goals on time. Thus, it would be reasonable to assume that much smaller productions, like indie games, would be less prone to excessive working conditions. The ideal method to test this hypothesis would be to speak to indie developers directly.

⁶⁶ A former employee of CD Projekt Red has since confirmed the working conditions for *Cyberpunk 2077* were as bad, or worse than reports had suggested (Rouse, 2020). Further, a leaked email shared within CD Projekt Red supports the former employee, revealing that "crunch" had lasted over a year before release (Schreier, 2020). The issue being that these varying reports can induce doubts on the accuracy of this information. Despite well-known and trusted games journalists like Jason Schreier (2020) supporting the accuracy of these reports, and confirming the legitimacy of the former employee, the specifics remain unclear and secretive. The encouraging perspective is that these reports are surfacing, knowledge on the video game production process is increasing, and discourse on the principles of "crunch" are becoming far more commonplace.

Oh well *Indie Game: The Movie* especially. I like that piece a lot and it is inspiring, but it went out of date so fast. It's gone from being a bit-too-success-oriented and somewhat problematic in its glorification of crunch, and emotional burnout to having those problems so exacerbated by the passage of time that it's just downright misleading and borderline dangerous (Spalding, 2018). **Shaun Spalding full interview in Appendix A.**

Indie developer Shaun Spalding (2018) in the above excerpt reveals that whilst “crunch” in “AAA” is frowned upon, the film *Indie Game: The Movie* is success oriented, and consequently glorifies the developers’ excessive working hours during the latter production of their indie games. Because these indie developers choose to enter “crunch” themselves, it can be portrayed as a good thing, as a hard-working developer. However, this correlates with Ghoulo’s twitter post discussed earlier, and therefore when “crunch” is glorified, willing or not, it has an adverse effect on the entire video game industry. Spalding not only worked on an “indie” project in his spare time but was also in full-time employment at Ubisoft. He shares that this enabled him to have a “safety net”, and consequently he was not forced to develop his video game with a “all or nothing” attitude like most indie developers. Nonetheless, despite Spalding ensuring he had a “safety net” in place for his video game, he was still a victim of “crunch”. In his own words, he was: “...working, coming home, working and sleeping”, and was therefore working similar hours to the shocking reports of working conditions at AAA studios. Indeed, he was willingly entering “crunch”, working excessive hours to meet his own deadlines, in opposition to those at AAA studios without a choice, but in Spalding’s view, excessive working hours was worth enduring to release his video game. Indeed, reflecting on my action research – it is easy to feel like there is no other option. Preparing a relatively simple and short demo for a conference required hundreds of hours to finish. Balancing the production of an indie game alongside my primary responsibilities, just like for an indie developer – required a period of self-imposed “crunch”. Furthermore, “crunch” in some AAA studios can be categorised as optional, but as noted by Ghoulo (2018), for most developers it never really feels like an option at all.

The issue I find with a lot of smaller indie studios is that they just don't have manpower to have a dedicated community person. The only reason we're able to do it is because our team work ridiculous hours, 7-days a week, we work around 70-hours a week. It's the only way we're able to do it, but a lot of people aren't willing to do that. The fact that I've been doing for three years now, non-stop, so literally three years of continuous "crunch". It's starting to get to me (French, 2018). **Justin French full interview in Appendix A.**

Justin French (2018), CEO at indie studio Dream Harvest Games, shares how his working conditions are unreasonably excessive. French argues for the importance of community for an indie game, and that the reason so many indie games are failing is because they launch without an established community.⁶⁷ French and his team work seventy-hours a week, seven days a week to ensure that they can build their community. Due to budget constraints, they are unable to hire a dedicated community manager, and therefore the small team must all take on multiple roles. French, for example, is not only CEO, but creative director, audio designer and studio lead, whilst also building up a community for their indie game *Neuroslicers* (unreleased at time of writing, June 2021). To make matters worse, French notes that he and his team have been in "crunch" for three years, because the studio has had to rely on funding to stay in business, and consequently certain milestones have had to be met. For French, it is the small team size of indies that is encouraging "crunch".

"Indies" are commonly associated with being small in one way or another, and this is not only the consensus amongst academics, but the audience too. Utilising the empirical research conducted for my thesis, it is evident that 604 of the 966 questionnaire respondents defined indie as "small" in some way. Respondent 3 defines it as: "To have a small development team. Small budget (relative to blockbuster titles like GTA5). Advertising of the game to be very, very limited. (Initially), to have a small audience". Respondent 26 offers a similar viewpoint: "A game that is constrained by the (low) amount of resources available (both human and monetary), that tries to offer a unique experience that

⁶⁷ The role of indie communities and their importance to the indie process is discussed further in Chapter 4.

is unlike any of the usual generic franchises on the market or predefined "Standards" of any particular genre they might fall into". Even when respondents are not specifically calling "indies" small, they suggest that "indies" must have a limited team size to be "indie". Respondent 180 notes: "Self-published or development staff under 20 people", whilst Respondent 413 notes: "A game made by independant [sic] studio, no more than 10 people working on it". Thus, whether through team size, budget or overall resources, the overwhelming consensus of the consumer is that "indies" are perceived to be small. Indeed, the small nature of "indies" means that in many cases, the lack of resources needs to be offset in other ways – such as working unreasonable hours. However, a reoccurring theme from indie developers is that they rarely complain about working unreasonable hours. They might, as Dave Cooper (2018), sole developer of *Blockships* (unreleased at time of writing, June 2021), express their frustrations at being unable to sufficiently work multiple roles - but they rarely condemn "crunch". One reason is likely due to personal motivation, as noted by Spalding (2018): "...I was lucky to be so highly motivated that *Another Perspective* didn't feel too much like work". Eric Barone (2016), sole developer of *Stardew Valley* (2016) employs a similar mindset to Spalding, noting that: "I think it's a lot easier to stay driven when you're doing your own project, knowing that there are no limits to how far you can go" (cited in Baker, 2016). Like Spalding, Barone's "70-hour weeks" (cited in Baker, 2016) were self-imposed, and consequently receives little criticism in the media. Barone justifies his long working weeks by noting that he - unlike many employees in AAA companies - was not forced to work.

Indie developers are not strictly forced to "crunch", and therefore cannot be considered in the same light as the working conditions seen in many AAA studios. Regardless, "crunch" is very much part of the production process for both "AAA" and "indie". Indeed, "indie" is often portrayed in a more positive manner – often in opposition to "AAA". However, there is a reoccurring outcome during my investigation into the indie production process – things are not always how they seem. Many "indies", as discussed in the introduction to this chapter, are failing. Many of the crowdfunded games discussed above required further funding or never released at all. "Indies" takes risks, they experiment, and they pursue originality, and sometimes that comes at a cost – failure is an option.

Thus, there is no guarantee that the indie process will always be positive – an important contributing factor of my research is to encourage new ways of thinking about the indie production process. It is for this reason that my research extends beyond “crunch” and begins to explore the rise in reports detailing the mistreatment of employees, with many of them being women.

In the early 2000s, Lionhead Studios hired Louise Murray to help produce the game. John McCormack, Fable’s art director, notes: “...as was typical of the game industry at that time - nobody really knew how to talk to a woman. Peter had no idea how to speak to her. He would make inappropriate jokes as if he was in a room full of guys, and then realise there was a woman in it” (McCormack cited in Yin-Poole, 2019). McCormack’s recollection of Murray’s impact at the studio was positive. However, this highlighted the issues with a lack of gender diversity in video game studios in the early 2000s. Since then, more women than ever now represent the video game industry. In 2019, Dr. Mark Taylor’s census, backed by UKIE (The Association for UK Interactive Entertainment), revealed that of more than 3,200 developers in the United Kingdom, 28% of them were women (Taylor, cited in UKIE.com 2019). This remains far from balanced in comparison to 70% men (2% non-binary), but evidently, women working in the video game industry are increasing, and male only studios are becoming far less common. Unfortunately, the rise of women within the video game industry has coincided with a rise of reports of unfair treatment, sexism, and sexual harassment.

In 2014, an online harassment campaign named Gamergate began targeting outspoken feminist women in the video game industry. These women were verbally abused, threatened, and doxed (Romano, 2021).⁶⁸ Sexism towards women had been reported for numerous years, with Stephen Toulouse, the moderator of Xbox Live claiming that between 2007 and 2012, women were being harassed far more often than anyone else (Toulouse cited in O’Leary, 2012). In 2014, the International Game Developers Association released the results of a Developer Satisfaction Survey. The report revealed that many women were not satisfied with the culture within many video game

⁶⁸ Doxed is when private documents concerning the individual are released.

studios, noting that they often felt undermined by their male counterparts, that they were “outsiders”, and that there was a preference for hiring and promoting males. However, these reports were of incidents behind closed doors, unseen and unheard by the public. This changed with Gamergate, this harassment, sexism, and abuse were now public. It was being seen, heard, and observed by everyone. Gamergate made it clear that online harassment was a real problem that needed attention, and beyond that, the lack of diversity in the video game industry was a real issue. Following Gamergate there were numerous positive discussions, including discourse on increasing diversity (Stuart, 2014; Greene, 2015) and support for victims of abuse, such as Zoe Quinn’s Anti-Harassment Support Network (Hudson, 2015). However, inside video game studios, away from the public eye, women were still being mistreated and much more needed to be done.

In 2017, the #MeToo⁶⁹ movement encouraged many women who were victims of sexual abuse to come forward and break their silence. This resulted in many sexual allegations against prominent figures from largely Hollywood, such as Harvey Weinstein (Sini, 2017). The #MeToo movement encouraged anyone who suffered from sexual abuse to make it public, writing MeToo, and in the process demonstrate how widespread the problem was. Despite suggestions the #MeToo movement could have a similar effect on the game industry, it had not yet happened, and Keza MacDonald, game editor for TheGuardian, noted in 2018 that “the video games industry isn’t yet ready for its #MeToo moment”. MacDonald believed that the game industry would see a similar movement in time. However, harassment campaigns like Gamergate discouraged women from coming forward, likely worried they would suffer the same online harassment. Trust needed to be built, and this would take time. That same year, Kotaku reporter Cecilia D’Anastasio shared an in-

⁶⁹ The Oxford English Dictionary (2021) details that a hashtag is a word or phrase with a “#” placed in front of it, which can then be used on social media websites to search for messages related to the same subject. Trends on Twitter (cited in Twitter.com, 2021) are determined by an algorithm which identifies the most popular topics currently, rather than those that have been popular for a while. This algorithm is informed by the number of people hashtagging words, in turn allowing users to follow popular topics. This can have a significant influence on the video game industry where large numbers of people can push important discussions into becoming a trend. For example, this can directly influence the production process by a discussion becoming too prominent for the developers to ignore. A similar instance is analysed and discussed in Chapter 4, where large numbers of unhappy users were able to influence decisions made in the *Call of Duty* series. Conversely, Chapter 4 identifies that indie consumers are much more likely to be listened to, to engage in two-way communication directly with developers, and therefore the necessity of relying on trends is much lower.

depth revelation of the sexism culture at Riot Games, developer of *League of Legends* (2009), which as of 2019, remained one of the biggest multiplayer video games in the world with eight million daily players (Bailey, 2019; Takahashi, 2019). In response, Riot Games apologised and vowed to change, making numerous adjustments to the workforce, and championing new values. In 2019, trust was building, and there were reports of the #MeToo movement coming to video games. Jeremy Soule. Alec Holowka. Alexis Kennedy. Luc Shelton. Michael Antonov. Marc Ten Bosch. Vlad Micu, several well-known figures in the video game industry were accused of sexual abuse, beginning with *The Elder Scrolls V: Skyrim* composer Jeremy Soule, who was accused of rape by game developer Nathalie Lawhea in her blog post (Prokos, 2019). This inspired Zoe Quinn to come forward with sexual abuse allegations against *Night in the Woods* developer Alec Holowka, citing Lawhea's strength as to why she was able to find the courage to share the allegations (Quinn, cited in Twitter 2019). Nonetheless, future allegations would prove that this was only a glimpse into the number of women being mistreated.

In June 2020, over two hundred women utilised social media to share their allegations against men in the video game industry. There were, once again, reports that this could be the video game industries #MeToo moment (Browning and Lorenz, 2020; Schreier, 2020). Most notably, there were several sexual abuse allegations against Chris Avellone, one of the most prominent writers in video games. This all happened within weeks of the #BlackLivesMatter protests, a movement that opposed discrimination against black people. In the following weeks and months, many further allegations would come out against high-profile game developers. Ashraf Ismail stepped down as director on *Assassin's Creed Valhalla* at Ubisoft following allegations, and Insomniac Games, developer of *Spider-Man* (2018), revealed they were investigating an allegation of sexual misconduct from a former employee. Evidently, even if not to the same extent as in Hollywood, a similar moment to the #MeToo movement was happening.

This imbalance of gender and ethnicity is evident through my primary research. Despite my best efforts, it was only possible to interview two women and no one of a Black, Asian or minority demographic. This was also evident in my questionnaire data where 84.6% of respondents were male.

Indeed, gender imbalance is evident in both “AAA” and “indie”. However, there is hope – the production process of indie games support change. My action research inherently required flexibility, it is a cycle-based method and therefore like with the indie production process, sometimes the best choice of action is to reflect on what you have learned and restart the cycle. Indeed, this opportunity was indirectly characteristic of what it means to be “indie”, likewise, this flexibility was evident in *Braid’s* back and forth re-visualisation. More recently, it is evident through indie studios like Failbetter Games who have instilled a “no crunch” directive. Myers (2019) notes “We had contingencies so we could cope with things overrunning, and they more commonly overrun than underrun in game development” (cited in Makar). Fundamentally, Failbetter Games account for the likelihood of overrunning in their game development roadmap. Adam Myers (2019), CEO at Failbetter Games notes: “We had contingencies so we could cope with things overrunning, and they more commonly overrun than underrun in game development” (cited in Makar). Fundamentally, Failbetter Games account for the likelihood of overrunning in their game production roadmap. Myers (2019) adds “There’s a sort of cognitive bias when you’re thinking of your own work, where you create an estimate based on the best-case scenario. It’s called the ‘planning fallacy’” (cited in Makar).

⁷⁰ Indeed, “indies” can lead the push for change through their production process. This is supported by Justin French (2018), who revealed: “...the process of iteration is much faster than at a AAA studio. There aren’t so many managers to go through to make certain decisions, we can make decisions very quickly”. It is also seen in retellings of experiences at “AAA” studios from ex-developers (Beaudoin, 2016; Grubb, 2017). The way in which “indies” can change how they work quickly is evident in how there are currently hundreds of indie studios embracing “no-crunch” initiatives (Nijman cited in Twitter, 2018),⁷¹ whilst this is remains relatively unheard of in “AAA”. In addition, considering the

⁷⁰ Planning fallacy can be seen in all industries, despite prior data often available and revealing how long something would take to complete. This stems from people’s tendency to be wishful thinkers, to take an optimistic stance (Buehler et al, 2010). The best-case scenario for studios only become unlikelier the larger a studio becomes, more employees means more chance of illness, compassionate leave, or employees leaving the company. Further, the involvement of third parties means that sometimes delays can be out of the studios control. In other words, to quote Murphy’s law - if it can go wrong, it will.

⁷¹ Jan Nijman from indie studio Vlambeer wrote a tweet encouraging any studios that developed their games without “crunch” to reply to the tweet. The idea here was to provide these games recognition and promote a more ethical way of developing games. There are 244 (at the time of writing, January 2021) responses to the tweet, most of them sharing their indie games and their stance against “crunch”.

“smaller” nature of “indie”, research on company cultures reveal that smaller companies can impact or change their culture much faster than larger companies (Bryce, 2006; Jones, 2016; Phegan, n.d). Nonetheless, the working conditions are not where they need to be in both “AAA” and “indie”. The video game industry can do more. “Indies” can do more. There are signs – particularly through the indie production process that things can get better. Notably, video game tools becoming increasingly accessible is now allowing developers to spend more time elsewhere. Not only does this result in an increased opportunity for artistic production but as noted in Chapter 1 (p48, p67), could increase efficiency of work, thereby reducing the necessity for “crunch” through an easier production process. At this point, it would be useful to explore the impact that video game tools - and their increasing accessibility - is having on the indie production process.

Video Game Tools

In a video game production pipeline, the video game engine is one of the first and most important tools that a developer will decide to use early on, during the concept and pre-production phases (Edwards, 2006; Marco, 2016). Once the game engine is decided, it is essentially locked in. Although some games do change game engine, it is a time-consuming process, and is rarely a practical decision (French, 2018, Gregory, 2018). Thus, it is essential to investigate how the game engine can influence the way a video game is created. There are numerous factors that may influence a developer’s engine choice, such as the type of video game they want to make (e.g. 2D or 3D), their knowledge of video game production, the financial costs (free versus paid) and their end-goal. There are many video game engines currently available, and most of them are a viable means of developing an indie game. However, the two most popular engines for indie game production currently are *Unity* and *GameMaker Studio 2* (Batchelor, 2017; Famularo, 2017). Dave Cooper (2018) developed his video game in numerous different engines before making the switch to *Unity*:

Switching onto *Unity* was like a breath of fresh air, because the support around *Unity* was huge. If you find a problem, you get stuck somewhere, and suddenly you can reach out and get answers within hours. Whereas with some of these lesser known

things, you might be lucky to get an answer in a week. That was quite wonderful (Cooper, 2018). **Dave Cooper full interview in Appendix A.**

Cooper highlights that the communities surrounding a video game engine can play a pivotal role in choosing a game engine. There is a higher chance that indie developers will have little or no prior experience developing video games, and therefore they could need more assistance. Conversely, “AAA” or larger studios often decide to develop their own game engines and tools during the production process. In this situation, the engine will often take shape gradually, adapting to the requirements of the video game, rather than be ready in the early stages of production (Chandler, 2014). This will ensue multiple team members working together - including artists, coders, producers, testers who are dependent on each other. For example, an artist will be in continuous dialogue with an engineer to ensure the tools are available for asset creation, whilst a producer would be in continuous dialogue with the artist to ensure the art meets the goals of the project. Indeed, this is not reminiscent of the indie production process, where emphasis is more often on smaller production budgets and team sizes. Thus, many “indies” tend to rely on pre-existing game engines, these often come with many tools built-in, such as level creators, physics engines and networking. These tools can be referred to as “middleware”, and in many cases, the game engine itself is also known as “middleware” (El-Nasr et al, 2013). “Middleware” can play a significant role in the production process of a video game. For example, even if a studio was using their own custom game engine, they could still utilise “middleware” such as the popular physics engine Havok.⁷²

“Middleware” has several distinct advantages and disadvantages. In terms of an established studio, utilising “middleware” will require employees to begin working with software they are not familiar with (Chandler, 2014). This naturally will lengthen the production time - however, this could be offset with the time saved on developing custom

⁷² Physics engines like Havok focuses on areas like collision systems and the articulation of joints on a character. For example, this noticeably improves the realism of the “ragdoll physics”, which involves how a body/character behaves once it has died and therefore is no longer controlled by AI (Havok.com, 2021).

tools for the same purpose (Capcom, 2020). The most notable disadvantage would be the financial side, this extends to game engines themselves such as *Unity* and *GameMaker Studio* which require a fee to either use or utilise their full capabilities. *Unity* has notable features locked behind a monthly subscription. This can range from \$40 (*Unity Plus*) to \$150 (*Unity Pro*) a month (Unity.com, 2021). If a developer intends to release a video game, it is almost certain they will need to subscribe to one of these packages. However, *Unity* is royalty-free, a significant benefit when it comes to releasing a video game. *GameMaker* requires a licence to use, and these can be purchased anywhere from \$40 for a 12-month Windows licence and \$800 for one console licence, or \$1500 for a licence that enables the developer to release on any platform (yoyogames.com, 2021). The advantages just as significant, developers can utilise tools that are established and effectively utilised in hundreds of video games. This is particularly useful for indie developers who most likely will not have the expertise to create their own tools, and therefore they are able to focus on artistic production. In summary, less time developing tools means more time developing the game. At this point, it would be useful to look at the “middleware” itself and investigate the role of these tools in the indie production process.

The increasing accessibility of video game engines and their tools has been cited as one of the largest contributors to the rise of indie games (Garda and Grabarczyk, 2016). Likewise, French (2018) notes that historically it was difficult to get into video game production:

...Prior to 10-15 years ago, it was very hard to get into video game development unless you were working for a big AAA studio. The tool sets weren't there, we didn't have Unity, we didn't have access to Unreal Engine. If you wanted to get into game development, you either worked with a big team who had developed their own engine, or you were a programmer who was capable of building your own engine to develop your games. With the easy access of tools, such as Unity, it has democratized

the process, and literally anyone can be a developer now (French, 2018). **Justin French full interview in Appendix A.**

Video game tools were usually limited to established game studios, these tools were in such demand, that people would attend “game jams” so that they could take advantage of the tools that were free to use at the event (Young, 2018). This changed in 2009 with the release of game engine *Unity*, and game tools have only become increasingly accessible since. Now, essentially anyone can have the tools to create a video game. However, accessible tools do not mean much without context. Anna Anthropy’s book *Rise of the Videogame Zinesters: How Freaks, Normals, Amateurs, Artists, Dreamers, Drop-outs, Queers, Housewives, and People Like You Are Taking Back an Art Form* (2012) was discussed in my literature review. It was noted that Anthropy foresaw a future where the tools for video games would become increasingly accessible, and eventually developers would be able to create games similarly to doodling or writing simple stories. The argument here was that removing the barriers of game production, this would shift the focus to artistic production, and allow developers to create games that shatter audience expectations. Although game production tools are not quite where Anthropy hopes they will eventually be, they are becoming increasingly accessible, and therefore we are seeing elements of what Anthropy envisioned.

GameMaker Studio 2 is built solely for 2D games (yoyogamers.com, 2021), and therefore the engine is designed enabling developers to create 2D games as easily as possible. The predominant way that the engine achieves this is by employing a “drag and drop” system (see Fig 3.1), where developers can create functioning video games without coding. *GameMaker Studio 2* does utilise its own programming language if the developer wishes to have more control, but the “drag and drop” system allows developers to create a functioning game extremely quickly. Thus, when using *GameMaker Studio 2*, developers are not required to be an experienced developer with a vast understanding of coding to begin seeing results.

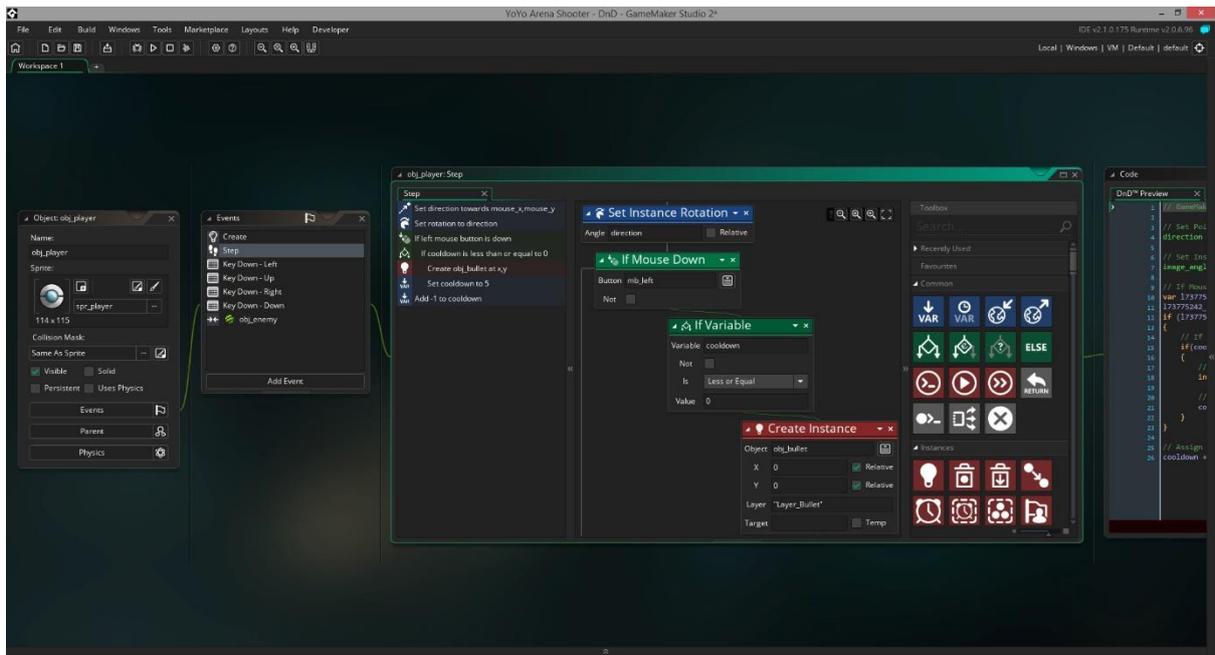


Fig 3.1. Drag & Drop System. Retrieved from: yovogames.com

Christopher Young (2018) notes in his thesis that: “Learning how to use a game engine can be a time-consuming process, which takes years of developing artistic and programmer skills, such as coding, animation, and sound editing to name just a few”. The goal with *GameMaker Studio 2* then, is to lower the barrier of entry and encourage developers to spend more time on the concept and idea, rather than how to code and use the engine itself. However, professional advice encourages users to avoid the “drag and drop” system if you want to become a professional game developer, and instead learn *GameMaker Studio 2*’s programming language - GML (GameMaker Language). Jon Peterson with over ten years of experience using *GameMaker*, and creating “middleware” to assist video game developers notes that: “Drag-and-drop is a cool feature, but really only recommended for those with literally zero programming experience... I recommend jumping into GML as soon as possible” (Peterson, cited in Dealessandri 2020). Indeed, there are limitations to the drag and drop system. This became evident during my action research, where GML was preferable when moving beyond basic gameplay systems. In addition, learning how to use *Unity*, my engine of choice, did require several months just to learn the basics. Video game engines are more accessible than ever, but they still require a level of knowledge that can take months or even years to obtain. Nonetheless, they do simplify video game production. Further, there are many game tools

available which assist significantly support game production. For example, during the production of my indie game, the tool “Super Tilemap Editor” was employed to simplify the process of creating and editing environments – potentially saving hundreds of hours. This is increasingly crucial during the experimentation phase of production, where the barrier of developing your own tools, and therefore committing hundreds of hours to the cause would be extremely off-putting. Indeed, this significantly shortens the game production cycle, and consequently reduces production costs (Cox cited in Smart, 2017). In turn, this places more emphasis on artistic production, and thus significantly widens the opportunity to experiment, take risks and pursue originality during the production process.

Indie Originality

There is an expectation for “indies” to be creative and pursue original ideas (Dutton, 2012; Cooper, 2018; Juul, 2019; Watkins, 2019). When “indies” are not doing this, it can draw criticism:

That’s one of the biggest issues, every time you open up the *Unity* store, you always see another platformer, or another game that seems to just borrow mechanics from everything else. There are a small handful of indie games that do try to do something original and are very successful.... One of the advantages of being indie is that we have that creative freedom, so why not use it for something that really pushes those boundaries (French, 2018). **Justin French full interview in Appendix A.**

French calls for “indies” to utilise their creative freedom and create something original and new. He suggests that indie games that do endeavour to break new ground are successful. French cites an abundance of platformers as an example of “indies” lacking in originality. Looking at video games in relation to their genre is common - every year, consumers and video game journalists vote for their favourite games of the year in many of the most popular genre’s such as action, adventure, role playing (RPG), fighting, sports, strategy and more (thegameawards, 2020; IGN, 2020; Gamespot, 2020). The way video games are discussed, rated, and compared are commonly done so in relation to their genre, and this is no different for indie games. My indie typology reveals that eleven of the thirty

top indie games from 2015-2018 have been platformers. In this same timeframe, the other most popular genre is puzzle games, where nine of the thirty top indie games have a focus on puzzle-solving elements, and in many cases include platforming elements too. Other notable mentions are Metroidvania's (five out of thirty),⁷³ and Roguelikes (three out of thirty).⁷⁴

The above data reveals that the most successful and well-received indie games are mostly utilising a handful of genres. At the same time, suggesting that the most successful indie games are those that utilise popular genres, the ones French was encouraging "indies" to stay away from. However, a list of the best-selling indie games cannot be considered definitive, and a consideration for all indie games is essential to any conclusion. Accordingly, my thesis draws on Infinite Monkeys Entertainment's market research conducted by Erik Johnson (2018) to determine whether "indies" are not being original enough. Johnson analysed trends in the Steam marketplace, with the aim of discovering how to make indie games that sell. Johnson's research concludes that the average revenue for Puzzle/Platformers, Roguelikes and Metroidvanias are at the lowest end of the spectrum, with Puzzle/Platformers being at the bottom. Action RPGs, with the highest median revenue, earn twenty-four times more than Puzzle/Platformers on average. Johnson highlights that classic "indie" hits like *Limbo*, *Fez* and *Braid* had an average play time of three to four hours, whilst modern "indie" hits (post 2016) like *Stardew Valley*, *Rimworld* and *Factorio* have an average playtime of over forty-five hours. Accordingly, as the average playtime increases, the amount of revenue accumulated also directly increases.

At first glance, the data can appear conflicting, my typology data demonstrates that the most successful genres are also those that have the lowest revenue on average. However, this aligns with

⁷³ Metroidvania is often referred to as its own genre, mixing elements from two extremely well-received franchises, *Metroid* and *Castlevania*. A large amount of the best-selling and well-received indie games such as *Cave Story+* (2011), *Ori and the Blind Forest* (2015) and *Hollow Knight* (2017) are Metroidvanias, a genre that had become relatively uncommon before the rise of indies. This is no surprise when considering the large number of indie platformers releasing every year. Metroidvania's, like the FPS/RPG hybrid, is an attempt by developers to provide new gaming experiences. Nonetheless, this only lasts so long before they too become overly familiar.

⁷⁴ Roguelike means, in simple terms, that it shares characteristics with the game *Rogue* (1980). These characteristics include procedurally generated content and permanent death, meaning that when the player dies, they must begin anew (McHugh, 2018).

how games have achieved financial success historically. Many genres have been dominated by established names, and these games have prompted many studios to develop similar games that can tap into some of that success. Notably, games like *The Legend of Zelda*, *Super Mario*, and more recently, *Dark Souls* and *Fortnite: Battle Royale*. These video games have seen numerous studios produce titles that share many similarities, and therefore would be considered in the same genre. The objective from these studios is to share some of that success.⁷⁵ It is possible that a similar occurrence is happening with indie games, their developers could be looking at the currently popular indie games and trying to create something similar. However, French's comments and Johnson's (2018) research suggest that if financial success is the goal, creating games in saturated genres is not an effective method. Indeed, it is possible that some indie games are intentionally capitalising on a genre's popularity, but we also know through my primary research in Chapter 2 that many indie developers produce indie games that share similarities to retro games - which are well known for platformers (Bycer, 2019). At this point, we can draw on my primary research to establish how the consumer expectations of originality can expand this discussion.

All 966 questionnaire respondents were required to provide their favourite indie game, and the most popular was Platformer/Metroidvania *Hollow Knight* with 181 respondents. Other similar video games include platformer *Celeste* with sixty-two respondents and platformer *Shovel Knight* with forty respondents. The only large group of respondents not favouring a video game from a Platformer/Metroidvania genre was farming simulator *Stardew Valley* with 102 respondents. All respondents were also asked to provide explanations as to why these were their favourite indie games. Respondent thirty-one notes that *Hollow Knight* has "Excellent gameplay, even better art direction", whilst respondent 233 shares a similar reasoning "Beautiful artwork, tight controls, very long". *Celeste* respondents seem to favour the story, respondent 250 notes: "Tremendous writing, visuals, challenging but not cheap gameplay", and respondent 885 notes: "Great gameplay, compelling story".

⁷⁵ These games can, on occasion, become known as a "clone". However, there is a clear distinction between a "clone" and a video game that may utilise similar mechanics (Wiltshire, 2018), such as those that have become known as "Soulslike", games which utilise the challenging but rewarding gameplay mechanics found in the *Dark Souls* series (Yin-Poole, 2020). The difference here is that they utilise their own IP, including characters and story, whilst "clones", like those of earlier arcade games like *Pong* are attempting to mimic the original (Kent, 2001).

Shovel Knight respondents appreciate the video games retro 8-bit aesthetic, with respondent 125 noting: “It has a great adventure/aesthetic retro feel that controls perfectly” and respondent 319 shares that the game: “Captures the magic of NES games like *Mega Man*, but with modern features, soundtrack and creativity”. *Stardew Valley* fans appear to appreciate the video games laid-back, relaxing gameplay loop. Respondent sixty-four notes: “It is a pleasant escape to a simpler life, allowing for a quick, easy, and digestible way to relax after the complexities of adulthood”, likewise respondent 641 notes “It is really relaxing and a lot of thought and care went in to[sic] the game”.

The consensus is that consumer’s favourite indie games align with the most successful indie game genres mapped out in my typology. The overwhelming majority of respondents list characteristics that they deem creative and appealing, such as an appreciation for enjoyable gameplay. Indeed, despite their reliance on saturated genres, the indie consumers consider these video games unique and original. Sixty-nine of the questionnaire respondents defined indie games as unique, original or in a similarly descriptive way such as respondent 907, who defines “indie” as: “less team size, more revolutionary in terms of game design”. Concerning indie game *Celeste*, respondent 17 notes “Unique take on concept, clear and consistent design, incredibly tight controls”, whilst respondent 404 praises the game’s unique graphics: “Excellent game play and soundtrack and unique graphics”. Alternatively, respondent 747 believes the entire video game contributes to its uniqueness, noting: “There is a large amount of care that went into making the video game. The artwork, music and level design all come together and allow a unique experience to all levels of gamers”. *Hollow Knight* is likewise favoured for its unique offerings, as respondent 117 praises the game’s story: “Metroidvania with unique story setting”, respondent 426 praises the video game’s graphics “...The setting, tone, and art style of the game is very unique and beautiful...”, and respondent 166 shares that the video game is unlike anything else they have experienced: “The style and world is so distinct from anything else I've ever seen”. Thus, supporting my discussion in the introduction to this chapter -

many indie consumers define indie by their originality. In addition, my action research consisted of numerous cycles that tested new ideas, gameplay mechanics and genres (see Fig 3.2, 3.3 and 3.4).

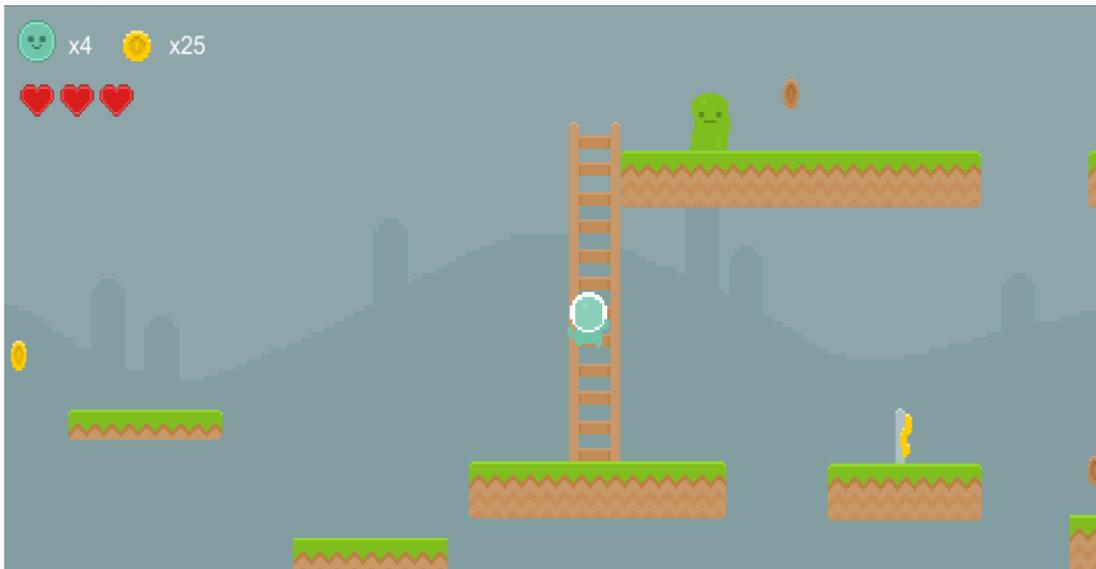


Fig. 3.2. Action Research Aesthetic Experimentation. Based on: Personal Research.

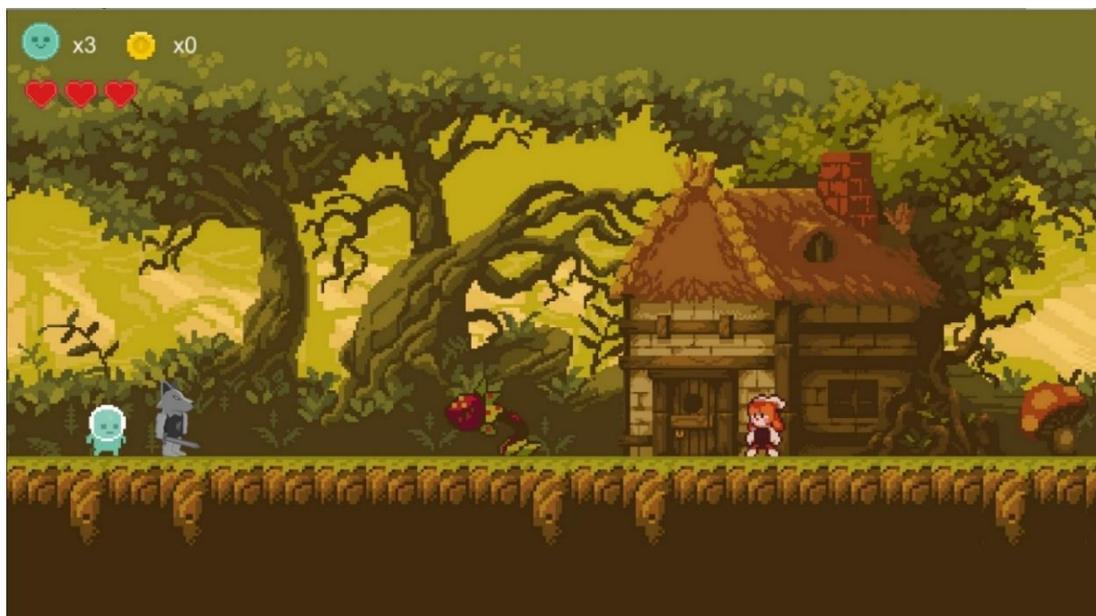


Fig. 3.3. Action Research Aesthetic Experimentation. Based on: Personal Research.



Fig. 3.4. Action Research Genre Experimentation. Based on: Personal Research

This provided several opportunities to reflect on the production process, and unintentionally began to inform an appreciation for how the indie production process encourages experimentation and originality. There is a freedom in the indie production process that allows ideas to develop naturally. This prompted further research which confirmed not all indie developers began with the intentions of releasing a full game. Sometimes, through experimentation, indie games begin to take shape naturally. Sam White (2018), following an interview with Eric Barone, shared how he never intended to complete or release *Stardew Valley*: “It was supposed to be just practice, the most creative way he could teach himself” (White, 2018). Indeed, like with my action research, Barone had an alternative motive – he was producing a video game to enhance his skill set, making himself more employable (White, 2018).

The above data suggests that originality can come in many forms – including when indie games are in common and popular genres. Indeed, video game genres are broad (Arsenault, 2009; Vargas-Iglesias, 2018), with many variabilities, and because two video games are platformers - does not mean that they cannot present original or new ideas. “Indies” are renowned for risk taking, experimentation and therefore pursuing originality, but this does not mean “indies” must be

revolutionarily – instead, my thesis argues they have mostly been evolutionary.⁷⁶ My action research made this reasonably clear – the methods for learning are through established gameplay mechanics and genres, and there is a lack of readily available learning resources for inexperienced developers to straightforwardly learn to create anything else.⁷⁷ Indeed, not all indie developers are inexperienced, but an expectation on “indies” to be revolutionary would exclude many or most indie developers. Therefore, an expectation on “indies” to be the ones to push the boundaries does not align with their financial positions or the learning resources available, and in turn the realities of the indie production process. These expectations should be on game developers in general.⁷⁸ Instead, the indie production process commonly pursues originality through its approach to pre-existing video game foundations, offering experiences that build on what has come before, whilst at the same time - as identified in Chapter 2 - offering new takes on gameplay systems and aesthetics. As identified above, not all indie developers are inexperienced. There are rising reports of “AAA” auteurs breaking away and “going indie” such as Hideo Kojima, alongside several existing well-known figures in the “indie scene” including Edmund McMillen, Jonathan Blow and Marcus Persson (Grubb, 2017). Indeed, the smaller nature of “indie” has been credited for its support for an auteur or singular vision (King, 2016). Alongside this, the of idea of a singular or clear vision from an individual or small team was used to

⁷⁶ Initial “indie” hits such as *Limbo*, *Fez* and *Braid* were all platformers with puzzle elements, with platformers notably being common amongst retro games (Kent, 2001; Powell, 2015; Minkkinen, 2016). Later indie games like *Hollow Knight* are metroidvania’s, an old genre from the 1990s that has recently seen a resurgence. It is likely that the idea that “indies” are commonly providing unique or original experiences stems from earlier indie games which provided an influx of games that were different in genre and gameplay to the norm (“AAA”), and later “indies” like *Hollow Knight* which utilise an old, but now rarely seen genre.

⁷⁷ It quickly became clear that most tutorials and guides for creating indie games in *Unity* are for 2D Puzzle/Platformer games. This was true for Udemy, YouTube, and the *Unity* community resources. This comes as no surprise considering my primary research revealed that they were the most popular genres – it appears these guides were there to meet demand.

⁷⁸ This is the viewpoint of Jenova Chen, co-founder of Thatgamecompany, who is responsible for three well-received video games, *Flow* (2006), *Flower* (2009) and *Journey* (2012). All three video games take a different approach when it comes to providing new experiences. Chen believes that the entire video game industry is responsible for providing new experiences, and thus far is failing to cater to a wider audience, and unlike Film, does not have a genre for older people. That is, either creating video games that older people can relate to, and therefore be emotionally touched by or alternatively, offering a new perspective on the world as we know it. Chen argues that “...there is no romance, no drama, no documentary, and no thoughtful examination on life. These are basic feelings humans want to have in life, but they are just not available in games” (Chen cited in Taylor and Lowthorpe, 2017).

define “indie” by 38 respondents in my questionnaire. Thus, the idea of auteurs and how they contribute to an understanding of “indie” as production process must be explored.

The influence of an auteur can be traced back to the earlier years of Nintendo. It may seem that they have been reliant on long-running series like *Super Mario* and *The Legend of Zelda*, but they have always valued new ideas and ways to play. In terms of hardware, Nintendo have notably introduced numerous industry changing approaches to gaming, such as the Nintendo Wii with a focus on motion controls, and most recently *Ring Fit Adventure* (2019) which requires the player to complete exercises in real life to power up and defeat enemies. In terms of how they generate these ideas, one notable observation is how rather than simply looking to the gaming industry, they are looking to other places for new kinds of gameplay, and this is specifically what they found when they hired Shigesato Itoi. Itoi was a celebrity in Japan; not for making video games, but rather for being a copywriter, author, and songwriter (Punkett, 2011). Therefore, it was highly unusual when Itoi began developing *Mother* (1989) for Nintendo, also known as *Earthbound* (1995) in the West. In the early years of console RPGs, the dominant themes were traditional fantasy, commonly featuring knights, swords, and bows. Three popular RPGs at the time (Nix, 2009; Messner, 2017), *Ultima V* (1988) *Final Fantasy II* (1988) and *Dragon Quest III* (1988) were prime examples of the audience’s expectations. *Mother* breaks this trend, instead setting itself in modern-day America. Because of this unusual premise for an RPG, the video game was nearly rejected with doubts over its appeal (Parkin, 2013). These doubts extended to one of the most well-known video game creators of all time, Nintendo’s Shigeru Miyamoto. Miyamoto originally rejected Itoi’s pitch for a video game, believing him to just be another big name who wanted to try his hand at the up and coming medium of video

games; that is, until Nintendo's CEO Hiroshi Yamauchi, a keen admirer of Itoi, instructed Miyamoto to amend his decision (Parkin, 2013).



Fig. 3.5. *Mother* gameplay. Retrieved from: [bestretrogames](http://bestretrogames.com)

Despite *Mother* being set in an American town, the video game never caught on in the West and experienced low sales, and consequently the latest installment *Mother 3* (2006) was never launched in the West (Kohler, 2017). Nonetheless, *Mother* has become known as one of the greatest RPGs, commonly ranking highly in readers' and journalists' favourite video games of all time, including placing 29th in Polygon's "The 500 best games of all time" (Polygon, 2017). However, it was not just *Mother's* setting that has garnered such praise. For example, *Dragon Quest* and *Final Fantasy* at the time contained random battles, a mechanic that has often frustrated many gamers. When playing *Mother*, enemies appear on the screen, so the player can either avoid them or surprise them before commencing battle, a feature that would be adopted in many future RPGs. Furthermore, another common complaint is the amount of "grinding" that is required in RPGs, which is used to describe the necessity to repeatedly fight insignificant enemies to power up your characters (Holmes, 2013). In *Mother*, when the player encounters an enemy that is significantly weaker than their character, the battle is won immediately, and all rewards are still retained.

It may seem surprising that Itoi, a celebrity who had never worked on a video game in his entire career managed to create such a critically acclaimed video game. However, it was his unfamiliarity with video game design that made *Mother* considerably different from everything else. Video games are typically made by people who spend most of their time making and playing video games (Plunkett, 2011), hence their similarities are apparent. Itoi's lack of familiarity with common gaming mechanics meant that he likely implemented ways in which he could enjoy the video game. In doing so, this could entice people who also had no prior experience with video games to play them. Furthermore, Itoi was not the only team member that had no connections to the video game industry. Keiichi Suzuki, one of *Mother's* composers, was the lead singer of a well-known Japanese rock band, *The Moonriders* (Plunkett, 2011). Suzuki had never composed for a video game before. This is quickly apparent when playing *Mother*, as the soundtrack was unlike any other video game at the time. Even so, the soundtrack for the video game has "...earned a place in game history as a landmark work of game music..." (Parish, 2016). Both Itoi and Suzuki had never worked on a video game before, and yet both their creations are regarded as some of the greatest in the history of video games. *Mother* was Itoi's vision, this is the impact of an auteur.

Occurrences like this have been a rarity throughout the history of Nintendo, and most of the developers at the company are veteran video game designers. It comes as no surprise that Nintendo continue, on occasion, to hire those with no prior experience in the video game industry, believing that these employees can inject new ideas into their established franchises. Nintendo's approach may generate new ideas, but indie too is associated with new ideas, a more personal touch, and a common association with this is a figure of an auteur. Eric Barone, sole developer of *Stardew Valley*, notes "The larger your team is, the more difficult it is to maintain a strong, singular vision," (Barone cited in Schwerin, 2016). The idea is that as hundreds of people contribute to a project, the influence or possibility of an auteur diminishes significantly, he adds "part of what makes games like *Stardew Valley* (just me) or *Hollow Knight* (two-man team) successful is that you can 'feel' the personal touch in the game" (Barone, cited in Schwerin, 2016). As established in Chapter 1 (Fullerton, 2014), studios were originally much closer in size and scope to the modern indie studio. As technology has

advanced, and video games have become increasingly complicated and grand in scope, budgets and personnel have increased dramatically. A consequence of this is a requirement for expertise, whilst indie developers “wear many hats” (French, 2018), “AAA” needed to specialise in specific areas to tackle these increasingly complex games (Johnson, 2014). Whilst an indie developer commonly contributes to many areas (French, 2018), larger studios typically hire dedicated graphics designers, level designers, sound designers, AI programmers and so on. However, as noted by Barone (2016), there is a notable drawback to this approach - communication.

“AAA” studios comprise of numerous specialists, supervisors, managers, it is no wonder that visions can become blurred, and key production decisions can take a very long time to conclude (French, 2018). Maxime Beaudoin (2016), ex software architect at Ubisoft can provide a rare insight into the AAA production process. Beaudoin reveals the problematic nature of efficient communication at larger studios. He notes there are hundreds of decisions being made or considered every week, and there are many people who need to approve any new ideas or decisions. It is no wonder then that with multiple offices, locations, teams, a singular vision is likely to be distorted with so many layers of communication to go through. Considerations of auteur refer to the way in which the creator (typically director, in the context of film) leave a personal and unique imprint in their work. A reflection of who they are, their personality, and therefore a thread that runs through all their work. Barone (2018), in my interview with him, notes: “indies will always be the ones who pursue novel and unique ideas”. Barone credits this to the difference in how “indies” and larger developers’ function, noting this is “...a result of economic reality, if nothing else” (Barone, 2018). Barone is alluding to financial risk of larger, AAA games. As established in Chapter 1 (Fullerton, 2014), AAA games are demanding increasingly large budgets, and consequently these studios are less likely to pursue new, unique ideas, and instead expand on their existing ones. These designs are proven to be successful, require little innovation, and thus are deemed less financially risky than pursuing the vision of an auteur. However, it would be senseless to argue that an auteur has not and cannot exist in AAA games, and therefore it is crucial look at “well-known” auteurs from larger studios, the tensions currently at play, and how this furthers an understanding of the indie production process.

Hideo Kojima, one of the most highly regarded video game auteurs⁷⁹ began his career at Konami, a large Japanese video game publisher in 1986. During this time, he would create several highly rated video games, most notably the *Metal Gear Series*. Kojima became well-known for his cinematic storytelling, with *Metal Gear Solid* cinematics regularly lasting over 10 minutes, and most famously, *Metal Gear Solid 4: Guns of the Patriots*' (2008) epilogue lasting over one hour. However, he was also continuously challenging game design orthodoxy, challenging his audience to consider video games in a new light. In the original *Metal Gear Solid* (1998), players must beat one of the most well-known “boss” fights in video game history, Psycho Mantis. Psycho Mantis can “read the players mind” (Talbot, 2012), breaking the fourth wall in the process. He is, in fact, reading the players memory card,⁸⁰ where he can comment on other video games the player had been playing. There are numerous other methods Kojima utilises to break the fourth wall, most notably the player being unable to “damage” the boss unless they physically remove the controller from one port and insert it into another to prevent the boss “reading the players inputs”. The *Metal Gear Series* has numerous moments like this throughout, but this is not the only way Kojima challenges player expectations. For example, in *Metal Gear Solid 3: Snake Eater* (2004), after a long, gruelling boss fight, the player’s mission is to reach the top of a mountain. In most games, this would involve a sequence of gameplay elements, perhaps platforming or climbing to reach the top. In *Metal Gear Solid 3: Snake Eater*, the player climbs a ladder, holding one button. In theory, this may sound conflicting with most interpretations of a video game, it does not sound “fun”. Most games try to keep the player playing, but this is evidently an intentional design choice, and has become a subject of much discourse (Juster, 2012; Boluk and LeMieux 2017; Frank 2018). These discussions explore how the focus is instead on encouraging the player to take a moment to reflect, to look back at the journey so far, the people they

⁷⁹ In 2009, Kojima placed 6th on IGN’s top creators of all time (IGN, 2009). He has also been awarded two Guinness World Records for the most followers on both Twitter and Instagram for a game director (O’Connor, 2019). Most recently, in 2020 Kojima was awarded a BAFTA Fellowship in recognition for his creative contribution to the video game industry (BAFTA, 2020).

⁸⁰ Cartridges, such as those used on the *NES* and *SNES* allowed save data to be stored on the cartridge itself. The introduction of CD-ROMS, which are read-only, ensured that alternative means of saving game data were required. This was before internal hard drives were common place on consoles, and therefore an external memory card was required.

have killed, the areas they have explored, and to begin considering what comes next, what awaits the player when they reach the top. The video games were an enormous success, but Kojima would eventually be “forced” out of Konami, a split well-documented.

Kojima evidently had a lot of creative freedom at Konami, he had his own Tokyo-based studio named after himself, Kojima Productions, where he was able to focus on making video games whilst Konami handled the business operations (Sarkar, 2015). The video games marketing and video game box art also referred to his video games as a “Hideo Kojima Game”, a rare inclusion in the video game industry. Furthermore, in true Kojima fashion, he often revealed his games against expectations, notably *Metal Gear Solid V: The Phantom Pain*, which was not originally revealed as a *Metal Gear Solid* title. Instead, the title made no mention of *Metal Gear*, and instead was revealed as “*The Phantom Pain*” by Moby Dick Studios, a studio that would later prove to be a hoax, a “fake out” from Kojima (Roberts, 2015). This control would begin to change however, when in March 2015, Konami announced they would be undergoing a “corporate restructuring” to focus on the changing market conditions (Sarkar, 2015). The company made no mention of Kojima, but in March, Kojima’s name would vanish from all *Metal Gear Solid V: The Phantom Pain* (2015) promotional material, including the game’s box art. Shortly after this, a report from GameSpot surfaced that “power struggles” had led to this “fallout” (Brown, 2015). Additional reports surfaced that suggested Konami had taken a “Mobile first” focused approach to video game production, a stance they later defended, noting they will continue releasing console games (Hayakawa cited in Weber, 2015). However, an analysis of Konami games since 2015 suggest there were justifications for fan concerns. Since Kojima left in 2015, outside of yearly *Pro Evolution Soccer* releases (as of 2021), only three original games have been released, *Super Bomberman R* (2017) *Metal Gear Survive* (2018) and *Contra Rogue Corps* (2019), all of which were unfavourably received (Metacritic, n.d).

Rika Muranaka, a former composer for the *Metal Gear Solid* series believed that Kojima lacked “business sense”, and reportedly would go over budget and failed to release video games on time (Muranaka, cited in Orselli 2015). *Metal Gear Solid V: The Phantom Pain* reportedly cost more than \$80 million dollars to develop (Yin-Poole, 2015), and a lengthy production time resulted in a

section of the video game being repurposed as a standalone product (Sahdev, 2013), *Metal Gear Solid V: Ground Zeroes* (2014). Muranaka notes that these opinions were her own, but a closer analysis of Kojima's production schedule can suggest some of the tensions between himself and Konami. His video games are known for their exceptional quality, but also their lengthy production times. Kojima, as an auteur, is focused on the quality of the product and therefore would unlikely be overly concerned with the budget or production time for the product. Konami, conversely, as a large corporation would be more focused on the profits, and likely hesitant to continuously support significantly increasing costs and production times.⁸¹ This would align with Konami's reported refocus into mobile games, considering they would consist of lower production costs and less production time.

Kojima, speaking in 2012 at BAFTA Annual Games Lecture, sheds some additional light on the matter. He notes that: "Game auteurs are a dying breed", citing growing team sizes, production models, production times and budgets are resulting in far less video game auteurs. Kojima stated his dissatisfaction with how similar many games were becoming. However, when quizzed on his focus on *Metal Gear Solid*, and whether he would explore working on new video games - he noted that whilst he had explored the idea in the past, those who fund his projects are not enthusiastic with the idea of new IP's. Kojima's response was made in jest, but perhaps with an element of truth. A closer analysis of Kojima's gameography since the release of HD consoles in 2006, with the launch of *PlayStation 3*, reveals that he had only worked on three game franchises outside of *Metal Gear Solid*, two of which were in established Konami franchises, *Castlevania* and *Silent Hill*. Renowned film auteurs like Alfred Hitchcock and Christopher Nolan have a far more diverse line-up in comparison. Thus, it is possible that Kojima did not have as much creative freedom as commonly reported. Evidently, there were tensions between how Kojima operated and how Konami wanted him to operate. Kojima has since reformed Kojima Productions as an independent studio, partnering with Sony, with the promise

⁸¹ A factor known to be true from the research conducted in Chapter 1 (Fullerton, 2014).

of providing complete creative freedom, with Kojima noting they told him “do what you gotta [sic] do” (Kojima, cited in Dunning 2016).

Kojima is not the only auteur known to “break away” from “AAA” studios and “go indie”. Peter Molyneux was well known for “god games” such as *Populous* (1989), *Dungeon Keeper* (1997) at Bullfrog games, and *Black & White* (2001) at Lionhead Studios. Molyneux co-founded British studio Lionhead Studios, which would be acquired by Microsoft in 2006, and this relationship would result in the *Fable* series. Molyneux’s biggest hit would come with *Fable 2* (2008), launched in 2008 for the Xbox 360. Like Kojima, it would be difficult to predict that just over seven years later, Molyneux would no longer be working on titles for Microsoft. This is not to suggest that Microsoft came in and made everything worse, there was a general feel good factor about the buyout at the studio. They provided financing, provided a larger office, and numerous other improvements including an in-house canteen (Yin-Poole, 2019). Employees at Lionhead Studios reportedly described the relationship between themselves and Microsoft as a double-edged sword, with their financial support and technical support proving invaluable, but as a “American overlord hell bent on winning the console war” clashing with their British culture (Yin-Poole, 2019). Nonetheless, *Fable 2* launched after four years of production to critical acclaim, including a BAFTA, and then becoming the best-selling RPG for the platform (Metacritic, n.d). However, the studio had only 18 months to produce and release *Fable 3* (2010), and this was when the relationship between Microsoft and Lionhead began to show cause for concern.

McCormack noted that Lionhead Studios were about breaking ground, with *Fable 3* being the first video game to allow same sex marriage, and the cover art of a black woman was to represent this ethos – the video game was about being who you want to be. However, Microsoft’s marketing department reportedly saw *Fable* as another “RPG game”, they suggested the inclusion of dragons and swords on the promotional materials (McCormack cited in Yin-Poole, 2019). McCormack began to clash with Microsoft, noting that this was not what the video game was about, and Microsoft’s marketing did not understand the video game. Notably, he claims he was told the studio was not allowed to include a black person or a female on the front cover, because they know “what sells”

(McCormack cited in Yin-Poole, 2019). The problems did not end here, Molyneux, as expected of an auteur, was attempting to add numerous features to the sequel. However, *Fable 3* released only two years after *Fable 2*, in comparison to the four between first and second video game, evidently there was not enough time to develop these ideas to a suitable level. The game would release to strong sales and a good reception, but would fail to live up to *Fable 2*, and was filled with many bugs at release. Fast forward to 2014, and Molyneux would leave to set up his own “indie” studio. The specifics behind why he left are unclear, but Molyneux has since noted he was growing tired of working on *Fable* “12 years is a long time to work on any piece of IP. Yes, I was tired” (Molyneux, cited in Yin-Poole, 2019). Molyneux, like Kojima, had been working on the same video game series for a large corporation for many years. Indeed, both auteurs had creative control, but their release schedule would suggest only within the worlds of those established franchises. Before Microsoft’s acquisition of Lionhead Studios, Molyneux’s gameography was far more varied. There are other video game designers who “escaped AAA” and went “indie”, Vander Caballero, left his position as game director at EA (Electronic Arts) in 2010 to form his own studio. He noted that the games EA were creating were predictable, and that there was no risk taking or innovation. Instead he notes: “if they see innovation, they buy it. They buy proven innovation. And I thought there was no better time to become an indie. Just jump out, right now, before the boat collapses” (Caballero, cited in Ashdown 2016). Caballero believes he had to leave EA to create the video game he wanted to make.

The idea of an auteur, of someone with enough control over the production process to make the video game they want to make, in their vision, and on their schedule is diminishing in “AAA”. As production times, costs and risks increase, it so happens to coincide with the rise of “indie” and the option for auteurs to “escape” (Caballero, 2016) and regain their creative control. Kojima has since partnered with Sony, Molyneux has struggled to release any of his three early access games but continues to experiment with new ideas, and Caballero with *Papa & Yo* (2013) contains a personal story based on Caballero’s personal experiences with his alcoholic father (Shaw, 2012). Kojima previously noted that game auteurs were dying, but it appears they were just struggling to co-exist with “AAA”. All three auteurs discussed above are examples of a certain type of mindset, pursuing a

vision with a focus on originality. These examples make it clear that there is a distinct difference in the process of production in both “AAA” and “indie” – by needing to escape and “go indie”, they in turn provide additional support for what it means to employ an indie production process.

There are some well-known auteurs that continue to find success in “AAA”.⁸² Could they make a case for being “indie”? According to Chris Lowthorpe and Sean Taylor (2017), they cannot, because people have not accepted them as such. Lowthorpe and Taylor argue there are several misunderstandings when discussing the meaning of authenticity. They claim that authenticity does not reside in a product, service, or person. Instead, authenticity is a multifaceted negotiation between the product and the people. Lowthorpe and Taylor cite Richard Peterson (1999), who argues that authenticity is a claim made by or for someone. In the context of video games, there could be a claim that their creators, their video game, or their process is authentic. Peterson argues that this is “authenticity work”. Whether this work is considered authentic or not is up to people to either accept or reject the claim. According to Peterson then, a video game would only be authentic when most people agree with the claim made either by the developer, players, or media (Taylor and Lowthorpe, 2017). Furthermore, they argue that whilst it may seem that globalisation would have destroyed authenticity, it has instead caused a demand for it. As a result, authenticity has become less about “breaking boundaries” as French (2018) put it, and more about market demands. Taylor and Lowthorpe use Indian restaurants as an example. They note that most of the food found at Indian restaurants does not actually resemble the food you would eat in India. It is not unsurprising then that almost ninety percent of the Indian restaurants in the UK are not run by Indians (Taylor and Lowthorpe, 2017). Similarly, it is not a well-kept secret that one of Britain’s most famous meals, fish and chips, is not authentically British (Blake, 2017). This fabrication of an “authentic Indian restaurant” has been negotiated for decades. Despite the lack of real Indian food, Taylor and Lowthorpe argue that adaptability is key, and that because Indian restaurants have continuously adapted throughout the years, they have remained authentic in the eyes of their customers.

⁸² For example, Hidetaka Miyazaki at From Software. There is a sense of auteur in his games, a common thread of environmental storytelling and challenging gameplay with a focus on trial and error.

This same argument then could be applied to being “authentically indie”. What defines an indie game as authentic is unclear, Jesper Juul (2019) uses an example of Arts and Crafts, where handcrafted goods are considered authentic, and are in opposition of machine production. In contrast, indie games are in opposition to “AAA” and games made by large teams, therefore it is indie games that signal personality, honesty, and smaller productions. “Indie” is where new ideas, originality and risk taking are welcomed rather than seen as something to be wary of - to avoid. Therefore, a claim for being “indie” is a consideration for what makes the term meaningful and how it is perceived by consumers. For example, with Nintendo - despite original ideas and their contribution to the video game industry, any claim of “indieness” would be rejected by the people. Likewise, regardless of the “indie like” qualities of “AAA” auteurs and their influence over the production process, they are too close to the “machine production” of art to be accepted as “indie”. However, when these auteurs “escape AAA” to go “indie”, they do so to regain full creative control – and in turn, they become characteristic of the indie production process.

Conclusion

This chapter identified how indie consumer expectations are not always aligned with the realities of the indie production process. This includes expectations on “indies” to not partner with large publishers – or even avoid publishers entirely. There are examples of indie developers working successfully with major publishers, but further investigation reveals that there is also a high possibility of “bad deals” and incompatible priorities. The “indie publisher” is in response to this - publishers that share many of the same characteristics of “indie”. They provide flexible deadlines, encourage risk-taking and experimentation, and therefore support the indie production process. In addition, it became clear that the working conditions of both “AAA” and “indie” can include “crunch” and the mistreatment of employees – of which most are women. However, the flexible nature of the indie production process presents an opportunity for change, with some indie studios already implementing “no crunch” directives and focusing on safer work environments. Furthermore, video game tools are becoming increasingly accessible, but there is still a level of expertise required. Indeed, more people than ever can now produce video games, and at the same time, this accessibility is reducing

production times significantly. In turn, experimentation with different gameplay systems and genres can happen far more quickly, and consequently providing more opportunities for indie developers to experiment with new ideas.

In light of the above conclusions, there is a theme of flexibility, risk-taking, experimentation and originality that characterises the indie production process. However, this originality cannot always come in the form of “breaking boundaries” – my primary research reveals that unique aesthetics, or new takes on existing gameplay systems is sufficient for a refreshing experience, one that can be considered “indie” in the eyes of the consumer. In addition, a closer look at the role of major publishers reveal that an increased focus on expanding their audience, minimising expenditure, and avoiding schedule overruns is becoming increasingly incompatible with the demands of an auteur. Auteurs are often associated with singular visions and originality, and “AAA” auteurs are having to “go indie” to maintain that creative control. At the same time, “indie” being able to accommodate “AAA” auteurs allow us to characterise the indie production process with more certainty. Furthermore, my action research allowed me to test many of these conclusions through the production of my own indie game. Reflecting on this process informed an appreciation for the indie production process and how it can encourage experimentation. In turn, reaching a realisation that many indie games like *Stardew Valley* would not exist if not for the indie production process.

Chapter 4 shifts the focus to the third and final theme of indie as process: Indie as Community Process. This Chapter explores how indie developers are becoming increasingly focused on building and employing communities to test their video games, provide ideas, and offer feedback. Following this, indie consumers continuously return to two-way communication and the feeling of being heard when discussing the value of indie communities. To reach these conclusions, Chapter 4 draws on original audience research sourced from 966 respondents, supplemented by several case studies and textual analysis.

Chapter 4

Consuming Indie Games: Community as Process

Chapter 1 of my thesis (Clarke, 2009; Szczepaniak, 2012; Owen, 2013; Chamberlain, 2015) explored how historically, community has been at the heart of what it means to be an independent video game. Notably, “shareware” reveals how independent developers were relying on their community for distribution. This was clear again with Sony’s *Net Yaroze*, where small, tight-knit communities were formed and became instrumental to the developers. A similar theme can be seen today with the indie game. The rise of open communication platforms such as Discord has resulted in the formation of hundreds of indie communities.⁸³ Developers have been drawing on their communities to provide feedback, test their indie games, and contribute new ideas. Thus, community has become crucial to the process of being “indie”.

The video game production process, whether “AAA” or “indie”, typically involves video game testing, also known as playtesting (Schultz and Bryant, 2016; Spalding, 2018; Mhasawade, 2019). “Playtesting” is the process of playing a video game to test for glitches, bugs, and performance.⁸⁴ This includes pre-alphas, alphas, betas and more recently, early access (Pulsipher, 2012; Steam, 2019). In theory, all video games are “playtested” and developers will typically thoroughly “playtest” their own video game. One role of major publishers is to provide testing teams that provide quality assurance for the developers (Greenspan, 2013; Mhasawade, 2019). However, “indies”, with their typically smaller production budgets will be unable to hire dedicated testing teams. Instead, they have been turning to their communities, which theoretically allows them to source feedback from hundreds, thousands, or even millions of testers. In turn, this increases the possibility of meeting consumer expectations and therefore achieving success (French, 2018).

⁸³ The website disboard.org allows users to list and find Discord servers. Searching for servers which are tagged as indie reveals 539 servers. This is only servers which are using this service, and there are likely hundreds of additional indie communities that have not used this website to tag their servers. In addition, Buddy Sola (2021) who has 8 years’ experience as a video game community developer, notes: “Today, every marketing expert in gaming is going to tell you to set up a Discord server for your upcoming indie titles” (cited in Logan). The number of indie communities on Discord is only going to continue to grow.

⁸⁴ Bugs and glitches are explained and discussed in pages 168-173.

However, Chapter 3 identified the relationship between an auteur and the indie production process (Muranaka, cited in Orselli 2015; Caballero, 2016; McCormack cited in Yin-Poole, 2019), and therefore whether “playtesters” and fan feedback could alter their association with a singular vision must be explored.

It is becoming clear how indie communities are playing an increasingly crucial role to the success of these indie games. However, these individuals are volunteers, and the process of “playtesting” and providing feedback is inherently time consuming. Drawing on my primary research reveals the motivations behind these individuals remaining highly invested in their indie communities. In my questionnaire, respondents were asked why they choose to be invested in indie communities - the most frequent response was due to developer communication.⁸⁵ Respondent 4 values the intimacy and verification of being heard: “With the indie creators you feel like you're having a conversation and it gets more personal and you get a verification that they have seen it”. Respondent 11 believes that fewer people in the community leads to more chance of being heard: “smaller community tends to increase the possibility[sic] of opinions being heard by devs or other community[sic] members willing to discuss”. Respondent 50 considers the way in which the developers themselves view their audience: “In the indie communities often the developers are much closer connected to their players and listen their opinions”. This was a huge sample, and 348 respondents continued to reference this notion of two-way communication with indie developers – valuing the feeling of being heard. These are crucial characteristics of the indie community process.

The above discussions reveal that the community process is crucial to any definition of “indie”. The focus of this chapter then, is to explore how indie developers are building and employing their communities, and the value that this holds for indie consumers. At the same time, an analysis of older and more established communities is carried out in this chapter to determine whether they can contribute to an understanding of the indie community process.

⁸⁵ How this data is collected and analysed is discussed in my methodology and in Chapter 2.

Target Audience and Feedback

Chapter 3 explored how many indie games do not accumulate enough revenue for them to remain financially independent (Taylor and Lowthorpe, 2017; French, 2018; Johnson, 2018). The reality is that most indie developers never survive their first commercial video game (Ismail, 2015; Rose, 2018). Mike Rose (2018) breaks down PC (Steam) sales data for indie games, noting that even when the extremely low effort, “hot stinking garbage” is removed, most indie games sell badly. Even if the developer’s video game is not “gigantic drivel”, Rose reports most indie games will sell under 1,000 copies in the first month. Furthermore, with more and more indie games being released every year, it is becoming increasingly difficult to achieve financial success for new indie developers. Thus, indie games that are currently managing to achieve success are the exception and not the norm, even though the means in which they achieve this success are not commonly discussed or observed. It is unclear whether this is due to quality, timing, or luck. For example, Rose highlights that many indie games unwisely believe they will achieve success because their video game is like a previously/currently popular indie game. Rose does not share the exact reasoning behind his frustration at these “copycat” video games, but he believes the key to success for indie games is not just to be exceptional, but also unique and original.

Eric Barone’s *Stardew Valley* is one indie game that is an exception and emphasises several key attributes that contributed to its success. Notably, *Stardew Valley* was made solely by Barone who had no prior knowledge of video game production. Whilst growing up playing video games, Barone had not considered a career in the video game industry despite having a few unfinished, smaller projects (Kerr, 2017). After observing reports on overworked and underpaid employees, he decided to pursue a Computer Science degree instead (Kasinger, 2018). As a result, Barone would have acquired a knowledge of computers and how they function and operate, as well as programming. However, in terms of video game production, Barone was a novice. Nonetheless, after several failed job applications, Barone decided to improve his video game production skills, and likely due to his previous experience coding, he decided to begin practicing video game production. Barone was not set on creating the next big indie hit but wanted to develop his programming skills and become more

employable (Kasinger, 2018). Nonetheless, Barone slowly became more and more invested in this new project, until eventually it was his full-time job, working on it up to twelve hours a day (Wiltshire, 2018). Without any prior experience in video game production, and a degree in a relatively unrelated field, Barone had no expertise in the video game industry market.

The way *Stardew Valley* turned out wasn't all that deliberate, it was more the product of all the games I played as a child influencing me. I played a lot of Japanese RPG's from the Super Nintendo & PlayStation years, so that's my major influence. Of course, *Harvest Moon* was the #1 inspiration for *Stardew Valley* (Barone, 2018). **Eric Barone full interview in Appendix A.**

Stardew Valley was heavily inspired by the video game *Harvest Moon* (1997), a farming simulator that launched on the *SNES* almost two decades prior to Barone commencing production, a video game that, as mentioned in the above excerpt, he adored growing up and left a lasting impression. However, he unsuccessfully sought to discover similar video games to *Harvest Moon* on PC, noting that: "...always looking on PC to try to find like a fan-made or an indie *Harvest Moon* clone—I was never able to do that. I looked like all over the internet for it and I never found anything satisfying" (Barone, cited in Marks 2016). Thus, the main target audience of *Stardew Valley* was Barone himself, and much of the video game design was aimed to satisfy his craving for a modern *Harvest Moon* video game on PC.

The concept of *Stardew Valley* was to create a new farming simulator, not for the industry, but for Barone. However, my thesis argues that the final video game would ultimately diverge from that original vision. This diversion was not a conscious decision but rather a gradual transformation during pre-release, release, and post-release of the indie game. The main driving force behind this transformation was the audience, and this influence is crucial to defining the indie community process. *Stardew* reveals how audiences can influence a video game's direction, despite it being developed by one person with a concrete production philosophy. Although this influence is primarily associated with the later stages of production, it is crucial to establish how *Stardew Valley* came to be one of the most anticipated indie games years before its release (Henley, 2012). Much like *Braid*, as

discussed in Chapter 2 (p105-112), there was an earlier version of *Stardew Valley* that looked vastly different to the finished product. Barone was an obsessive developer, and as previously discussed, worked on the video game single-handedly. He carried out all the labour himself, improving his technical knowledge and skillset as production progressed. This ensued two contradictory aspects, although Barone was making progress, he felt with his improving ability he could create them better if he restarted the process. Thus, *Stardew Valley* - like *Braid* and its aesthetic - was an indie game that had entire parts of the game being remade before it was released. Barone was continuously tweaking or remaking sections of the indie game late into the five-year production process (Barone, 2017).



Fig. 4.1. *Stardew Valley* (then known as *Sprout Valley*) in 2012. Retrieved from: stardewvalley.net



Fig 4.2. *Stardew Valley* in 2016. Retrieved from: store.steampowered.com

It is not unusual for video games to look drastically different from early production to release. (Hernandez, 2017; Lister, 2018). This was the same for *Stardew Valley*. Fig 4.1 reveals how the indie game looked four years before it launched in 2016 as shown in Fig 4.2. An analysis of Fig 4.1 and Fig 4.2 reveal several key differences. At first glance, the two screenshots may appear similar, both depicting an underground mining cave, the same camera angle, and technically both share a 2D, “pixel art” aesthetic. Nonetheless, there is a clear improvement to the “pixel art” at launch, but more significantly an enhancement to the immersion. The player’s character is now more detailed, composing of more realistic proportions. In Fig 4.1 the player’s pickaxe is a considerable distance away from his hands, in Fig 4.2 the player’s sword is much closer, therefore appearing as if the character is holding it. This same reworking of proportions extends to the environment itself. In Fig 4.1, the player is considerably larger than the ladder they had used to reach the mine, in Fig 4.2 this is more realistically proportioned, with the character’s dimensions now smaller than that of the ladder. This is also evident from the proportion of the walls themselves, with the player in Fig 4.1 being of a comparable size, whilst in Fig 4.2 the walls are much larger and higher than the player, further justifying the need for a ladder to be present. Beyond this, the cave is now significantly more detailed, with foliage decorating the walls in the cave, and a variety of notably more detailed floor tiles, in

comparison to the singular style used in Fig 4.1. Furthermore, there are now lanterns placed on the wall, which not only justify why the cave itself is illuminated, but also cast realistic shadows underneath the walls.

The improvements extend beyond what can be shown in screenshots, and analysing trailers depicting *Stardew Valley* in 2012 and 2016 demonstrate improved animations and performance at launch (YouTube, 2012; YouTube, 2016). However, when the pre-release screenshot Fig 4.1 was taken, the indie game was in a playable state. Many of the core features of *Stardew Valley* were already implemented, including the UI, inventory system, NPCs, and gameplay features such as levelling-up the character, building, farming, mining, and combat. This can once again be witnessed in the trailer for this earlier version of the indie game (YouTube, 2012). Nonetheless, despite *Stardew Valley* being theoretically almost feature-complete, it would not be released for another four years. This was not a gradual, four-year improvement on the indie game. Instead, Barone explains in his own words:

I ended up re-doing nearly all the art several times. I redid the vast majority of the soundtrack. I expanded the NPC's way beyond anything you'd see in the 2012 version. I made the map way bigger and more detailed. I added JojaMart and the Community Center. I added tons of items. I totally changed the crafting system and the mines (Barone, cited in Stardewvalley.net, 2017)

In some ways, *Stardew Valley* was Barone's own sequel to the unreleased older version, *Sprout Valley* (the name of *Stardew Valley* in 2012). Barone's design philosophy was to not release the video game until it was "polished" (Barone, 2017), therefore in the process continuously honing his skills and reapplying it to *Stardew Valley*. Many developers, "indie" or "AAA", typically finish a video game and then subsequently implement new ideas, utilising improved skills when developing a sequel, patches or DLC (Stanton, 2016; Schreier, 2019). For example, Nintendo recently announced *The Legend of Zelda: Breath of the Wild 2* (unreleased at the time of writing, June 2021) and shared that

the reason a direct sequel exists is because “... the team had too many DLC ideas” (Schreier, 2019).⁸⁶ Though, it is worth noting that some developers take advantage of the ability to adjust and patch a video game post-release, either rushing the video game out incomplete, or acknowledging the video game’s lack of content can be remedied with content patches after the release of the video game.

As discussed in Chapter 3, the topic of “crunch” in the video game industry has been gaining considerably more pushback in recent years (Wright, 2018). However, it remains a grim reality of video game production, and is something that affects, as demonstrated in Chapter 3, both “indie” and “AAA” developers. In a more severe, but noteworthy example, Microsoft released *Halo: The Master Chief Collection* in 2014, a collection of the first four *Halo* video games (Ditum, 2014). *Halo* is one of the biggest names in the gaming industry, with *Halo 3* (2017) notably breaking the first-day sales record in the U.S in 2007 (Nystedt, 2007). Despite its high-profile stature, the collection was considered a “disaster” (Stanton, 2015) at launch, with the video game severely criticised for having a “deeply broken multiplayer suite” (Good, 2017). The video game releasing broken is unmistakably bad for the industry, particularly when it is one of the biggest names in gaming. Yet, much worse was that the video game’s positive reviews appeared to look past the issues, sitting at a respectable 85/100 Metacritic (metacritic.com, 2019). Ryan McCaffrey (2019), in his revised review for *Halo: The Master Chief Collection* in 2019, announces that the title’s issues are finally resolved. In his revision he shares some insight into his original review:

I held it for a few days after launch at the time, hoping 343 would patch up the then-four-game collection’s catastrophic matchmaking and connectivity issues, and then I put a 9.0 on it on the strength of its four fantastic campaigns and the faith that the multiplayer issues would be resolved soon enough (McCaffrey, 2019)

McCaffrey admits that he awarded the video game a high score, based on the assumption that the video game would be fixed post-release. It would be, but not until five years after the original launch. Much of the blame for incomplete launches is often associated with “crunch”, publisher deadlines,

⁸⁶ DLC is short for Downloadable Content.

and rushes to market to take advantage of popular shopping windows, notably Christmas (Gilber, 2014). Nonetheless, McCaffrey's admission reveals another worrying problem; namely that there is an acceptance for products releasing unfinished, rushed and/or broken, along with expectations for the video game to be fixed post-release. Conversely, Barone demonstrates an alternative approach. Certainly, "indies" should strive to eventually release video games and make an income to continue creating, but evidently, there should be no real deadline for the creator (Barone) to release the video game before they feel it is ready. Barone continuously remade the video game until he felt his skills were at a high enough level to meet his own high expectations, and in the process, achieve success.

Barone (2012), notes that many fans have supported him and the video game, even earlier in production when the indie game looked considerably different and less refined than the release version in 2016. However, these fans would have a much larger impact on the production process than he anticipated. As previously discussed, Barone was interviewed for my thesis, and one of the interview questions was "How do you work with the players?". Barone noted that he had always tried to stay close to the fans and players of *Stardew Valley*, and this included before the video game released (Barone, 2018). He would post monthly production updates and communicate with interested followers monitoring the video game's progress. Barone noted that fans' ideas and feedback helped him to improve the video game. Thus, even though Barone worked on the video game single-handedly, this direct communication with his audience had an influence on the video game design of *Stardew Valley* from an early stage. Barone's willingness to communicate with his audience is evident through how quickly and easily we were able to arrange an interview. He is currently significantly more prevalent and busier than he would have been during the early production of *Stardew Valley*, but he was willing to take time and respond to every interview question. Barone's response prompted further research, and it became apparent that the influence of his audience had a larger impact than it first appeared.

In the later stages of production, Barone partnered with "indie publisher" Chucklefish. Barone remained the sole developer for *Stardew Valley*, with Chucklefish handling the marketing, advertisement, and porting the video game to other platforms (Blake, 2019). Surprisingly, Chucklefish

did not play the video game before partnering with Barone. Thus, the only people who had played *Stardew Valley* after four years of production were Barone and his partner (White, 2018). As previously noted, followers of the video game had commented on progress updates, offering opinions and feedback. However, none of those followers were able to play the indie game and therefore could only comment on what they were shown. Despite Barone having a clear and determined vision for the *Stardew Valley*, he admitted that he began to lose confidence during the later stages of production. He believes this lack of confidence stemmed from developing, “playtesting”, and playing the indie game for thousands of hours, and consequently he could no longer neutrally observe the quality of his indie game. However, after partnering with Chucklefish and gaining access to their network of “playtesters”, he was introduced to three Twitch streamers, Bexi, Siri and Prens (White, 2018). Barone (2018) has remarked that he pursued Twitch streamers as a means of advertisement and exposure of *Stardew Valley*. Barone has not shared the specifics of this Twitch partnership, and whether he also expected them to help find bugs and/or offer feedback on the video game is unclear. Nonetheless, the three Twitch streamers would influence the production of *Stardew Valley* to a much greater extent than Barone anticipated.

Bexy, Siri and Prens, as Barone had most likely hoped, started discovering and notifying Barone of any bugs they found. A bug is an unintended fault with the video game, and the types of bugs can vary in significance. Some bugs are minor and can also be referred to as “glitches”. Bugs and/or glitches can be annoying to the player, such as graphical glitches which incorrectly display or function in the video game. This could be characters behaving strangely, characters appearing distorted/deformed, or even graphical assets in the video game being completely invisible to the player (Green and Kaufman, 2015). Glitches in video games can also be utilised by players to cheat, where players⁸⁷ can actively seek out and take advantage of unintentional behaviour in the video game.⁸⁸ Naturally, this could be considered an issue in multiplayer video games where a player can

⁸⁷ These players have also become known as “Glitchers” (Meades, 2015).

⁸⁸ Glitching to cheat in video games should not be confused with hacking. Hacking, as discussed later in this chapter, involves altering files, whilst glitching is taking advantage of existing faults or errors in the game.

gain an unfair advantage, such as traversing environments which were not designed to be traversed (Green and Kaufman, 2015). However, video game glitches can also be seen in a more positive light. Some players purposely play video games in a transgressive means to gain pleasure by working outside of the video game's normal, and therefore expected, behaviour (Meades, 2015). These players then, can actively play a video game to find ways in which to either change the way in which it functions, or break out of its boundaries. These glitches can also be utilised for entertainment, where players upload videos to YouTube demonstrating a variety of glitches they have intentionally or unintentionally encountered. These can include accessing "inaccessible" areas, witnessing graphical glitches, or manipulating interactions within the video game for unusual, often comical value.⁸⁹

Bugs and glitches can be serious in nature too, taking away control from the player. This includes the video game "freezing" or "crashing", resulting in it completely shutting down and no longer functioning, requiring the player to reboot the video game (Levy and Novak, 2009). The most serious bugs are often considered "game breaking", and these are the problems prioritised by video game developers. This is because if left unfixed, such bugs can result in the player either being unable to progress in the video game, or even worse, the player's progress being corrupted/deleted (Mitchell, 2010; Fischer, 2019). Many of these bugs are not always immediately obvious, and sometimes, they require specific, difficult-to-reproduce situations to occur (Levy and Novak, 2009). Barone dedicated thousands of hours to developing and testing *Stardew Valley*. Nonetheless, as the only developer of the indie game, it is incomparable to the millions of hours that players will dedicate to the video game once it is released. Thus, it is almost impossible to have a bug-free video game, but video game developers often utilise "playtesters", as a means of QA (Quality Assurance), to reduce the number of bugs as much as possible (Levy and Novak, 2009). Naturally, Barone, like most other indie developers creating their first indie games, had a very low budget and therefore could not hire QA testers. However, the three well-known Twitch streamers were able to spend an accumulation of over 1,500 hours on the indie game, playing it in different ways and thereby finding many bugs to be fixed.

⁸⁹ An example of this can be found here: <https://www.youtube.com/watch?v=YhzoeTH6mhU> and here: <https://www.youtube.com/watch?v=93orR7zuEDk>

Bexi, Siri and Prens were in many ways, free “playtesters”⁹⁰ who happened to love the video game they were testing. Not only were they helping Barone fix bugs, but actively advertising the indie game at the same time. However, there was something even more important that Barone yielded from engaging with his audience. For the first time, people other than Barone’s partner, who Barone noted was not a gamer, were playing and critiquing the indie game. As previously noted, it was around this time that Barone had begun to lose confidence in *Stardew Valley* and doubting its quality.

Nonetheless, once it became clear beta testers were investing hundreds of hours into the video game, Barone’s confidence would begin to return. Siri, one of the beta testers, notes that: “It became almost a game seeing if we could keep up with how quickly he was fixing things,” (Siri, cited in White, 2018). However, it is not just the hours of investment that beta testers were dedicating to *Stardew Valley*, but their feedback would also reinforce Barone’s vision. Beta testers for *Stardew Valley* had requested the option to allow players to butcher their animals for meat, this meat could then be sold or eaten for in-game benefits. Barone, possibly because he was new to such intimate player feedback, listened to these players at first and decided to include the mechanic. However, before long, Barone would realise that butchering animals did not align with his original design philosophy for the video game, noting that: “It just felt wrong. It didn’t jibe with the feeling I was going for with the game, so I cut that, and I don’t regret it.” (Barone, cited in White, 2018). Indeed, in this instance the audience would help Barone rediscover his original vision. However, it also demonstrates the process of gathering feedback from an audience. Barone was listening to his audience and wanted to improve their playing experience. However, he would later come to realise that this must not come at the expense of his original vision.

Barone (2018) shared that his intentions were to partner with Twitch streamers for advertisement and exposure, but his audience would play a larger role than anticipated. Indeed, this influence was strong enough for Barone to need to push back on some of their feedback and ensure *Stardew Valley* fulfilled his original vision. However, this also demonstrates the community process of an indie game, and how much an indie developer can listen to their audience. Indeed, this was

⁹⁰ Also known as beta testers or QA (Quality Assurance) testers.

alluded to in the introduction, and it is evident here. In addition, Barone was able to utilise the streamers to promote, advertise and test *Stardew Valley*, demonstrating the importance of his audience to the success of his indie game. It is no wonder then that building an “indie community” is becoming increasingly attributed as a key component for success by other indie developers (Barone, 2018; French, 2018). However, indie communities are being built in many platforms beyond Twitch, including social media and gaming community platforms like Discord.

Developer Communication: Twitch, Twitter, Reddit and Discord

The means by which studios and developers communicate with their audience has become increasingly recognised as an important factor to a video games success (Williams, 2016; Bycer, 2019). As a result, video game studios have dedicated positions for communicating with their audiences, known as community managers (Bay, 2018). This is a stark difference from the earlier days of the video game industry, as discussed in Chapter 1 (Fullerton, 2014), where teams for *NES* and *SNES* were small, and comprised of almost exclusively video game developers. This is not to suggest that studios in the past did not engage with their audiences, but as noted by Jason W. Bay (2018), the video game industry has evolved from offline only experiences to online systems with fan networks from all over the world. Previously, video game developers would gather feedback from focused areas such as “playtests” and video game reviews. This is a stark difference to modern video game studios who must manage potentially millions of fans through emails, online communities, social media, user reviews, and many more. It would be an obvious observation that managing audiences this large would be challenging, but Christopher A. Paul (2012) reveals these audiences can exert greater control over larger studios than anticipated. Thus, this is an observation that would benefit from further research. In 2009, Infinity Ward announced that their latest *Call of Duty*, *Call of Duty: Modern Warfare 2* (2009) would launch without dedicated servers. Numerous dedicated servers are usually provided for PC multiplayer video games by the studios themselves. Dedicated servers are commonly available in many different regions, enabling players to connect to the closest server to provide the smoothest, fastest connection. These servers are mostly provided by dedicated server hosting companies and can even be purchased by the players themselves. Naturally, maintaining a

large amount of dedicated servers' costs studios money, and as a video game decreases in popularity, dedicated servers are shut down appropriately. However, in instances like this, players can purchase servers themselves and are therefore less reliant on the studio to keep the multiplayer of the video game functioning (ovh, 2019).

Call of Duty: Modern Warfare 2 (2009) launched without dedicated servers, meaning that multiplayer would only be available if Infinity Ward supports it. The alternative that Infinity Ward had proposed was for players to connect to each other directly, most commonly with the player with the strongest connection hosting the server for everyone else, known as peer-to-peer matchmaking (Funk, 2009). Almost immediately after this announcement, fans expressed their disappointment with Infinity Ward's decision. Over 100,000 fans launched an online petition to reintroduce dedicated servers to *Call of Duty: Modern Warfare 2* (Paul, 2012). Eventually, fans would "hack" the video game to enable dedicated server support, and in the process, demonstrating the power of the audience, and their ability to shape video games and how they are played (Plunkett, 2009; Paul, 2012). Furthermore, Infinity Ward's decision demonstrated the lack of communication and understanding between the studio and its fanbase. This is made evident by the subsequent decision to include dedicated servers in future video games, such as *Call of Duty: Modern Warfare* (2019), which supported dedicated servers from launch (Gerblick, 2019). Indeed, this lack of communication is in opposition to what characterises the indie community process. As noted in the introduction to this chapter, my primary research reveals that communication and feeling heard is what indie consumers value most in their communities.

Josh Olin, who was community manager for *Call of Duty: Black Ops* (2010), believed that the *Call of Duty* community is the biggest, and most vocal gaming community when voicing their opinions (Olin cited in Paul, 2012). Whilst it is difficult to verify Olin's statement, according to multiple gaming outlets, *Call of Duty* is in the top five largest gaming franchises in the world (Fraser, 2016; Piccalo, 2017; Corder, 2019). Olin further notes that it is important to consider the millions of fans who do not engage in online communities, and therefore their opinions and feedback are often unheard. With such a large and diverse fanbase, Olin suggests that there is a fine balance between

listening to the dedicated, vocal fans and catering to the millions of silent fans who may or may not agree with them. In other words, Olin is explaining how difficult it is to ensure that everyone in such a large fanbase remains happy. Furthermore, as a video game's fanbases become larger and larger, and the amount of feedback increases, it could be interpreted that fans feel that they need to shout louder to be heard. This can be seen through the means in which fans responded to a recent video game announcement by well-respected AAA studio Activision Blizzard.

In 2018, rumours were becoming increasingly rampant that a new entry in the *Diablo* franchise was going to be announced at Blizzcon (Dingman, 2018). As a result, the developers, Activision Blizzard, submitted a blog post to try and ease fan expectations (Diablo3, 2018). It is no surprise that fan expectations were high, Activision Blizzard had earlier in the year announced that they had multiple *Diablo* projects in the works, and fans should expect more information later in the year (Reed, 2018). Thus, Activision Blizzard's efforts did little to calm arguably one of the biggest video game backlashes in history (Marks, 2018). At Blizzcon 2018, Activision Blizzard closed the show with the announcement of *Diablo: Immortal* (still unreleased at time of writing, June 2021) an exclusively mobile game. With many fans anticipating that either a sequel or a remaster of an older *Diablo* video game was going to be announced (Reddit, 2018), the announcement was booed by the audience. Just two weeks after the announcement, the official cinematic trailer had accumulated over six hundred thousand dislikes (Sanders, 2018). Activision Blizzard quickly submitted an online message on their official forums, stating that "...we hear you" (Blizzard.com, 2018), and that more announcements would arrive in due time. Activision Blizzard have, on multiple occasions, stated that multiple projects were in the works following the announcement of *Diablo: Immortal* (Wade, 2018). *Diablo IV* (unreleased at time of writing, June 2021) has since been announced, one year later. Nonetheless, numerous fans, journalists and other video game developers have expressed their bewilderment that Activision Blizzard did not anticipate such an enormous backlash (Ramsey, 2018; frontseatgamer, 2018; Horti, 2018).

Indie developers commonly communicate with their audiences in a different way to AAA studios, and in the process are more likely to avoid situations where audience expectations are not

met. Justin French, CEO, creative director, audio designer and studio lead at indie studio Dream Harvest Games, believes that community is one of the most important contributors to indie game production. This is evident through Dream Harvest Game's very open production process, where they regularly share unfinished gameplay, bugs, concept art and ideas. They have engaged with the community since the initial production stage, regularly conducting "sanity" checks to ensure that the production is on track and providing the community with an opportunity to vote on production decisions. French notes how proud he is of the community that has formed around *Neuroslicers*, referring to them as his "extended family".

Dream Harvest Game's main method of communication is through Discord, where they have accumulated over 450 members. The most significant differentiation here is how simple it is to contact the studio lead of Dream Harvest Game's in comparison to a large AAA studio. It is possible to join their discord, personally private message French, and discuss or vote on production decisions. French himself is easily contactable and replied personally within hours. In comparison, the *Call of Duty* discord has over 110,000 members, spanning three different production companies that all work on *Call of Duty* video games. This discord is instead run by "server moderators" and community managers rather than the developers themselves. To gauge their responsiveness, five separate *Call of Duty* developers were contacted, but no response was received. This is not meant to discredit these developers, with a discord of over 110,000 members on discord alone it becomes almost impossible for them to reply to most users, but it does demonstrate differences in how these communities engage with the developers, and consequently how some fans may feel unheard.

Communication between AAA studios and their audience has been changing steadily over time. As discussed in Chapter 1 (Fullerton, 2014), AAA studios were originally much closer in size and scope to the average indie studio. As technology has advanced, and video games have become increasingly complicated and grand in scope, the number of personnel required has increased dramatically. With such large projects, and so many people, developers begun to specialise in specific areas. Through specialism, developers could efficiently tackle the progressively complicated creation of 3D video games (Johnson, 2014). No longer were people just video game developers, but graphics

designers, level designers, sound designers, AI programmers and more. This enabled developers to focus on one area of these complex projects. However, there is one significant drawback to this approach - communication. According to French (2018), there are so many specialists and so many managers at AAA studios, that a simple production decision can take a very long time to conclude. This is echoed by several other developers who have spoken out in recent years.

Maxime Beaudoin (2016), ex-software architect at Ubisoft wrote a blog on why he left the studio. Like French, Beaudoin notes that good communication at a large studio is impossible. There are hundreds of decisions being made or considered every week, and the amount of people who need to approve or consider these decisions is absurd. There are so many layers to finalising a decision, that, according to Beaudoin, at some point something is going to go wrong. Important decisions are made early or pre-production and are then locked down. Therefore, any decisions that would drastically change the production process are often ignored. Regardless of whether the gaming landscape changes, or new trends emerge, production decisions will remain locked down for several years. Therefore, the video game could therefore release in a much different environment than the one it originated from. This is not an issue “indie” or small teams have; without numerous layers of communication to go through, they are able to adapt and change the design of the project quickly (French, 2018).

My questionnaire strived to better understand the motivations behind why consumers would choose to favour indie communities over “AAA”. The respondents were asked whether they most frequently play “AAA” or indie games. There was a conveniently a very close fifty/fifty split, with 447 of the 966 respondents frequently playing indie games, whilst 448 frequently play AAA games. The fifty/fifty split of this data ensured that the follow up responses for what communities’ respondents favoured would be balanced. Unexpectedly, more respondents were part of a AAA community (394 or 40.8%), than they were of an indie community (348 or 36%). However, a closer look at the data reveals conflicting motivations for being a part of their respective communities. In terms of AAA communities, the most common justification was multiplayer. A combined total of 98 of 394 respondents listed finding opponents and competing in tournaments in fighting video games

like *Super Smash Bros* and *Street Fighter* as their motives, whilst others considered playing an MMORPG (massively multiplayer online role-playing game), like *World of Warcraft* as being part of a AAA community. Indeed, larger productions reach more players, and therefore this is an understandable motivation for those seeking to play with many other players. In Comparison, only 2 of the 348 respondents cite multiplayer as their reasoning behind being part of an indie gaming community. Indie consumers are looking for something else in their communities, and as revealed in the introduction to this chapter, this includes a more intimate relationship with developers.

The above data reveals that communities are formed around both “AAA” and indie games, but the way they function, and what consumers want from them differs significantly. In terms of AAA, the extraordinary size of the audience means that if there is an overwhelming consensus, it can often be too vocal for the studio to ignore, regardless of their size. In turn however, this means that on an individual level, many fans can feel unheard or ignored – indeed, no respondents listed these characteristics as a motivation for being part of an AAA community. Conversely, indie communities are commonly much smaller, and therefore fan feedback can become embedded in the process itself. There is a feeling of intimacy, of being heard, and therefore a more pro-active relationship rather than reactionary. This is at the heart of the indie community process, and consequently what it means to be “indie”. In addition, there are communities that can - unlike those discussed above - form around local events. For example, in contrast to the online structure of the aforementioned platforms, competitive gaming and earlier indie production thrived upon local events which helped offset their limitations. Thus, the theme of the indie community process remains evident.

The Community Process of “Lan Parties” and “Game Jams”

In the 1990s, competitive gaming grew significantly, with the rise of one-on-one fighting video games like *Street Fighter II* and *Mortal Kombat*, and consequently led to a resurgence in the popularity of the arcade (Northfield, 2018; britishsports.org, 2019). Furthermore, the origins of competitive PC gaming can be traced to the launch of First-Person Shooter, *DOOM*, and then subsequently the fast-paced *Quake* (1996), a franchise that would eventually become competitively multiplayer focused (Rogers, 2019). Whilst later versions of *Doom* and *Quake* supported online multiplayer, in the mid-

1990s online connectivity was limited, and thus there was a heavy emphasis on “LAN parties”, a term used to describe groups of gamers gathering to play video games over a LAN (Local Area Network). Due to the limitations of the Internet, as more and more multiplayer video games released, “LAN parties” and tournaments rose in popularity in the late 1990s (Ferdig, 2008; Rogers, 2019). Video games have always been associated with a process of bringing people together; older consoles such as *NES* and *SNES* were only playable locally, and therefore the only way to play with others was to be in the same location. This community process remained as arcades transitioned into competitive, multiplayer environments with video games like *Street Fighter*. Furthermore, a similar occurrence can be found in organised meetups such as “game jams”.



Fig. 4.3. Game Jam. Retrieved from: geekwire.com



Fig 4.4. LAN Party. Retrieved from: mpievents/lanparty/

As demonstrated in Fig 4.3 and Fig 4.4, both “game jams” and “LAN parties” involve many people meeting up in a small space that is centred around people performing similar duties through their computers. However, the “LAN party’s” relevance is dwindling (Kuchera, 2015; Parelius, 2019), and it has become a common statement on discussion forums that “LAN parties” are dead (Reddit, 2017-2019). Despite much improved online connectivity and several video games removing the ability to LAN entirely (Kuchera, 2015), “LAN parties” are still held, often due to their ability to bring friends together to enjoy their hobby together in “hardcore” means (Parelius, 2019; Reddit, 2019). However, more crucially, it is the spirit of “LAN parties” that remains. Whilst they are no longer as common as they once were, many gamers still get together to play video games in marathon sessions (Reddit, 2019). These players might not even utilise LAN connections, but the means in which the event is held still retains that same spirit. Notably, “game jams” share a similar process, where video games are developed intensely in a short amount of time, typically one to four days (Kaitila, 2012; Oxspring, 2015; Mendonca, 2019). Furthermore, thousands of people get together to watch people compete in esports, which once again, shares a similar culture and spirit to “LAN parties” (Rogers, 2019). Evidently, this process continues to thrive, and it can be traced back to the retro competitive multiplayer video games.

Chapter 3 identified that “game jams” were commonly attended by aspiring developers to make use of game tools (Young, 2018), but the accessibility of recent game tools means this is no longer necessary. However, there was something more crucial that stemmed from “game jams” - a sense of community. Through “game jams” developers could network, find developers to collaborate with, or learn new skills from other attendees (Young, 2018). This includes testing the possibility of two or more developers forming a more permanent partnership. “Game jams” have proved useful as a means for developers to experiment whilst working on a smaller, less risky video games (Young, 2018). In other words, through “game jams”, developers can create video games over a short period of time and discover whether they could imagine themselves working together on a permanent basis. Thus, “game jams” are characteristic of “indie” with a focus on new ideas and experimentation

(Korotaev, 2013). *Surgeon Simulator* (2013), *Goat Simulator* (2014), *Broforce* (2015) and *Titan Souls* (2015) are some notable examples of successful video game ideas that came from “game jams”.

“Game jams” began primarily as real-life events. However, like most communities in recent years, they have begun to have a much larger online presence. Notably, website itch.io⁹¹ has a dedicated “game jams” page which reveals that there are hundreds forthcoming, with most of them having dedicated communities via gaming platforms like Discord. Beyond this, each “game jam” has a “Community” section where attendees can engage in discussion, share their games, and meet other developers. Therefore, whether locally or online, there is a focus on building communities. This exhibits the legacy of indie communities, and similarly to platforms like *Net Yaroze* or “shareware”, these local events were providing developers with the means to help offset their limitations. Indeed, the community process has always been at the heart of what it means to be indie. Chapter 1 identified (p40, p76) that there is another type of community that can be traced back to a historic moment – “hacking” and “modding”. They are formed around tweaking, modifying, and expanding on their favourite video games. My research has identified that despite their rich history, “modding” and “hacking” remain prevalent today and reveal several similarities with the indie community process.

The Culture of “Hacking”, “Modding” and “Indie”

Developers providing “modding” tools is, in simple terms, an official invitation for players to begin modifying a video game. Video game developers/companies that do not provide “modding” tools can still be modified/alterd, but these are more commonly known as “hacks”. Without official support to modify a video game, “hackers” must utilise a technical skillset and specialised tools to replace or edit existing characters, levels, and assets. The main difference between “hacking” and “modding” is that with “modding”, video game developers designed the video game with files/code that could be modified, whilst video game “hacking” is modifying data/files that the developers never intended to be changed (Thomas et al, 2007; Nijholt, 2016). Thus, with official tools, “modders” can create new mechanics and functionality more easily. Whilst “hacked” video games are commonly working within

⁹¹ Itch.io is a website that also allows users to distribute indie games for a price or for free (Itch.io, 2021).

the video game's original engine and code, and therefore are often only replacing visual aspects of the video game, some extremely technically skilled "hackers" can edit the original video games code, and therefore create "hacks" that more closely resemble video game modding. This is known as "ASM (Assembly) hacking".

ASM "refers to game code written using only instructions directly convertible to binary code that the CPU of the target system can understand. This is a so-called 'low-level' language that operates very close to hardware" (Romhacking.net, n.d). Thus, ASM is about writing code that can be understood by the original video game engine/hardware. Like "mods", video game "hacks" are distributed online through hosting websites such as Romhacking.net. However, whilst "mods" are officially endorsed and even promoted by the developers themselves, video game hacks operate in a grey area, with it being illegal to "hack" the original copy, but legal to "hack" a backup/copy. Distributing "hacked" roms is also illegal if it includes the original rom, and therefore "hacks" are often distributed as patches that must be applied to a separate rom independently (Romhacking.net, n.d). Furthermore, due to the complexity of rom "hacking", most of the video games "hacked" are often from older consoles such as *NES* and *SNES*, and therefore are often ignored/overlooked by the video game's developers.

Video game "hacking" lacks official support and considering the illegal nature of distributing video game roms, video game hacks are rarely discussed in mainstream media. One of the most popular "hacks" are translation patches, this is most often Japanese video games that never released in English, and fans will translate this themselves and then distribute the fan translation over the Internet. Additionally, minor gameplay changes are popular, such as increased difficulty or numerical changes (Romhacking.net, n.d). Nonetheless, there have been a few notable exceptions throughout the last two decades. *Street Fighter 2': Rainbow Edition* (1993) is a hack of *Street Fighter 2': Champion Edition* (1992). Despite Capcom, the developers of *Street Fighter 2'*, releasing multiple and frequent editions of the video game, fans still opted to "hack" the video game. *Street Fighter 2* was primarily an Arcade game, so this made it more difficult to "hack" than the *NES/SNES* consoles. "Hackers" were required to replace the chips inside the arcade machines of standard *Street Fighter 2': Champion Edition*

boards with reprogrammed or additional chips (Snape, 2014). This “hack” changes the gameplay significantly, giving all characters much stronger attacks, and prioritising “crazy” and bizarre gameplay over game balance.



Fig 4.5. *Street Fighter 2': Rainbow Edition*. Retrieved from: levelupvideogames.com

In the original *Street Fighter 2*, the character Ryu, only fires one “Hadouken” projectile.⁹² In *Rainbow Edition*, as demonstrated in Fig 4.5, Ryu, who appears in white, is firing eight. Even so, the “hack” was popular amongst both gamers and arcade owners, and unlike most modern “hacks” which are distributed through the Internet, it was not uncommon to find arcades with both the original video game and the “hack” side by side (Snape, 2014). However, the most important influence of *Rainbow Edition* was the effect it would have on future *Street Fighter* games. Whilst much of the gameplay was “goofy” and was made for pure fun, many of the ideas and changes in the “hack” would also make their way to future *Street Fighters*, and consequently, other fighting video games. This includes multiple character moves and mechanical gameplay changes, but most importantly, the speed of the gameplay. *Street Fighter 2': Rainbow Edition* is a much faster video game than the one it is based on, and all *Street Fighter* video games since have substantially increased the pace (Snape, 2014).

⁹² The Hadouken projectile is the blue ball of fire seen in Fig 4.5. It is a special move a player can perform by inputting a specific number of buttons in sequential order.

Project M (2011), a hack of *Super Smash Bros. Brawl* (2008), is another well-known video game “hack”. The name, *Project M*, stands for “Project Melee”, and was a response to fans’ frustration with the direction in which developers Nintendo had taken *Super Smash Bros. Brawl* from the previous video game, *Super Smash Bros. Melee* (2001). *Super Smash Bros. Melee* is a crossover fighting video game with characters from numerous Nintendo and select third party franchises. However, the video game does not play comparably to traditional fighting video games like *Street Fighter*, and instead has less focus on well-balanced competitive gameplay, and therefore the video game was not designed to be played in competitive tournaments (Starkey, 2016). Accordingly, the video games’ default rules are full of varying factors, such as random items, stage hazards, and special moves - all of which appear randomly. Nonetheless, fans of the video game found ways to reduce the randomness of gameplay. By utilising the customisable rules in the video game, fans turned *Super Smash Bros. Melee* into one of the most competitive fighting video games in the world. This was achieved by disabling all items, banning most of the stages, and altering the rules to ensure players had a certain number of lives. Furthermore, over the year’s fans have found numerous “Advanced Techniques” to give them the upper edge in competitive play. Interestingly, several of them were not intended to be in the video game (Watts, 2014). The director of *Super Smash Bros.*, Masahiro Sakurai, has since revealed that he regrets that *Super Smash Bros. Melee* became associated with competitive, “hardcore” players (Sakurai, cited in EDGE Magazine, 2014). It is no surprise then, that the video game’s sequel, *Super Smash Bros. Brawl*, had removed a lot of these gameplay elements and became a video game that was less in line with fans of the video game’s predecessor.

Project M was created with the aim of reintroducing those “hardcore”, competitive gaming elements into *Super Smash Bros. Brawl*, alongside all the new characters and updated graphics. The hack originally started out as a simple project of altering one character, before slowly increasing to the entire roster, and then progressing into a complete overhaul of the video game (George, 2012). *Project M* was an enormous hit with fans of the fighting video game and has since been downloaded over three million times (Klepek, 2015). However, more impressively, the “hack” was played in some of the largest *Super Smash Bros.* tournaments around the world. Thus, the popularity and impact

ensured Nintendo would be aware of its existence. Notably, if the “hack” was mentioned on their network service, Miiverse, it could result in the user being banned (Klepek, 2015). Nonetheless, Nintendo never issued a cease and desist, and the “hack” was able to remain in production for six years (Cox, 2015). After this period, some developers from the production team decided to move onto a new project, in the process joining newly created indie studio, Wavedash Games.

The name Wavedash Games undoubtedly stemmed from one of the mechanics in *Super Smash Bros. Melee* and *Project M* known as “Wavedashing”. Their project would become an original video game, *Icons: Combat Arena* (2018), inspired by *Super Smash Bros.* and some of the developer’s previous work, *Project M* (Franzese, 2019). Similarly, even though Nintendo, like Capcom, never explicitly comment on whether they were influenced by *Project M*, *Super Smash Bros. Brawl*’s sequel, *Super Smash Bros. For Nintendo Wii U and 3DS* (2014) shares some similarities. Nintendo announced that the 2014 video game was to “be really right in the middle” (Sakurai, cited in McWhertor 2013). Nintendo were aiming to find a middle ground between the simplicity of *Super Smash Bros. Brawl*, and the complexity and speed of *Super Smash Bros. Melee*. However, whilst the new video game received a more positive reception from the competitive community, many competitive players went back to playing and competing in *Super Smash Bros. Melee* (Garst, 2019). Nintendo would later follow *Super Smash Bros. For Nintendo Wii U and 3DS* with *Super Smash Bros. Ultimate* (2018). Nintendo were evidently using what they had learnt from competitive fans playing “hacks” like *Project M*, and feedback from their previous video game to try and bring both communities together in *Super Smash Bros. Ultimate* (Khan, 2018; Garst, 2019). The video game was faster, the online platform was more competitive, they announced multiple tournaments, and many gameplay mechanics from *Super Smash Bros. Melee* and *Project M* were included in *Super Smash Bros. Ultimate*. As of 2021, many competitive players are still playing the latest video game, and many players view it as a much stronger attempt at uniting the communities (Garst, 2019). *Project M*, in many ways, was created by an “indie-like” studio. As noted in Chapter 2, indie developers are often influenced or trying to recreate video games they grew up playing (Webster, 2017; French, 2018). However, often lacking the resources to create modern, HD and/or 3D graphics, they most often

utilise older or unique aesthetics. *Project M* was utilising pre-existing graphical assets from *Super Smash Bros. Brawl*, and therefore the developers were able to create something close to what they grew up playing, but with modern, high-end graphics. However, whilst this does not mean that all indie developers would utilise more intensive graphical power if they were able to, it does show that given the option, some of them would. Furthermore, when discussing the failures of their first indie game, *Icons: Combat Arena*, Wavedash Games noted that they regret they were not able to deliver the video game with superior graphical quality (Franzese, 2019).

As observed above, video game modifications, also known as “mods”, are like “hacks” but not quite the same thing. Chapter 1 (p40) identified how “modding” can be traced back to one of the first video games, *Spacewar!*. The “mods” created for *Spacewar!* added numerous new mechanics and features, changing how it looked, played, and behaved. “Mods” are commonly associated with AAA games, but, as will be demonstrated shortly, share many similarities with “indie”. The extent in which “mods” alter the video game can vary greatly, from smaller alterations like new hairstyles, clothes or adjusting existing values to change balance and fix bugs, to new levels, gameplay mechanics and even complete overhauls of a video game. Video game “modding” is often associated with AAA games such as *The Elder Scrolls* and *Fallout* series, and these video games are attractive for anyone interested in creating “mods” due to the developers releasing extensive and powerful “modding” tools for free (Champion, 2013). The data collected from the questionnaire supports this viewpoint, with 476 (least important) and 246 (not important) respondents suggesting that players do not feel “modding” is not important or associated with indie games. Furthermore, the association these video games have with “modding”, and the video games popularity, means that “modders” have a large audience to create “mods” for. “Mods” are created exclusively on PCs, and mostly targeted at PC gamers (Champion, 2013). Thus, console versions of video games are often unable to utilise “mods”. However, more recently, Bethesda provided “mod” support on consoles for *Fallout 4* in 2016 and *The Elder Scrolls V: Skyrim* in 2017, a new and rare movement in the console space (Matulef, 2016). Nonetheless, the way “mods” work on consoles is significantly different to PC. Sony have restricted the use of external assets on the *PlayStation 4*, meaning that only the video game’s existing assets can

be used. Microsoft have not enforced such restrictions on their *Xbox One* console, but a limit of two gigabyte for *Fallout 4* and five gigabytes for *The Elder Scrolls V: Skyrim* for “mods” still exists (Matulef, 2016; Reddit, 2018). Thus, “mods” that are larger in size, such as gameplay overhaul and new areas are unlikely to be suitable for consoles. Conversely, PC “mods” are only limited by the players PC processing power, and any video game crashing conflicts in the video game’s code.

Associating mods with AAA games becomes further likely when considering creators of well-known, successful “mods”, have been hired by “AAA” companies.⁹³ Valve are famous for recruiting “modders”, and then releasing full, standalone AAA games of popular “mods”. This is something they continue to do, as recently as *Dota: Overlords* (2019), a separate release inspired by a popular *Dota 2* “mod”, *Dota Auto Chess* (2019). However, discussions on “mods” are usually in regards to larger endeavours, such as *Half-Life: Counter-Strike* (1999) and *Dota* (2003), two “mods” which were both created for enormous titles, *Half-Life* (1998) and *Warcraft III: Reign of Chaos* (2002) respectfully. Naturally, video games that have either been created as sequels or heavily inspired by large “mods” are typically from larger studios. For example, *Counter Strike* (2000) and *Heroes of the Storm* (2013) were developed by Valve and Blizzard, two extremely large PC game studios (Statt, 2018; Jones, 2019). Nonetheless, there are many “modders”, past and present, that share many similarities to indie developers. Indeed, indie developers are aiming to create and release a commercial product, whereas “modders” are most often doing it as a hobby and earn little or no money for doing so (Donnelly, 2015). However, one prevailing characteristic often associated with “indies” is their design philosophy. “Indies” are often praised for creating video games not driven primarily by commerce (Shaver, 2017; Gordon, 2019), instead focusing on new ideas and originality. “Modders” working on projects such as *Skyblivion* (unreleased at time of writing, June 2021), a complete remake of *The Elder Scrolls IV: Oblivion* (2006) in *The Elder Scrolls V: Skyrim*’s video game engine, are more associated with AAA games than “indies” (Beckhelling, 2019). They look like

⁹³ Tim Willits, lead designer at id Software, began his video game career creating levels for *DOOM* in his spare time. His levels were impressive enough that id Software hired him in 1995 and he remains with the company as of 2018 (Pinchbeck, 2013). *Half-Life: Counter-Strike* (1999) was a mod was developed by Minh “Gooseman” Le and Jess Cliffe. It was an enormous success, and Valve, the creators of *Half-Life*, hired the two developers and put them straight to work on a stand-alone video game version of the “mod” (Le, 2014), *Counter-Strike* (2000).

AAA games, and since they utilise the same engine, they unsurprisingly play like one. These “mods” are often acknowledged in gaming media in no small part to the popularity of the video games they are “modding”. Nonetheless, like “indies”, they commonly have different motivations for what they do.

The motivation for “modders” has been explored by video game journalists and scholars. Olli Sotamaa, in his article on “mods” created for the video game *Operation Flashpoint* (2001) “When the Game Is Not Enough: Motivations and Practices Among Computer Game Modding Culture” (2010), divides “mods” into three different categories, “...mission makers, add-on makers and mod makers”. Sotamaa notes that these categories will naturally overlap, but they help to give the “mods”, and their creators, some distinction. He argues that mission makers and “add-on” makers operate at the lower end of the spectrum, with mission makers requiring the least expertise and commonly consisting of smaller projects, created by newcomers or “hobbyists”. “Add-ons” are more complex, consisting of additional, original content such as new vehicles, weapons, and new areas. “Mods” then, are a combination of both and more, consisting of more complex projects that can include complete overhauls of the video game’s systems and how the video game functions. Sotamaa believes that similar categorisation could be used for other video games. Whilst my thesis does not intend to validate this claim, it does acknowledge that a similar categorisation is not used by the most popular “modding” websites, such as nexusmods.com and moddb.com. Here, all “mods” fall under one category, and are instead categorised by popularity and theme. Sotamaa’s research does demonstrate that some “modders” have begun to create meaning for “mods” beyond being an abbreviation for modification, and this could be compared to the way in which “indie”, as demonstrated through my thesis, means more than an abbreviation for independent.

This research has made it clear that “indie”, “modding”, and “hacking” share some similarities but are not the same thing. “Modders” and “hackers” do not pursue any profit, whilst Chapter 3 identified that “indies” are becoming increasingly business minded (French, 2018; Wilson, cited in Takahashi 2019). Thus, in comparison to “indie”, “modding” and “hacking” demands less responsibility, a reality that is acknowledged as a motivation by “modders” themselves (Scheer, Cited

in Donnelly 2015). However, it does demonstrate that either the lack of communication, or a disagreement in direction from AAA studios is what commonly motivates “hackers” and “modders”. Indeed, there is a community process to “hackers” and “modders”, but as noted above, the indie community process demands more responsibility, focusing on building communities and engaging with their audiences.

“Hobbyist”, Not “Indie”

In light of the research above, it became evident that video game “modders” are often referred to as “hobbyists” (Sotamaa, 2010; Donnelly, 2015), considering that “modders” operate on a non-commercial basis. Indeed, even the developers behind the biggest “total conversion mods”, such as *Enderal: The Shards of Order* (2016) are referred to as “hobbyists” (Donnelly, 2016). However, *Enderal: The Shards of Order* is an enormous project, consisting of over fifty hours of gameplay, hand-crafted all-new environments, overhauled gameplay systems and most impressively, professional voice-actors (Steam, 2019). Joe Donnelly (2016), contributor for Eurogamer, notes that: “...Enderal is so well presented it's easy to forget it's an overhaul of a big-budget video game made on a part-time basis by a group of keen, but ultimately hobbyist, modders”. The studio behind the “mod”, SureAI, have dedicated positions such as programmers, level designers, artists, and sound designers. However, SureAI had a small team size of thirteen (seven in 2015 before the release of the mod) and therefore individuals would take on multiple roles. However, unlike with “indie”, there is no financial gain to be achieved, and consequently “modders” typically rely members of their community to step forward and volunteer to contribute to the project. This does come with its own set of problems, Johannes Scheer, co-founder of SureAI, explains how the lack of commerce can be a difficult hurdle to overcome: “...Volunteers are very active when the project kicks off - they feel like pioneers and it's fun concepting stuff, prototyping it, but the longer the project goes on the more likely people are to disappear” (Scheer, cited in Donnelly 2015). Scheer notes that many developers creating “mods” are mostly doing it for more simple reasons like personal enjoyment, noting that: “This is simply because they don't want to be professional developers and this leads to people having less of a sense of responsibility...” (Scheer, cited in Donnelly 2015). Thus, as noted by Scheer, as “mods” become

closer and closer to real video game production, more and more team members, or “volunteers”, begin to leave the project. As a result, many “mods” struggle to release, or alternatively are abandoned entirely.

Nicolas Lietzau was approached by me for interview to gain further insight into his motivations for remaining a “hobbyist”. Speaking to Lietzau directly, he notes that he had multiple motivations: “For me, it was a mix of creating a portfolio piece to jumpstart my career in the video games industry, and, more importantly, wanting to tell that story” (2019). Indeed, *Enderal: The Shards of Order’s* was a good way to strengthen his portfolio, with the reception being very positive, currently holding 10,089 positive reviews on Steam (2021). Lietzau was asked why he did not take the opportunity to create a standalone video game, and at the same time, a commercial project: “A standalone game would have been unfeasible with our resources, particularly considering our lack of programmers and artists” (2019). Indeed, the nature of “modding” does not require as much emphasis on creating original assets, and therefore more emphasis on gameplay systems and ideas. However, the rise of digital distribution has led to many standalone “hobbyist” video games being released on digital storefronts like Steam. This has caused confusion regarding the difference between a hobbyist game and an indie game.

For me, there’s a lot of titles being released on Steam that aren’t by indies, they’re by hobbyists. To me they’re not indies, they’re just people doing something in their bedroom with no understanding or willingness to learn the business side of the industry. Which to me is 80% of the job, only 20% is the game. The business is a lot more important, understanding the market, and understanding the market research and users (French, 2018). **Justin French full interview in Appendix A.**

French (2018) expresses his frustration at how hobbyist games are often mistaken for “indies”. In his view, “hobbyists” are developers who develop and release video games without concerning themselves with the business side of the industry. Indeed, this aligns with my discussions above, and it is unsurprising that some consumers find it difficult to differentiate between the two. Game tools like *Unity* and *GameMaker Studio* ensure video game production is more accessible than ever

(Anthropy, 2012). Thus, many “hobbyists” are now using the same, or similar game tools to “indie”, and consequently there are some similarities in the production process. However, an understanding of indie as process allows us to identify the differences more clearly. For example, an exploration of the indie production process reveals how there is an increasing likelihood of an association with crowdfunding or publishers. In both cases, there is an agreement that must be reached – whether it is the consumers or a publisher, they must be convinced of the commitment to the project before they would be willing to invest. A “hobbyist” project is naturally a hobby by nature, and therefore not only would this agreement be extremely difficult to reach, but “hobbyists” most likely would not desire this responsibility to begin with (Scheer, Cited in Donnelly 2015). However, Chapter 2 (p92) and Chapter 3 (p126-136) identified how “indie” and “AAA” do not exist in different industries, there are crossovers between the two. Indeed, the same is true of “hobbyists”, and a closer look at several noteworthy examples reveal that “hobbyists”, like some AAA developers, are “going indie”.

Dwarf Fortress (2006) began production in 2003 (Steam, 2021) and has been playable since 2006. Despite being playable since 2006, *Dwarf Fortress* has remained in continuous production, and at time of writing (June 2021), the video game has been in production for eighteen years. The game has been produced almost exclusively by Tarn Adams, but he has on occasion, received assistance from his brother Zach (Pearson, 2017). The version number of the video game coincides with how close to completion Adams feels *Dwarf Fortress* is (Fenlon, 2016), and therefore the latest version of the game 0.47.05 (bay12games.com, 2021) indicates Adams feels the video game is only 47% complete. Adams has primarily worked on *Dwarf Fortress*, and with the video game not being commercially released and being entirely free to play, it is surprising that the video game has seen nearly two decades of production (bay12games.com, 2021). However, this is the nature of being a “hobbyist”, and instead Adams and his brother receive donations through Patreon (Patreon.com, 2021). Not relying on commercial success ensures *Dwarf Fortress* does not need to cater to a wider audience. The video game is primarily a management sim, and in simple terms the players goal is to construct a fortress for dwarves and survive (Steam, 2021). The video game’s eighteen-year production has produced hundreds of features, far too many to list or detail. However, it is commonly

regarded as one of the most detailed and complex video game worlds ever created (Brock, 2018; Davis, 2020; Smith, 2021), certainly one of the primary motives for its dedicated community to continue to donate. The lack of responsibility means that almost everything in *Dwarf Fortress* is “absurdly over complicated” (Pearson, 2017). In addition, the video game’s graphics, or lack thereof are a primary example of disinterest in appealing to a wider audience. *Dwarf Fortress*’s is visually represented through ASCII, made up of fonts rather than a visual style like pixel art (See Fig. 4.6).

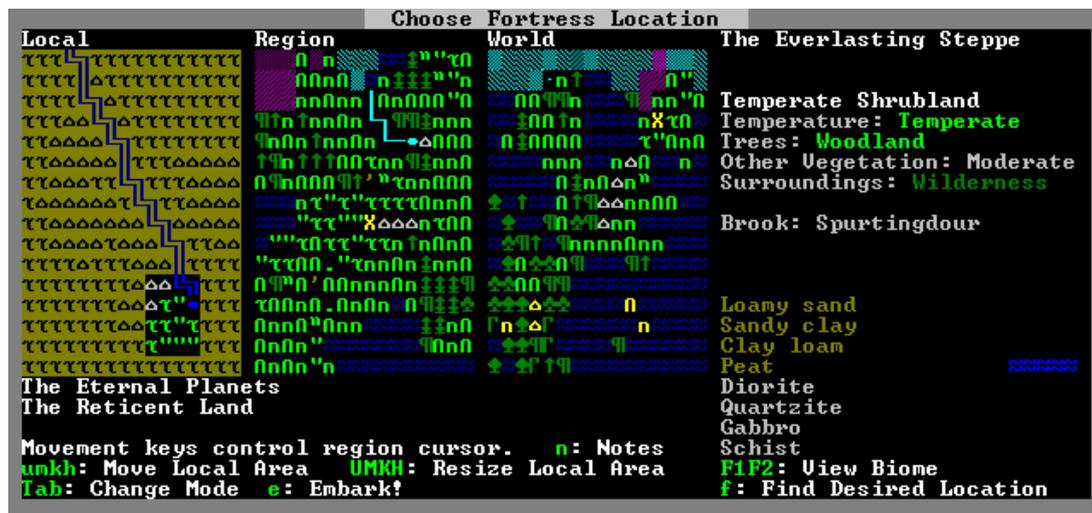


Fig 4.6. *Dwarf Fortress* ASCII Example. Retrieved from: bay12games.com

The ASCII visual representation is a deterrent to many potential players (Hawkins and Larsson, 2013; Wilson, 2019), but to Adams this was not a priority, and with no reliance on satisfying a wider audience, his focus was on gameplay systems (Hawkins and Larsson, 2013). However, this would change in 2019 when a new version of *Dwarf Fortress* was announced for Steam and itch.io. This enhanced version would feature a “custom premium tileset with graphics enabled by default, new music, and auto-updates” (Yin-Poole, 2019). In addition, Adams partnered with “indie publisher” Kitfox Games, and would sell this new version of the video game for \$20. Adams reveals that this new version stemmed from a desire for *Dwarf Fortress* to appeal to a wider audience, striving to achieve financial success to support close family members who became seriously unwell (Jackson, 2019). In other words, *Dwarf Fortress* was “going indie”.

There are other methods for moving between the continuum. Jeff Minter is a “hobbyist” developer who has been creating video games since the late 1970s (Minter, n.d). He has produced

video games for a variety of platforms, including the *Commodore 64*, *Atari ST*, and more recently *Xbox 360*, *PlayStation 4* and *Xbox One*. Minter formed his own company Llamasoft and was self-publishing titles in the early years of the video game industry (Minter, 2009). However, as noted in Chapter 1 (O'Donnell, 2014), the growing video game industry and rising financial costs would cause problems for independent developers like Minter. He alludes to this on his website, noting that self-publishing was becoming unfeasible and therefore he looked to alternative ways to distribute his video games, including through “shareware” (Minter, n.d). In the early 2000s, Minter partnered with Lionhead Studios to produce an experimental video game called *Unity*⁹⁴ (Fahey, 2004). *Unity* was a “shoot ‘em up” employing a light synthesis generator created by Minter (Sheffield, 2007), which like a music synthesiser, would allow the user to generate light special effects easily. However, the ambitious video game was deemed too time consuming and demanding, leading to cancellation (Fahey, 2004).

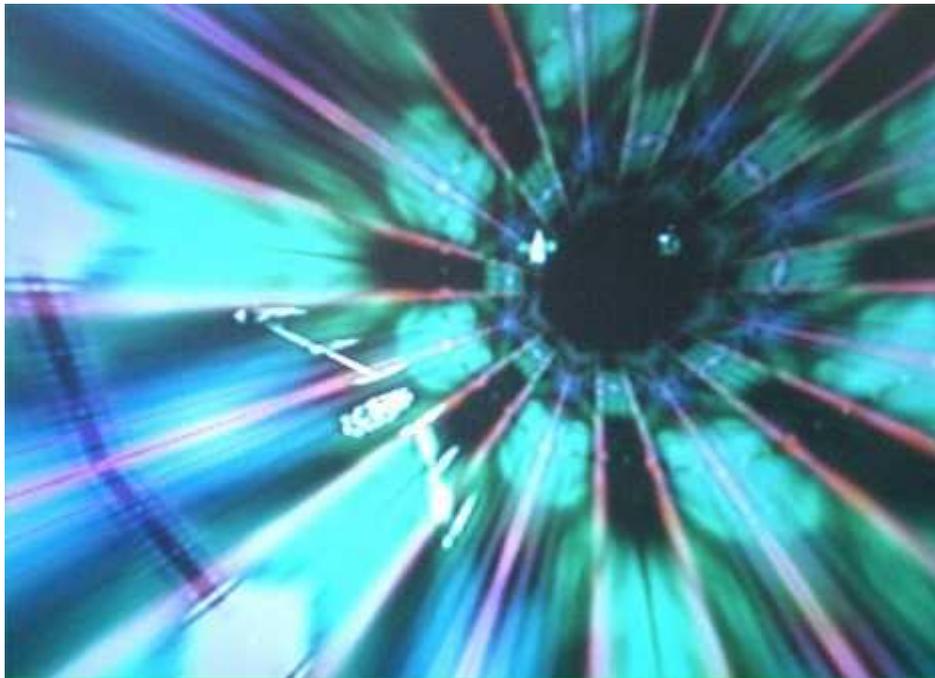


Fig. 4.7. *Unity* Visual Style Example. Retrieved from: unseen64.net

⁹⁴ Not to be confused with the *Unity* game engine.

Through word of mouth, Minter would eventually be actively recruited by Microsoft (Minter, cited in Stuart 2005).⁹⁵ Microsoft would send him a devkit for the *Xbox 360* platform, and he would eventually develop *Neon* which would become built into the *Xbox 360* hardware (Gibbons, 2018). *Neon* was based on *Unity* and would allow the users to operate up to four joypads or audio sources to create special light effects (Minter, cited in Stuart 2005). Minter's next project was to produce the independent video game *Space Giraffe* (2007) for XBLA, employing the *Neon* light synthesiser he had created for the *Xbox 360* console (Minter, n.d).



Fig. 4.8. *Space Giraffe* Gameplay. Retrieved from: steampowered.com

The above discussions on a variety of “hobbyist” projects demonstrate that there are similarities to “indies”, notably a focus on building communities, taking risks, and producing experimental video

⁹⁵ There are other examples of hobbyists being actively recruited by larger publishers. Notably, Christian Whitehead was known for his work on *Sonic the Hedgehog* fan projects, such as *Retro Sonic* (2007) and *Sonic Nexus* (2008). Sega's *Sonic the Hedgehog*, like many long-running franchises, eventually transitioned into 3D beginning with *Sonic Adventure* (1998). There were many fans who yearned for a return to 2D, and Sega were listening. They implemented 2D levels in modern *Sonic the Hedgehog* video games (Altano and DeVries, 2012), and a new title that was a sequel to the original 2D trilogy - *Sonic the Hedgehog 4* (2010). However, fans were not satisfied with how they played, and there was a consensus that something was missing (Thomas, 2012; Robinson, 2018). However, fans were not satisfied with how they played, and there was a consensus that something was missing (Thomas, 2012; Robinson, 2018). Whitehead, as a dedicated fan of 2D *Sonic the Hedgehog* games, understood why the original *Sonic the Hedgehog* games were cherished by the fan community. This was recognised by Sega, who would eventually hire him and several other members of the *Sonic the Hedgehog* fan community to produce *Sonic Mania* (2017); a new 2D title which would release to critical acclaim (Robinson, 2018; Metacritic, n.d).

games. However, the difference is in the process. Primarily, “hobbyists” avoid the responsibility’s that come with “indie”, and therefore arguably are more likely to be experimental.⁹⁶ At the same time, this can lead to them being less concerned with reaching a wider audience, and therefore being less accessible and off putting to many potential players. Chapter 1 (p38) and 3 (p148) discussed how it is possible to spend a time as “indie” or “AAA”, to move across the continuum. Indeed, this is the same for “hobbyists”, and is evident with projects like *Neon* and *Dwarf Fortress*. These are real people developing video games, and their thoughts, ideas and personal lives are subject to change.

“Hobbyists” like Adams and Minter allow us to determine the flexibility of the indie process with more certainty – identifying several examples where developers can move between being “hobbyist”, “indie” and “AAA”. Considering *Dwarf Fortress* has a publisher, agreements had to be made and therefore Adams now must take on that responsibility he had avoided so far. In his own words when quizzed on a release date: “I bet I’ve got a couple of years to do it or the contract I have with [Kitfox] will lapse” Adams says. “So I’m going to be working” (Adams, cited in Hall 2019).

⁹⁶ Interestingly, at the centre of discussions on competitive gaming and “esports” are video games like *Fortnite: Battle Royale*, *Counter Strike: Global Offensive* (2012), *Call of Duty*, *League of Legends* and *DOTA 2*. Naturally, these video games are from the largest AAA developers, and therefore “esports” is mostly associated with AAA studios (Hayward, 2019). However, *Counter Strike*, a realistic, first-person shooter “mod” of *Half-Life*, was developed by two people, Minh Le and Jess Cliffe (Te, 2014), and consequently, *Counter Strike: Global Offensive* stems from the creation of a “mod”. *Dota 2* and *League of Legends* are both based on the original “mod” *Dota* for *Warcraft III: Reign of Chaos*, which was developed by a single person, Kyle Sommer (Stubbs, 2019). Remarkably, *Dota* managed to remain one of the largest “esports” video games in the world without any support from established studios or publishers (Stubbs, 2019). *Fortnite* and *PlayerUnknown’s Battleground* are both battle royale video games which can be traced back to 2000 with the release of Japanese movie *Battle Royale* (Allan, 2019). The first known battle royale “mod” is *Minecraft: Survival Games* (2012), which aims to recreate the *Hunger Games* (2012) movie (Hornshaw, 2019). However, *Fortnite* and *PlayerUnknown’s Battleground* are based on “mods” *DayZ* and battle royale mod for *ARMA 2* (2009), which were both developed by a single person (Thursten, 2017; Allan, 2019).

Conclusion

This chapter has explored the indie community process, identifying how it is crucial to the meaning of “indie”. Through my primary research and case study of *Stardew Valley*, it became clear how indie developers have been building and employing the community to offset many of their limitations. Many of these communities are being formed through live streaming platforms like Twitch, and video game community platforms like Discord. These communities can assist in finding bugs, presenting feedback, and promoting indie games. In addition, the developers are more open with their production process, and often openly discuss new ideas, changes, and updates with their communities. An emphasis on community can be traced back to historic moments, including “LAN parties” and more recently, “game jams”. They demonstrate how community is not only crucial to indie consumers, but the developers themselves. Through events like “game jams”, developers have been able to network – finding likeminded developers to form partnerships with or learn new ideas. This process of community was supported through my primary research, where one of the most common motivations for indie consumers was feeling heard – a notion of two-way communication.

Chapter 1 identified the legacy of “modding” and “hacking”, notably through software like *RPG Maker* (p61-67), there have always been consumers modifying, expanding, and repurposing their favourite video games. This can often stem from the lack of communication between AAA studios and their communities, and through “modding” and “hacking” the community is able to make their ideas a reality. In addition, many of the largest, most popular video games have either been influenced or directly stem from the ideas of “modders” and “hackers”. These developers have become known as “hobbyists”, but not all “hobbyists” are “modders” or “hackers”. Naturally, their production is less business oriented, but their small teams and focus on experimentation reveal similarities to “indie”. Although, analysing the characteristics of the indie community process reveals the differences between the two, allowing us to understand the meaning of “indie” more clearly. “Indies”, unlike “hobbyists”, are more reliant on their communities due to an increasing demand for more business sense, including partnering with publishers, and ultimately achieving financial success. This concept is supported by my exploration of “hobbyists” going “indie”, thereby allowing us to identify what

unique benefits the indie process has. There is a notable parallel between the transition from independent to “AAA” that Activision went through, as discussed in Chapter 1 (p.38), and there is the potential for “hobbyists” to do the same. “Indie” is an inclusive term, and there is always an opportunity for developers to “go indie”.

Chapter 5 reflects on the research presented in my thesis and acknowledges how it was ultimately able to produce a definition of indie as process. At the same time, Chapter 5 returns to the game studies presented in my literature review section, explaining how my research has been able to develop upon existing scholarship and provide original commentary to expand the discourse.

Chapter 5

Thesis Conclusions: Indie as Process

Steven Kent's *The Ultimate History of Video Games* (2001) is a detailed history of the video game industry. However, my research, which is more selective in nature, identifies how characteristics of the indie process can be traced back to historic moments. This history process was able to identify that the three predominant themes of indie as process can all be traced back to historic moments.

Therefore, providing the groundwork for many of the discussions that come later. For example, Chapter 1 identified how community was at the heart of what it meant to be independent, and Chapter 4 was able to determine indie communities are essential to the meaning of "indie". In addition, it was possible to determine the flexibility and inclusive nature of being independent, and how these characteristics are now seen in the indie process. Furthermore, "indie" and "AAA" do not exist in different universes, this was evident through studios like Activision who slowly moved across the continuum from independent to "AAA". In more recent examples, AAA developers and "hobbyists" are now "going indie". This moment of transition allows us to determine what "AAA" or "hobbyists" have been able to achieve by adopting the indie process - allowing us to understand what it means to be "indie" with more certainty.

Anna Anthropy's *Rise of the Videogame Zinesters: How Freaks, Normals, Amateurs, Artists, Dreamers, Drop-outs, Queers, Housewives, and People Like You Are Taking Back an Art Form* (2012) discussed video games, notably "hobbyists", which are not considered "indie" and are often overlooked by discussions in game studies. My research strived to better understand what it means to be a "hobbyist", and how they can contribute to a meaning of "indie". "Modders" and "hackers" are commonly regarded as "hobbyists", and therefore video games like *Fortnite*, *DOTA* and *Counter Strike* can all be traced back to the ideas of "hobbyists". In addition, through my definition indie as process, it is possible to determine what it means to be "indie" with more certainty. In turn this made it possible to identify that although there are many similarities between "hobbyists" and "indies", "hobbyists" can avoid the responsibility that comes with being "indie", notably a reliance on financial

success. It is no surprise then, “hobbyists” have not needed to pursue a wider audience; their experimental nature is at the root of some of the most successful video game ideas of all time.

Simon Niedenthal’s article *What We Talk About When We Talk About Game Aesthetics* (2009), and Graeme Kirkpatrick’s book *Aesthetic Theory and the Video Game* (2011) acknowledges that there is a lack of academics discussing the video game aesthetic. Many of those that do discuss it in relation to “indie”, such as Jesper Juul’s study *High-tech Low-tech Authenticity: The Creation of Independent Style at the Independent Games Festival* (2014), strive to define it. His study concludes that the winning entries at the IGF (Independent Games Festival) from 2005-2018 all can be argued to employ his definition of “independent style”. Juul pushes his definition of the peak indie aesthetic and is therefore pushing a rigid way of thinking about “indie”. This is a reoccurring issue with prior “indie” discussions, notably including those of publisher association, and therefore my research expands and moves beyond this rigid way of thinking about “indie”. Instead, my primary research was employed to identify the four predominant indie aesthetic styles: Modern Retro, Authentic Retro, Pixel Art and Hand-Drawn. However, additional indie styles can exist, and there is no requirement for indie games to look a certain way. Instead, the indie aesthetic process is explored through these four themes – acknowledging that despite indie games looking differently, there is a common thread of self-conscious decisions that underpin their aesthetic style.

Jesper Juul in *Handmade Pixels: Independent Video Games and the Quest for Authenticity* (2019) explores independent games from the perspective of independency to finances, aesthetics, and culture. Juul acknowledges that from around 2005 onwards, independent games were beginning to represent more than simply being publisher independent. There were promises of independent games offering an alternative video game experience to “AAA” - something more personal and creative. At the same time, Juul identifies that both the independent and “indie” terms play a large role in discussions, but they are both commonly being used interchangeably. Juul avoids differentiating between two but does acknowledge that they have different meanings. Thus, Juul, without a clear definition of what it means to be “indie”, refers to indie games as independent throughout his book. However, Juul’s thoughtful discussions would benefit from a clearer idea of what it means to be

“indie”, particularly in light of the dominance of the “indie” term. My research provides a solution to this problem, and through defining indie as process, we can recognise contentious indie games like *Cuphead* as “indie” despite their associations with major publishers. At the same time, my definition establishes that “indie” is not an exclusive term, and therefore any rigid definitions must be resisted - or there is a risk that rigid ideas will dominate, like those which suggest “indies” must not partner with publishers.

The notion of independency that Juul explores does play a role in the definition of indie as process. For example, if an indie studio was to partner with a publisher and then relinquish control, it is high likely that the indie process would be lost. However, indie as process acknowledges that this is not guaranteed, and therefore “indies” not being financially independent does not mean that they automatically relinquish all or many characteristics of the indie process. In addition, Juul’s attempt to arrive at a peak indie aesthetic only strives to determine an understanding of “indie” in the present moment. However, Chapter 1 identified that many characteristics of “indie” can be traced back to historic moments. Thus, an understanding of indie as process acknowledges that many factors are subject to change, budgets might increase, average team sizes might change, and employing publishers is becoming more common. Regardless of these variable factors, indie as process acknowledges stable and consistent characteristics of what it means to be “indie”.

Nadav Lipkin’s *The Indieocalypse: the Political-Economy of Independent Game Development Labor in Contemporary Indie Markets* (2019) described the “indie” market to be “flooded”, and consequently many indie games are achieving low sales and low profitably. He defined this as the “indieocalypse”. Indeed, video game production is becoming faster, easier, and more accessible resulting in more indie games than ever before. Mike Rose (2018) described there are many indie games that have failed to find financial success. However, an “indieapocalypse” has not yet come to fruition. At the time of writing (June 2021), indie games have not crashed, but indie developers have and continue to face challenges. My research concluded that an increasing number of indie games – alongside rising costs of production - means many of them need to become increasingly business minded. In addition, an increasing number of indie developers are partnering with publishers.

This does not mean this is the “death” of “indie”. An exploration into the realities of the indie production process reveals that there are numerous indie games that have partnered with both small and large publishers, and despite this they maintained the characteristics of “indie” - flexibility, risk-taking, experimentation and originality.

Mike Diver’s *Indie Games: The Complete Introduction to Indie Gaming* (2016) details the multiple facets of indie gaming and the number of discussions surrounding the meaning of the “indie”. Diver observes the problematic nature of the misunderstandings and lack of certainty around the “indie” definition. My research expands on this discourse, presenting a definition of indie as process. Within this, it was possible to identify three predominant themes: Indie as Aesthetic Process, Indie as Production Process, and Indie as Community Process. The value of this definition became clear, indie as process can be understood through each of the three themes individually – or more potently - in combination. My thesis explored in-depth how through these three themes, we can identify reoccurring processes that characterise what it means to be “indie”. Thus, my research, like Diver’s book, explored the multifaceted nature of “indie” and the many different experiences they can provide. At the same time, providing a significantly more detailed account of what it means to be “indie”. This includes exploring what was already written on the subject of indie games, whilst drawing on my primary research to expand the discussion into original territory.

Roman Graebch’s thesis *The Indie Game* (2012) proposed an understanding of “indie” through his “III Model”, exploring “indie” from the perspective of aesthetics, production, and culture. Graebch’s research was successful in laying the groundwork for future research. However, lacking in primary research, Graebch was unable to arrive at a definition of “indie”. My research expanded on these ideas, drawing on textual analysis, action research, original interviews, and original audience research (based on a survey of 966 respondents), and through these varied methods can develop a definition of indie as process. Maria B. Garda and Paweł Grabarczyk’s journal *Is Every Indie Game Independent? Towards the Concept of Independent Game* (2016) builds on Graebch’s research, and similarly describes “indie” as more than an abbreviation of independent. Like Graebch (2012) and Juul (2018), Garda and Grabarczyk explore independent games through three “indie markers”, their

independency from financials, creativity, and publishers. Indeed, there is a reoccurring understanding of indie games in relation to three different themes, and these themes are often similar amongst all discussions. Garda and Grabarczyk, like my thesis, explore “indie” in a broad manner, observing that “indie” only needs to fit into one type of independence to be considered “indie”. However, Garda and Grabarczyk argue the term “indie” is becoming less and less useful as time goes by. Jamin Warren in his article *It’s time for us to stop calling games "indie" (2014)* presents a similar argument. He notes that common assumptions about what makes an indie game “indie” either did not, or no longer make sense. However, my research reveals that is due to the rigid ways in which “indie” has been previously understood. Indeed, if we think of “indie” as something that must be free of publishers - or employ a limited budget - then this understanding will either not make sense or begin to make less sense as time goes on. This is evident through how several years on from these studies, the term “indie” is more prevalent than ever – it is not becoming irrelevant. My research, through its definition of indie as process, allows us to establish an understanding of “indie” that is applicable in the past, present and future.

Towards a Future of Indie

The landscape of the video game industry has changed significantly since the proliferation of indie games from the mid to late 2000s. “Indies” are no longer associated with small audiences, they have become mainstream and are played by millions of players worldwide. This is indicated in Chapter 1's research into the Nintendo eShop best-selling charts; *Stardew Valley* alone has sold over ten million copies worldwide across all platforms (stardewvalley.net, 2020). This change has prompted attempts to define “indie”, with some concluding that the term no longer makes sense or cannot be defined (Warren, 2014; King, 2021). At the time of writing, the term “indie” is at risk of losing meaning. Recent efforts to understand the term (Juul, 2019; Lipkin, 2019) are contributing new ideas, theories, and research, but ultimately seek to arrive at a narrow definition of the indie game.

It may seem daunting to attempt to define “indie”, a term that has proven so complicated to discuss that even indie developers themselves struggle to comprehend it. However, my thesis has been able to draw on my primary research to explore what “indie” means to different audiences (including

academics, developers, and consumers). This includes analysing over 100 hundred indie games, identifying numerous aesthetical styles, team sizes, and economic conditions. My research has identified that no two indie games are the same, no two indie developers are the same, they are all different, they are individuals. Indeed, they are “indie”, but they are more than a narrow definition of video game production ideals. My research provides an intervention, establishing a definition of indie as process that celebrates and acknowledges the numerous ways of working, ideas, values, and beliefs that contribute to an indie game becoming “indie”.

Indie as process was defined through three predominant themes: Indie as Aesthetic Process, Indie as Production Process, and Indie as Community Process. In a similar manner to how the indie aesthetic is not limited to its four most dominant styles - indie as process could, in the future, be explored through other thematic classifications. However, as my introduction alluded to, the value of my definition is that although each theme can include different approaches to production, and generate different types of indie games in terms of how they play and look, they can all be argued to be “indie”. In addition, despite differences within the process of production, aesthetic, and community, they share similarities such as flexibility, risk taking, experimentation and originality. Each theme is comprised of numerous characteristics; notably, there are several reoccurring temporary measures such as small budgets and teams. Ultimately, the indie process is inclusive, and some characteristics will change over time. Thus, indie as process allows us to move beyond rigid, historically rooted ideas of what makes an indie game “indie”.

My thesis defines indie as process, and in doing so I have attempted to establish a new, active way of thinking about the meaning of “indie”. At the time of writing, new home consoles in the *PlayStation 5* (2020) and *Xbox Series S & X* (2020) have recently been released, bringing with them new technologies, and once again prompting major publishers to push their technological limits. It is likely that the average indie team size and budget will increase alongside this, once more altering the “indie” framework - but through my inclusive definition of indie as process such changes do not present a challenge to our understanding of “indie”. Rather, this current gaming evolution serves to further nuance the process of defining “indie”.

Bibliography - Works Cited

Books

- Adams, E (2003). *Break into the Game Industry: How to Get a Job Making Video Games*. New York: McGraw-Hill Education.
- Altice, N (2015). *I Am Error: The Nintendo Family Computer / Entertainment System Platform*. Cambridge, Mass: MIT Press Ltd.
- Anable, A (2018). *Playing with Feelings: Video Games and Affect*. Minnesota: University Of Minnesota Press.
- Anderson, P (2012). *Web 2.0 and Beyond: Principles and Technologies*. Boca Raton: Taylor & Francis Ltd.
- Anthropy, A (2012). *Rise of the Videogame Zinesters*. New York: Seven Stories Press, U.S.
- Arsenault, D (2017). *Super Power, Spooky Bards, and Silverware: The Super Nintendo Entertainment System*. Cambridge, Mass: MIT Press Ltd.
- Barton, M (2008). *Dungeons and Desktops: The History of Computer Role-playing*. Natick: Taylor & Francis Inc.
- Boluk, S and LeMieux, P (2017). *Metagaming: Playing, Competing, Spectating, Cheating, Trading, Making, and Breaking Videogames*. Minneapolis: University of Minnesota Press.
- Brace, I (2004). *Questionnaire Design: How to Plan, Structure and Write Survey Material for Effective Market Research*. London: Kogan Page LTD.
- Bryce, T (2006). *The Bryce Is Right! Empowering Managers in Today's Corporate Culture*. United States: M. Bryce & Associates.
- Bycer, J (2019). *Game Design Deep Dive: Platformers*. Boca Raton: CRC Press.
- Campbell-Kelly, M (2004). *From Airline Reservations to Sonic the Hedgehog: A History of the Software Industry*. Cambridge, Mass.: MIT Press Ltd.
- Capcom (2020). *Resident Evil 7: Biohazard Document File*. Oregon: Dark Horse.
- Champion, E (2013). *Game Mods: Design, Theory and Criticism*. Pittsburgh, PA: ETC Press.
- Chandler, R. Chandler, H. (2010). *Fundamentals of Game Development*. Sudbury: Jones and Bartlett Publishers.

- Ciesla, R (2017). *Mostly Codeless Game Development: New School Fs*. Berkley: APress.
- Collins, K (2013). *Playing with Sound: A Theory of Interacting with Sound and Music in Video Games*. Cambridge: MIT Press LTD.
- Cossu, S (2019). *Game Development with GameMaker Studio 2: Make Your Own Games with GameMaker Language*. London: APress.
- Croft, A (2018). *The Indie Author Mindset How Changing Your Way of Thinking Can Transform Your Writing Career*. Circlehouse Publishing.
- Dellaccio, T (2018). *Computer Animation: Telling Stories with Digital Art*. New York: Lucent Press.
- Detweiler, C (2010). *Halos and Avatars: Playing Video Games with God*. Louisville: Westminster John Knox Press.
- Dewinter, J (2015). *Influential Video Game Designers: Shigeru Miyamoto*. New York: Bloomsbury Academic.
- Diver, M (2016). *Indie Games: The Complete Introduction to Indie Gaming*. London: Michael O'Mara Books Ltd.
- Duret, C. Pons, C (2016). *Contemporary Research on Intertextuality in Video Games*. Hershey: Information Science Reference.
- Egenfeldt-Nielsen, S. Smith, J. Tosca, S. (2016). *Understanding Video Games: The Essential Introduction*. London: Taylor & Francis.
- Ferdig, R. ed. (2008). *Handbook of Research on Effective Electronic Gaming in Education*. Hershey: IGI Global.
- Finch, D. ed. O'Reilly, N. ed. Abeza, G. ed. Clark, B. ed. Legg, D. ed. (2019). *Implications and Impacts of eSports on Business and Society: Emerging Research and Opportunities*. Hershey, PA: IGI Global.
- Fullerton, T (2014). *Game Design Workshop: A Playcentric Approach to Creating Innovative Games*. Oakville: Apple Academic Press Inc.
- Galletta, A and Cross, W (2013). *Mastering the Semi-Structured Interview and Beyond: From Research Design to Analysis and Publication*. New York: New York University Press.
- Gard, E and Gard, R (2017). *Video Games and the Law*. London: Routledge.
- Gibbons, W (2018). *Unlimited Replays: Video Games and Classical Music*. New York: Oxford University Press.

- Gibson, D. ed. Looney, S. ed. (2009). *Digital Simulations for Improving Education: Learning Through Artificial Teaching Environments*. Hershey: Information Science Reference .
- Goldberg, D and Larsson, L (2013). *Minecraft: The Unlikely Tale of Markus 'Notch' Persson and the Game that Changed Everything* . New York: Seven Stories Press.
- Green, G. ed. Kaufman, J. ed. (2015). *Video Games and Creativity*. San Diego: Academic Press.
- Greenspan, D (2013). *Mastering the Game: Business and Legal Issues for Video Game Developers*. Geneva: World Intellectual Property Organization.
- Gregory, J (2018). *Game Engine Architecture*. 3rd ed. Boca Raton: CRC Press.
- Guffey, E (2006). *Retro: The Culture of Revival*. London: Reaktion Books.
- Guins, R (2014). *Game After: A Cultural Study of Video Game Afterlife*. Cambridge, Mass.: MIT Press Ltd.
- Hansen, D (2016). *Game On!: Video Game History from Pong and Pac-Man to Mario, Minecraft, and More*. New York: St. Martin's Press.
- Hepler, J (2016). *Women in Game Development: Breaking the Glass Level-Cap*. London: Taylor & Francis.
- Hill, C and Jones, G (2007). *Strategic Management: An Integrated Approach*. Boston: Houghton Mifflin.
- Hill-Whittall, R (2015). *The Indie Game Developer Handbook*. Burlington: Focal Press.
- Horowitz, S. Looney, S. (2014). *The Essential Guide to Game Audio: The Theory and Practice of Sound for Games*. Abingdon: Taylor & Francis.
- Huntemann, N. Payne, M (2019). *How to Play Video Games*. New York: New York University Press .
- Ivănescu, A (2019). *Popular Music in the Nostalgia Video Game: The Way It Never Sounded*. London: Palgrave Macmillan.
- Jones, R (2013). *Strategic Management for the Plastics Industry: Dealing with Globalization and Sustainability*. 2nd ed. Boca Raton: Taylor & Francis.
- Juul, J (2019). *Handmade Pixels: Independent Video Games and the Quest for Authenticity*. London: MIT Press LTD.
- Kaitila, C (2012). *The Game Jam Survival Guide*. Birmingham: Packt.
- Kaplan, A (2013). *The Epic Evolution of Video Games*. Minneapolis: Lerner Publications.

- Kent, S (2001). *The Ultimate History of Video Games*. New York: Random House USA Inc.
- King, G (2009). *Indiewood, USA: Where Hollywood Meets Independent Cinema*. London: I. B. Tauris & Company.
- King, G (2016). *A Companion to American Indie Film*. New York: John Wiley & Sons Inc.
- Kirkpatrick, G (2011). *Aesthetic Theory and the Video Game*. Manchester: Manchester University Press.
- Kumar, A. ed. Etheredge, J. ed. Boudreaux, A. ed. (2012). *Algorithmic and Architectural Gaming Design: Implementation and Development*. Hershey: IGI Global.
- Linge, N. Sutton, A. (2015). *30 Years of Mobile Phones*. Chalford: Amberley Publishing.
- Lowthorpe, C. Taylor, S. (2017). *Punk Playthings*. Portland: Taylor & Francis.
- Meades, A (2018). *Understanding Counterplay in Video Games*. London: Taylor & Francis Ltd.
- Mhasawade, D (2019). *THE SUBTLE ART OF GAME TESTING*. Amazon Digital Services: Independently Published.
- Mileham, R (2008). *Powering Up: Are Computer Games Changing Our Lives?*. Chichester: John Wiley and Sons
- Millhouse, B (2007). *American Wilderness: The Story of the Hudson River School of Painting*. Black Dome Press.
- Morris, T (2019). *Twitch For Dummies*. New Jersey: John Wiley and Sons LTD.
- Morrissey, S. Campbell, T. (2010). *iOS Forensic Analysis : For iPhone, iPad, and iPod Touch*. Berlin: APress.
- Newman, J (2004). *Videogames*. London: Routledge.
- Newman, M (2011). *Indie: An American Film Culture*. New York: Columbia University Press.
- Nijholt, A (ed) (2016). *Playable Cities: The City as a Digital Playground*. Singapore: Springer.
- Oakley, K. ed. O'Connor, J. ed. (2015). *The Routledge Companion to the Cultural Industries*. London: Taylor & Francis.
- O'Donnell, C (2014). *Developer's Dilemma: The Secret World of Video Game Creators*. Cambridge: MIT Press Ltd.
- Orland, K, Steinburg, S and Thomas, D (2007). *The Videogame Style Guide and Reference Manual*. United States: Lulu Press.

Oswald, V (2019). *Indie Rock: Finding an Independent Voice*. New York: Lucent Books.

Paul, C (2012). *Wordplay and the Discourse of Video Games: Analyzing Words, Design, and Play*. London: Routledge.

Perron, B (2009). *Horror Video Games: Essays on the Fusion of Fear and Play*. North Carolina: McFarland & Co Inc. p.238-257.

Pinchbeck, D (2013). *DOOM SCARYDARKFAST*. Michigan: The University of Michigan Press.

Pulsipher, L (2012). *Game Design: How to Create Video and Tabletop Games, Start to Finish*. Jefferson: McFarland.

Pulsipher, L (2012). *Game Design: How to Create Video and Tabletop Games, Start to Finish*. Jefferson: McFarland.

Putman, S and Rock, T (2017). *Action Research: Using Strategic Inquiry to Improve Teaching and Learning*. Thousand Oaks: SAGE Publications.

Ratliff, J (2015). *Integrating Video Game Research and Practice in Library and Information Science*. Hershey: Information Science Reference.

Rogers, R (2019). *Front Cover 0 Reviews Write review Understanding Esports: An Introduction to the Global Phenomenon*. London: Lexington Books.

Rose, M (2011). *250 Indie Games You Must Play*. Natick: Taylor & Francis.

Ryan, J (2011). *Super Mario: how Nintendo conquered America*. London: Penguin Books LTD.

Ryan, M. Gobbe, R. ed. (2013). *Are Video Games Art?*. Ebook.

Schultz, C and Bryant, R (2016). *Game Testing All in One*. Dulles: Mercury Learning & Information.

Scolastici, C (2015). *Unity 2D Game Development Cookbook*. Birmingham: Packt Publishing.

Seymour, L (2018). *Roland Barthes's the Death of the Author*. London: Macat International Limited.

Silber, D (2015). *Pixel Art for Game Developers*. Oakville: Apple Academic Press Inc.

Solarski, C (2016). *Interactive Stories and Video Game Art: A Storytelling Framework for Game Design*. Portland: Taylor & Francis.

Swalwell, M (ed), Ndalianis, A (ed) and Stuckey, H (ed) (2017). *Fans and Videogames: Histories, Fandom, Archives*. New York: Routledge.

Sweet, M (2014). *Writing Interactive Music for Video Games: A Composer's Guide*. New Jersey: Pearson Education.

- Taylor, A and Parish, J (2007). *Career Opportunities in the Internet, Video Games, and Multimedia*. New York: Facts On File Inc.
- Thorn, A (2013). *Learn Unity for 2D Game Development*. Berlin: APress.
- Valentine, K. ed. Jenson, L. ed. (2016). *Examining the Evolution of Gaming and Its Impact on Social, Cultural, and Political Perspectives*. Hershey: IGI Global.
- Wardyga, B (2018). *The Video Games Textbook*. Boca Raton: Taylor & Francis.
- Williams, A (2017). *History of Digital Games: Developments in Art, Design and Interaction*. London: Taylor & Francis Ltd.
- Wolf, M (2012). *Before the Crash: Early Video Game History*. Detroit, MI: Wayne State University Press.
- Wolf, M (2012). *Encyclopedia of Video Games: The Culture, Technology, and Art of Gaming*. Santa Barbara: Greenwood Press.
- Wolf, M. ed. Perron, B. ed. (2009). *The Video Game Theory Reader 2*. London: Taylor & Francis.
- Yarmosh, K (2010). *App Savvy: Turning Ideas into iPad and iPhone Apps Customers Really Want*. Sebastopol: O'Reilly Media, Inc, USA.
- Yin, R (2017). *Case Study Research and Applications: Design and Methods*. United States: SAGE Publications.
- Zackariasson, P (ed) and Wilson, T (ed) (2012). *The Video Game Industry: Formation, Present State, and Future*. New York: Routledge.
- Zackariasson, P and Wilson, T (2014). *The Video Game Industry: Formation, Present State, and Future*. London: Taylor & Francis Ltd.
- Zioumakis, Y (2006). *American Independent Cinema: An Introduction*. New Brunswick, NJ: Rutgers University Press.

Filmography

- Battle Royale* (2000). [Film]. Kinji Fukasaku, dir. Japan: Toei Company
- GDC. (2018). *Know Your Market: Making Indie Games That Sell*. [Online Video]. Retrieved from: <https://www.youtube.com/watch?v=uy0Dfr-mnUY&t=1399s>.
- IGN. (2016). *How One Man Changed the Video Game Industry Forever - IGN Game Changers*. [Online Video]. Retrieved from: <http://uk.ign.com/videos/2016/11/11/how-one-man-changed-the-video-game-industry-forever-ign-game-changers>.

Indie Game: The Movie. (2012). [Film]. James Swirsky and Lisanne Pajot. dir. USA: BlinkWorks Media.

Octopussy (1983). [Film]. John Glen, dir. USA: MGM/UA Entertainment Co.

Scarface (1983). [Film]. Brian De Palma, dir. USA: Universal Pictures

Star Wars: Return of The Jedi (1983). [Film]. Richard Marquand, dir. USA: 20th Century Fox

Superman III (1983). [Film]. Richard Lester, dir. USA: Warner Bros.

YouTube. (2013). *Stardew Valley Trailer (Old)* [Online Video]. Retrieved from: https://www.youtube.com/watch?time_continue=151&v=pO1gjnmgKAM

YouTube. (2015). *Revisiting the Art and Emotion of Braid - IGN Plays* [Online Video]. Retrieved from: <https://www.youtube.com/watch?v=D28QT3QpfPU&t=322s>

YouTube. (2016). *Stardew Valley - Gameplay Trailer / PS4* [Online Video]. Retrieved from: <https://www.youtube.com/watch?v=8A7A1X1TVNc>

Gameography

Alien Hominid HD. 2007. XBLA. [Game]. O3 Entertainment: USA

Angry Birds. 2009. Mobile. [Game]. Rovio Entertainment: USA

Another Perspective. 2014. PC. [Game]. No Publisher: USA.

Assassin's Creed 3. 2012. Multiplatform. [Game]. Ubisoft: USA

Assassin's Creed 4: Black Flag. 2013. Multiplatform. [Game]. Ubisoft: USA

Assassin's Creed Odyssey. 2018. Multiplatform. [Game]. Ubisoft: USA

Basketball. 1978. Atari 2600. [Game]. Atari: USA

Batman: Arkham Knight. 2015. Multiplatform. [Game]. Warner Bros. Interactive Entertainment: USA

Battleborn. 2016. Multiplatform. [Game]. 2K Games: USA

Bejeweled 2. 2008. Mobile. [Game]. PopCap Games: USA

Bioshock. 2007. Multiplatform. [Game]. 2K Games: USA

Borderlands. 2009. Multiplatform. [Game]. 2K Games: USA

Bowling. 1979. Atari 2600. [Game]. Atari: USA

Boxing. 1972. Atari 2600. [Game]. Activision: USA

Braid. 2008. Xbox [Game]. Number None, Inc: USA.

Broken Age. 2014. Multiplatform. [Game]. No Publisher: USA

Bubble Ball. 2011. Mobile. [Game]. Nay Games: USA

Call of Duty: Ghosts. 2013. Multiplatform. [Game]. Activision: USA

Call of Duty: Modern Warfare 2. 2009. Multiplatform. [Game]. Activision: USA

Castle Crashers. 2008. XBLA. [Game]. The Behemoth: USA

Castle Wolfenstein. 1981. Apple II. Muse Software: USA

Castlevania. 1986. NES. [Game]. Konami: Japan

Cave Story+ (2011. PC. [Game]. Nicalis: USA

Clash of Clans. 2012. Mobile. [Game]. Supercell: USA

Code Hero. Unreleased. PC. [Game]. No Publisher: USA

Counter Strike: Global Offensive. 2012. PC. [Game]. Valve Software: USA

Counter-Strike. 2000. PC. [Game]. Valve Software: USA

Crash Bandicoot N.Sane Trilogy. 2017. PlayStation 4. [Game]. Activision: USA

Crash Bandicoot: Nitro Kart 3D. 2008. Mobile. [Game]. Activision: USA

Crowfall. Unreleased. PC. [Game]. No Publisher: USA

Cuphead. 2017. Multiplatform. [Game]. Microsoft Game Studios: USA

Cut It Out, Together!. 2017. Nintendo Switch. [Game]. Nintendo: USA

Cyberpunk 2077. 2020. Multiplatform. [Game]. CD Projekt: USA

Dark Souls. 2011. Multiplatform. [Game]. Namco: USA

Dead Space 2. 2011. Multiplatform. [Game]. Electronic Arts: USA

Donkey Kong. 1981. Arcade. [Game]. Nintendo: Japan

DOOM. 1993. PC. [Game]. Id Software: USA

DOOM. 2016. Multiplatform. [Game]. Id Software: USA

DOTA 2. 2013. PC. [Game]. Valve Software: USA

Dragon Quest Builders. 2016. Multiplatform. [Game]. Square Enix: Japan

Dragon Quest. 1986. NES. [Game]. Enix: Japan

Dwarf Fortress. 2006. PC. [Game]. No Publisher: USA

E.T. the Extra-Terrestrial. 1982. Atari 2600. [Game]. Atari, Inc: USA

Earthbound. 1995. SNES. [Game]. Nintendo: Japan

Enderal: The Shards of Order. 2016. PC. [Mod]. No Publisher.

Engare. 2017. PC. [Game]. No Publisher.

Enter the Gungeon. 2016. Multiplatform. [Game]. Devolver Digital: USA

Excitebike. 1984. NES. [Game]. Nintendo: Japan

Fable II. 2008. Xbox 360. [Game]. Microsoft Game Studios: USA

Fable III. 2010. Xbox 360. [Game]. Microsoft Game Studios: USA

Fable. 2004. Xbox. [Game]. Microsoft Game Studios: USA

Factorio. Unreleased (Early Access). PC. [Game]. Wube Software: USA

Fallout 4. 2015. Multiplatform. [Game]. Bethesda Studios: USA

Fez. 2012. XBLA. [Game]. Trapdoor: USA

Final Fantasy VII. 1997. Playstation 1 [Game]. Squaresoft: USA

Final Fantasy X. 2001. Playstation 2 [Game]. Squaresoft: USA

Final Fantasy XV. 2016. Playstation 4 [Game]. Square Enix: USA

Final Fantasy. 1987. NES. [Game]. Squaresoft: Japan

Final Fantasy. 2010. Mobile. [Game]. Square Enix: USA

Fishing Derby. 1972. Atari 2600. [Game]. Activision: USA

Flappy Birds. 2013. Mobile. [Game]. dotGears: USA

Flow. 2006. PlayStation 3. [Game]. Sony Computer Entertainment: USA

Flower. 2009. PlayStation 3. [Game]. Sony Computer Entertainment: USA

Football. 1979. Atari 2600. [Game]. Atari: USA

Fortnite: Battle Royale. 2010. PC. [Game]. Epic Games: USA

Gears of War. 2006. Xbox 360. [Game]. Microsoft Game Studios: USA

God of War III. 2010. PlayStation 3. [Game]. Sony Computer Entertainment: USA

God of War: Ascension. 2013. PlayStation 3. [Game]. Sony Computer Entertainment: USA

Grand Theft Auto V. 2013. Multiplatform. [Game]. Rockstar Productions: USA

Grand Theft Auto: Vice City. 2002. Playstation 2 [Game]. Rockstar Games: USA

Half-Life. 1998. PC. [Game]. Valve Software: USA

Halo: The Master Chief Collection. 2014. Xbox One. Microsoft Studios: USA

Harvest Moon. 1997. SNES. [Game]. Nintendo: Europe

Harvest Moon: Skytree Village. 2016.

Her Story. 2016. Multiplatform. [Game]. No Publisher.

Heroes of the Storm. 2015. PC. [Game]. Blizzard Entertainment: USA

Hollow Knight. 2017. PC. [Game]. Team Cherry: USA

Horizon: Zero Dawn. 2017. PC. [Game]. Sony Computer Entertainment: USA

Hotline Miami. 2012. PC. [Game]. Devolver Digital: USA

Icons: Combat Arena. 2018. PC. [Game]. Wavedash Games: USA

Journey. 2012. PlayStation 3. [Game] Sony Computer Entertainment: USA

Journey. 2012. PlayStation 3. [Game]. Sony Computer Entertainment: USA

Kingdom of Kroz. 1987. PC. [Game]. Shareware: USA

Last Life. Unreleased. PC. [Game]. No Publisher: USA

Lawbreakers. 2017. Multiplatform. [Game] Nexon: USA

League of Legends. 2009. PC. [Game]. Riot Games: USA

Limbo. 2010. Multiplatform. [Game]. Playdead: USA

Littlebigplanet. 2008. PlayStation 3. [Game]. Sony Computer Entertainment: USA

Mach Rider. 1985. NES. [Game]. Nintendo: Japan

Mario Artist: Polygon Studio. 2000. Nintendo 64DD. [Game]. Nintendo: Japan

Mario Paint. 1992. NES. [Game]. Nintendo: Japan

Mega-Man. 1987. NES. [Game]. Capcom: Japan

Metal Gear Solid 2: Sons of Liberty. 2001. Multiplatform. [Game]. Konami: USA

Metal Gear Solid 3: Snake Eater. 2004. Multiplatform. [Game]. Konami: USA

Metal Gear Solid 4: Guns of the Patriots. 2008. Multiplatform. [Game]. Konami: USA

Metal Gear Solid V: Ground Zeroes. 2014. Multiplatform. [Game]. Konami: USA

Metal Gear Solid. 1998. Multiplatform. [Game]. Konami: USA

Metal Gear Solid: The Phantom Pain. 2015. Multiplatform. [Game]. Konami: USA

Minecraft. 2011. PC. [Game]. Mojang: USA

Mother 3. 2006. GBA. [Game]. Nintendo: Japan

Mother. 1989. NES. [Game]. Nintendo: Japan

Music 2000: Music Creation. 2000. PlayStation 1. [Game]. Codemasters: USA

Neuroslicers. Unreleased. PC. [Game]. No Publisher: USA

Never Alone. 2014. Multiplatform. [Game]. E-Line Media: USA

Night in the Woods. 2018. Multiplatform. [Game]. Finji: USA

Ori and the Blind Forest. 2015. Multiplatform. [Game]. Microsoft Game Studios: USA

Outer Wilds. 2019. Multiplatform. [Game]. Annapurna Interactive: USA

Overwatch. 2016. PC. [Game]. Blizzard Entertainment: USA

Pac-Man. 1980. Arcade. [Game]. Namco: Japan

Pac-Man. 1982. Atari 2600. [Game]. Atari: USA

Pier Solar and the Great Architects. 2010. Sega Genesis. [Game]. Water Melon: USA

PlayerUnknown's Battlegrounds. 2017. PC. [Game]. PUBG Corporation: USA

Pong. 1972. Arcade. [Game]. Atari: USA

Portal. 2007. PC. [Game]. Valve Software: USA

Quadrilateral Cowboy. 2017. PC. [Game]. No Publisher.

Quake. 1996. PC. [Game]. GT Interactive: USA

Red Dead Redemption 2. 2018. Multiplatform. [Game]. Rockstar Productions: USA

Resident Evil 4. 2005. Gamecube [Game]. Capcom: USA

Retro Sonic. 2007. PC. [Game]. No Publisher: USA

Rez HD. 2008. XBLA. [Game]. Microsoft Game Studios: USA

Rime. 2017. Multiplatform. [Game]. Grey Box: USA

Rimworld. 2018. PC. [Game]. Ludeon Studios: USA

Rocket League. 2015. Multiplatform. [Game]. Psyonix: USA

Rogue. 1980. PC. [Game]. Epyx: USA

Sekiro: Shadows Die Twice. 2019. Multiplatform. [Game]. Activision: USA

Shroud of the Avatar: Forsaken Virtues. 2018. PC. [Game]. No Publisher: USA

Silent Hill. 1999. PlayStation 1. [Game]. Konami: Japan

Skiing. 1972. Atari 2600. [Game]. Activision: USA

Snake. 1997. Mobile. [Game]. Nokia: USA

Sonic Adventure. 1998. Dreamcast. [Game]. Sega: Japan

Sonic Mania. 2017. Multiplatform. [Game]. Sega: USA

Sonic Nexus. 2008. PC. [Game]. No Publisher: USA

Sonic the Hedgehog 4. 2010. Multiplatform. [Game]. Sega: Japan

Space Giraffe. Xbox 360. [Game]. Llamasoft: USA

Space Invaders. 1978. Arcade. [Game]. Taito: Japan

Spacewar! 1962. PC. [Game]. Unreleased.

Spider-Man. 2018. PlayStation 4. [Game]. Sony Interactive Entertainment: USA

Spyro Reignited Trilogy. 2018. Multiplatform. [Game]. Activision: USA

Squidlit. 2018. PC. [Game]. Squidlit Ink: USA

Star Citizen. Unreleased. PC. [Game]. No Publisher: USA

Star Fox. 1993. SNES. [Game]. Nintendo: Japan

Star Wars Battlefront II. 2017. Multiplatform. [Game]. Electronic Arts: USA

Star Wars Jedi: Fallen Order. 2019. Multiplatform. [Game]. Electronic Arts: USA

Stardew Valley. 2016. PC. [Game]. Concernedape: USA

Street Fighter 2. 1991. Arcade. [Game]. Capcom: Japan

Street Fighter 2': Champion Edition. 1992. Arcade. [Game]. Capcom: Japan

Super Mario Bros. 1985. NES. [Game]. Nintendo: Japan

Super Mario Maker. 2015. Nintendo Wii U. [Game]. Nintendo: USA

Super Mario Run. 2016. Mobile. [Game]. Nintendo: USA

Super Meat Boy. 2010. Xbox [Game]. Team Meat: USA.

Super Monkey Ball. 2008. Mobile. [Game]. Sega: USA

Super Smash Bros Ultimate. 2018. Nintendo Switch. [Game]. Nintendo: Japan

Super Smash Bros. Brawl. 2008. Nintendo Wii. [Game]. Nintendo: Japan

Super Smash Bros. For Nintendo Wii U. 2014. Nintendo Wii U. [Game]. Nintendo: Japan

Super Smash Bros. Melee. 2001. Nintendo Gamecube. [Game]. Nintendo: Japan

The Elder Scrolls V: Skyrim. 2011. Multiplatform. [Game]. Bethesda Studios: USA

The Last Guardian. 2016. PC. [Game]. Sony Computer Entertainment: USA

The Legend of Zelda. 1986. NES [Game]. Nintendo: USA.

The Legend of Zelda: Breath of The Wild. 2017. Switch [Game]. Nintendo: USA

The Stomping Land. Unreleased. PC. [Game]. No Publisher: USA

Tony Hawk's Pro Skater 2. 2000. PlayStation 1. [Game]. Activision: USA

Uncharted: Drake's Fortune. 2007. PlayStation 3. [Game]. Sony Computer Entertainment: USA

Undertale. 2015. PC. [Game]. Toby Fox.: USA

Unity. Unreleased. Gamecube. [Game]. Lionhead Studios: USA

Unsung Story. Unreleased. PC. [Game]. No publisher: USA.

Warcraft III: Reign of Chaos. 2002. PC. [Game]. Blizzard Entertainment: USA

World of Goo. 2008. Multiplatform. [Game]. 2D Boy: USA

World of Warcraft. 2004. PC. [Game]. Blizzard Entertainment: USA

Wrecking Crew. 1985. NES. [Game]. Nintendo: Japan

Journals/Articles/Theses/Websites

- Abel, R. (2017). *A Eulogy for Flash, dead at last, dead at last*. Retrieved from: <https://www.scmagazine.com/flash-ends-two-decade-run-phasing-out-in-2020/article/677760/>.
- Adam. (2010). *Interview: WaterMelon Games - Pier Solar's Developers*. Retrieved from: <http://www.retrocollect.com/Articles/interview-watermelon-games-pier-solars-developers.html>.
- Adams, T. (2019). *Dwarf Fortress on Steam FAQ*. Retrieved from: <https://docs.google.com/document/d/1Xwhi1KKp5QD9R4-euZ0JqRB0vHdNPqdBJXjIgp-yYHA/edit>.
- Ahmed, S. (2018). *Video games as an art form*. Retrieved from: <http://felixonline.co.uk/articles/2018-05-11-video-games-as-an-art-form/>.
- Alexander, J and Kuchera, B. (2018). *ArenaNet's firings reinforced gaming culture's worst impulses*. Retrieved from: <https://www.polygon.com/2018/7/10/17550276/guild-wars-2-arenanet-firings-jessica-price-gamergate>.
- Allan, D. (2019). *Well-known battlegrounds: the rise of battle royale games*. Retrieved from: <https://www.techradar.com/uk/news/well-known-battlegrounds-the-rise-of-battle-royale-games>.
- Allan, D. (2019). *Well-known battlegrounds: the rise of battle royale games*. Retrieved from: <https://www.techradar.com/uk/news/well-known-battlegrounds-the-rise-of-battle-royale-games>.
- Amazon. (2019). *Computer Games*. Available: <https://www.amazon.co.uk/slp/computer-games/a9wvvetehvqo657z>.
- Anonymous Game Developer. (2013). *We Need Better Video Game Publishers*. Retrieved from: <https://kotaku.com/we-need-better-video-game-publishers-472880781>.
- Anonymous. (2016). *The secret life of a games programmer: I've lived my dream and it came up short*. Retrieved from: <https://www.theguardian.com/commentisfree/2016/mar/07/secret-life-games-programmer>.
- Antoniades, A. (2013). *Monsters from the Id: The Making of Doom*. Retrieved from: https://www.gamasutra.com/view/feature/198783/monsters_from_the_id_the_making_.php#comments.
- Arguello, T. (2020). *Report: Cyberpunk 2077's CD Projekt Red 'No Crunch' Promise Was A Lie*. Retrieved from: <https://screenrant.com/cyberpunk-2077-cd-projekt-red-crunch-promise-lie/>.

- Arif, S. (2018). *Fortnite Is the Biggest Free-to-Play Console Game of All Time*. Retrieved from: <http://uk.ign.com/articles/2018/04/27/fortnite-is-the-biggest-free-to-play-console-game-of-all-time>.
- Arsenault, D. (2009). Video Game Genre, Evolution and Innovation. *Computer Game Culture*. 3 (2), p149-176.
- Ashcraft, B. (2018). *Gamers, Gabe Newell Thinks You Are Smart*. Retrieved from: <https://kotaku.com/gamers-gabe-newell-thinks-you-are-smart-5064865>.
- Ashcraft, B. (2018). *Square Enix Is Hiring "Core Members" For Final Fantasy VII Remake*. Retrieved from: <https://kotaku.com/square-enix-is-hiring-core-members-for-final-fantasy-1823692767>.
- Austin, M. (2017). *Steam hits 17 million concurrent users, with nearly 7 million playing in-game*. Retrieved from: <https://www.digitaltrends.com/gaming/steam-17-million-concurrent-users/>.
- Avard, A. (2019). *Games that defined the Decade: Journey's message of peace ushered in a new era for indie games*. Retrieved from: <https://www.gamesradar.com/uk/games-that-defined-the-decade-journey/>.
- Ayon, A. (2018). *Hand Holding in Video Games: How much is too much?*. Retrieved from: <https://www.thedailystar.net/shout/overclock/hand-holding-video-games-how-much-too-much-1611052>.
- Baez, J and Fulp, T. (2017). *Classic Postmortem: The Behemoth's Alien Hominid*. Retrieved from: https://www.gamasutra.com/view/news/309412/Classic_Postmortem_The_Behemoths_Alien_Hominid.php
- BAFTA. (2020). *Hideo Kojima to receive BAFTA Fellowship*. Retrieved from: <https://www.bafta.org/media-centre/press-releases/hideo-kojima-to-receive-bafta-fellowship-2020>.
- Bailey, D. (2018). *Epic confirms that Unreal Tournament is dead for now*. Retrieved from: <https://www.pcgamesn.com/unreal-tournament/unreal-tournament-cancelled>.
- Bailey, K. (2018). *Metroidvanias Are Having a Moment*. Retrieved from: <https://www.usgamer.net/articles/metroidvanias-are-having-a-moment>.
- Baird, S. (2019). *Link's Awakening Shouldn't Cost As Much As Breath Of The Wild*. Retrieved from: <https://www.thegamer.com/zelda-links-awakening-price-breath-of-wild/>.
- Barker, S. (2018). *DOOM Eternal's Multiplayer Will Be Developed In-House*. Retrieved from: http://www.pushsquare.com/news/2018/08/doom_eternals_multiplayer_will_be_developed_in-house.

- Barone, E. (2017). *Stardew Valley 1-year Anniversary*. Retrieved from: <https://www.stardewvalley.net/stardew-valley-1-year-anniversary/>.
- Bartner, N. (2012). *Happy 35th Atari 2600!*. Retrieved from: <https://www.denofgeek.com/us/games/a-look-back-at-the-top-10-games-for-the-atari-2600/22376/happy-35th-atari-2600>.
- Barton, M. Loguidice, B. (2009). *The History Of Pong: Avoid Missing Game to Start Industry*. Retrieved from: https://www.gamasutra.com/view/feature/132293/the_history_of_pong_avoid_missing_.php.
- Barton, M. Loguidice, B. (2009). *The History of Spacewar!: The Best Waste of Time in the History of the Universe*. Retrieved from: https://www.gamasutra.com/view/feature/132438/the_history_of_spacewar_the_best_.php.
- Batchelor, J. (2017). *YoYo Games: "Our competition with Unity is all in people's heads"*. Retrieved from: <https://www.gamesindustry.biz/articles/2017-03-08-yoyo-games-our-competition-with-unity-is-all-in-peoples-heads>.
- Batchelor, J. (2018). *GTA V is the most profitable entertainment product of all time*. Retrieved from: <https://www.gamesindustry.biz/articles/2018-04-09-gta-v-is-the-most-profitable-entertainment-product-of-all-time>.
- Battjes, N. (2011). *The Big Indie Game Success Story* . Retrieved from: <https://indie-games-ichiban.wonderhowto.com/news/angry-birds-big-indie-game-success-story-0127548/>.
- Bay, J. (2018). <https://www.gameindustryareerguide.com/how-to-become-a-video-game-community-manager/>. Retrieved from: <https://www.gameindustryareerguide.com/how-to-become-a-video-game-community-manager/>.
- bearwithastick. (2019). *Are LAN parties really dead?*. Retrieved from: https://www.reddit.com/r/truegaming/comments/9irjnr/are_lan_parties_really_dead/.
- Beaudoin, M. (2016). *Why I Quit my Dream Job at Ubisoft*. Retrieved from: <http://gingearstudio.com/why-i-quit-my-dream-job-at-ubisoft>.
- Beckhelling, I. (2019). *Ambitious Skyrim mod Skyblivion in final stages of development* . Retrieved from: <https://www.eurogamer.net/articles/2019-08-16-ambitious-skyrim-mod-skyblivion-in-final-stages-of-development>.
- Bell, K. (2011). *Steve Jobs Was Originally Dead Set Against Third-Party Apps for the iPhone*. Retrieved from: <https://www.cultofmac.com/125180/steve-jobs-was-originally-dead-set-against-third-party-apps-for-the-iphone/>.

Blake, V. (2019). *Stardew Valley creator clarifies 'neither Chucklefish nor any contributors working with Chucklefish' were involved in creating the game*. Retrieved from:

<https://www.mcvuk.com/stardew-valley-creator-clarifies-neither-chucklefish-nor-any-contributors-working-with-chucklefish-were-involved-in-creating-the-game/>.

Blizzard Entertainment. (2018). *Diablo at BlizzCon 2018*. Retrieved from:

<https://us.diablo3.com/en/blog/22549433>.

Blow, J. (2008). *Stats: The First Week of Braid*. Retrieved from: [http://braid-](http://braid-game.com/news/2008/08/stats-the-first-week-of-braid/)

[game.com/news/2008/08/stats-the-first-week-of-braid/](http://braid-game.com/news/2008/08/stats-the-first-week-of-braid/).

Boddy-Evans, M. (2019). *7 Major Painting Styles—From Realism to Abstract*. Retrieved from:

<https://www.thoughtco.com/art-styles-explained-realism-to-abstract-2578625>.

Böhmer, M. et al. (2011). *Falling asleep with Angry Birds, Facebook and Kindle: A large scale study on mobile application usage*. Proceedings of the 13th international conference on human computer interaction with mobile devices and services, pp. 47–56.

Bowman, N. Wulf, T. (2018). *Psychology Study Reveals How Nostalgia Made Retro Video Games Popular Again*. Retrieved from: [https://www.inverse.com/article/48459-finding-nostalgia-in-classic-](https://www.inverse.com/article/48459-finding-nostalgia-in-classic-retro-video-games)

[retro-video-games](https://www.inverse.com/article/48459-finding-nostalgia-in-classic-retro-video-games).

Brandom, R. (2013). *'Spacewar!' The story of the world's first digital video game*. Retrieved from:

<https://www.theverge.com/2013/2/4/3949524/the-story-of-the-worlds-first-digital-video-game>.

Brian, M. (2014). *Why App Store apps are now labeled 'Get' instead of 'Free'*. Retrieved from:

<https://www.engadget.com/2014/11/20/apple-switches-free-get-app-store/>.

Brock, M. (2018). *Welcome to 'Dwarf Fortress: ' the most complicated game in the world*. Retrieved

from: <https://www.splittoothmedia.com/dwarf-fortress/>.

Brookhaven. (n.d). *About Brookhaven National Laboratory*. Retrieved from:

<https://www.bnl.gov/about/>.

Brookhaven. (n.d). *The First Video Game?*. Retrieved from:

<https://www.bnl.gov/about/history/firstvideo.php>.

Brown, A. (2017). *The original snake is making a comeback*. Retrieved from:

<https://www.express.co.uk/life-style/science-technology/575542/Original-Nokia-Snake-Remake-iPhone-Android-Windows-Phone>.

- Brown, P. (2016). *Zelda: Breath of the Wild is the Biggest Nintendo Game Ever Made*. Gamespot. Retrieved from: <http://www.gamespot.com/articles/zelda-breath-of-the-wild-is-the-biggest-nintendo-g/1100-6440923/>
- Brown. (2012). *Double Fine Kickstarter*. Retrieved from: <https://web.archive.org/web/20120212003117/http://www.wired.co.uk/news/archive/2012-02/09/double-fine-kickstarter>.
- Buck, S. (2012). *9 Essential Steps for a Killer Kickstarter Campaign*. Retrieved from: <https://mashable.com/2012/05/13/kickstarter-tips/?europe=true>.
- Buehler, R., Griffin, D., and Peetz, J. (2010). The Planning Fallacy: Cognitive, Motivational, and Social Origins. *Advances in Experimental Social Psychology*. 43.
- Bycer, J. (2019). *The Reality of Game Development*. Retrieved from: https://www.gamasutra.com/blogs/JoshBycer/20190812/348441/The_Reality_of_Game_Development.php.
- Byford, S. (2016). *Resident Evil 7 brings back the horror*. Retrieved from: <https://www.theverge.com/2016/6/14/11930748/resident-evil-7-e3-hands-on-demo>.
- Calvert, D. (2018). *How DOOM On The SNES Pushed The Hardware To Its Technical Limits*. Retrieved from: http://www.nintendolife.com/news/2018/01/how_doom_on_the_snes_pushed_the_hardware_to_its_technical_limits.
- Calvin, J. (2018). *Storm warning: How to survive the indiepocalypse*. Retrieved from: <https://gameifyouare.com/2018/04/17/storm-warning-how-to-survive-the-indiepocalypse/>.
- Campbell, C. (2017). *Steam Greenlight is about to be dumped*. Retrieved from: <https://www.polygon.com/2017/2/10/14571438/steam-direct-greenlight-dumped>.
- CaptainBurke. (2018). *Does anyone miss the old game manuals?*. Retrieved from: https://www.reddit.com/r/gaming/comments/6mm9pc/does_anyone_miss_the_old_game_manuals/.
- Carless, S. (2007). *IGF Winner Braid Confirmed For Xbox Live Arcade*. Retrieved from: http://www.gamesetwatch.com/2007/09/igf_winner_braid_confirmed_for.php.
- Carpenter, N. (2019). *'Cuphead' Is Being Turned Into an Animated TV Show for Netflix*. Retrieved from: https://www.vice.com/en_us/article/qv79q3/cuphead-is-being-turned-into-an-animated-tv-show-for-netflix.
- Carter, C. (2015). *Warner Bros., stop outsourcing your broken PC releases*. Retrieved from: <https://www.destructoid.com/warner-bros-stop-outsourcing-your-broken-pc-releases-294761.phtml>.

- CD PROJEKT. (2021). *CD PROJEKT Group FY 2020 Earnings*. Retrieved from: <https://www.cdprojekt.com/en/wp-content/uploads-en/2021/04/fy-2020-presentation.pdf>
- Cellania, M. (2015). *Ada Lovelace: The First Computer Programmer*. Retrieved from: <https://www.mentalfloss.com/article/53131/ada-lovelace-first-computer-programmer>.
- Chalhoub, E. (2010). *The ambiguous definition of a retro game*. Retrieved from: <https://venturebeat.com/community/2010/09/22/the-ambiguous-definition-of-a-retro-game/>.
- Chalk, A. (2020). *After eight years of development, Cyberpunk 2077 made a profit in one day*. Retrieved from: <https://www.pcgamer.com/uk/after-eight-years-of-development-cyberpunk-2077-made-a-profit-in-one-day/#comment-jump>.
- Chamberlain, D. (2015). *What happened to PlayStation's first indie dev community?*. Retrieved from: https://www.gamasutra.com/view/news/255265/What_happened_to_PlayStations_first_indie_dev_community.php.
- Chandler, H (2013). *The Game Production Handbook*. 3rd ed. Burlington: Jones & Bartlett Learning.
- Chen, B. (2008). *Why Apple Won't Allow Adobe Flash on iPhone*. Retrieved from: <https://www.wired.com/2008/11/adobe-flash-on/>.
- Cheshire, T. (2011). *In depth: How Rovio made Angry Birds a winner (and what's next)*. Retrieved from: <http://www.wired.co.uk/article/how-rovio-made-angry-birds-a-winner>.
- Chiodini, J. (2016). *Watch: What makes a game indie?* Retrieved from: <https://www.eurogamer.net/articles/2016-02-06-watch-what-makes-a-game-indie>.
- Chironis, K. (2019). *Making games for a living means being in constant fear of losing your job*. Retrieved from: <https://www.polygon.com/2019/3/5/18233699/game-developer-layoffs-unions-katie-chironis>.
- Chmielarz, A. (2015). *Do Game Developers Need to Be Gamers?*. Retrieved from: <https://medium.com/@adrianchm/do-game-developer-need-to-be-gamers-802a2b66b6ba>.
- Chyou, S. (2011). *The History of Shareware*. Retrieved from: <http://www.thunderboltgames.com/feature/the-history-of-shareware>.
- Close, C. (2013). *On the Trail of the Net Yaroze* . Retrieved from: <https://unwinnable.com/2013/07/02/44837/>.
- CNBC. (2019). *US teen wins \$3 million at video game tournament Fortnite World Cup*. Retrieved from: <https://www.cNBC.com/2019/07/29/fortnite-world-cup-us-teen-wins-3-million-at-video-game-tournament.html>.

Cohen, D. (2019). *Cathode-Ray Tube Amusement Device: The First Electronic Game*. Retrieved from: <https://www.lifewire.com/cathode-ray-tube-amusement-device-729579>.

Cohen, D. (2019). *OXO aka Noughts and Crosses - The First Video Game*. Retrieved from: <https://www.lifewire.com/oxo-aka-noughts-and-crosses-729624>.

Cohen, D. (2019). *The History of Classic Video Games - The CD-ROM Revolution* . Retrieved from: <https://www.lifewire.com/the-cd-rom-revolution-729750>.

Conditt, J. (2018). *Mobile-gaming titans keep ripping off indies*. Retrieved from: <https://www.engadget.com/2018/07/11/mobile-clones-app-store-google-play-indie-vooodoo/>.

Construct. (2017). *Pixel Art style VS 3D graphic, which one do you prefer?* . Retrieved from: <https://www.construct.net/en/forum/game-development/game-development-design-ideas-25/pixel-art-style-vs-3d-graphic-130296>.

Corden, J. (2018). *In defense of Red Dead Redemption 2's realism*. Retrieved from: <https://www.windowcentral.com/defense-red-dead-redemption-2s-realism>.

Corder, J. (2019). *From Minecraft to Mario: The most popular video game franchises of all time*. Retrieved from: <https://www.esquireme.com/content/38488-the-most-popular-video-game-franchises-of-all-time>.

Couture, J. (2016). *Why are so many devs employing a retro low-poly mid-1990s aesthetic?*. Retrieved from: https://www.gamasutra.com/view/news/273904/Why_are_so_many_devs_employing_a_retro_lowpoly_mid1990s_aesthetic.php.

Couture, J. (2018). *The Fire Fades: Dealing with the scourge of burnout in game dev*. Retrieved from: https://www.gamasutra.com/view/news/314419/The_Fire_Fades_Dealing_with_the_scourge_of_burnout_in_game_dev.php.

Cox, M. (2015). *Popular Smash Bros. mod Project M ceases development*. Retrieved from: <https://www.destructoid.com/popular-smash-bros-mod-project-m-ceases-development-323700.phtml>.

Coyote, R. (2013). *Why Are Most Indie Games 2D Instead of 3D?*. Retrieved from: <http://rampantgames.com/blog/?p=5934>.

Craddock, D. (2018). *How Shovel Knight's Developers Modernized NES Game Design*. Retrieved from: <https://kotaku.com/how-shovel-knights-developers-modernized-nes-game-desig-1829767941>.

Crawley, D. (2012). *Six million LittleBigPlanet user levels created; here are some of the best*. Retrieved from: <https://venturebeat.com/2012/01/17/six-million-littlebigplanet-user-levels-created-here-are-some-of-the-best/>.

- Crecente, B. (2018). *Apple: How iPhone Gaming Revolutionized Video Games*. retrieved from: <https://www.rollingstone.com/glixel/features/how-iphone-gaming-revolutionized-video-games-w518397>
- D'Anastasio, C. (2018). *Inside The Culture Of Sexism At Riot Games*. Retrieved from: <https://kotaku.com/inside-the-culture-of-sexism-at-riot-games-1828165483>.
- D'Angelo, D. (2014). *Breaking the NES for Shovel Knight*. Retrieved from: https://www.gamasutra.com/blogs/DavidDAngelo/20140625/219383/Breaking_the_NES_for_Shovel_Knight.php.
- D'Aprile, J. (2019). *Indie Games And The Love Of The Retro Aesthetic*. Retrieved from: <https://www.indiegamewebsite.com/2019/01/30/indie-games-and-the-love-of-the-retro-aesthetic/>.
- Dassanayake, D. (2019). *Zelda Breath of the Wild 2 devs ramp up recruitment ahead of rumoured 2020 launch*. Retrieved from: <https://www.express.co.uk/entertainment/gaming/1218451/Zelda-Breath-of-the-Wild-2-recruitment-drive-2020-launch-December-17>.
- David, M. (2003). *Online Games Development in Flash – A Brief History*. Retrieved from: <https://www.sitepoint.com/flash-brief-history/>.
- Davis, J. (2012). *The Ridiculous Launch of the iPhone App Store*. Retrieved from: <https://uk.ign.com/articles/2012/07/18/the-ridiculous-launch-of-the-iphone-app-store>.
- Davis, J. (2012). *The Ridiculous Launch of the iPhone App Store*. Retrieved from: <http://uk.ign.com/articles/2012/07/18/the-ridiculous-launch-of-the-iphone-app-store>.
- Davis, J. (2013). *Shouldn't there be less secrecy in game development?* Retrieved from: <https://venturebeat.com/community/2013/10/16/shouldnt-there-be-less-secrecy-in-game-development/>.
- Davis, J. (2013). *Shouldn't there be less secrecy in game development?*. Retrieved from: <https://venturebeat.com/community/2013/10/16/shouldnt-there-be-less-secrecy-in-game-development/>.
- Davis, J. (2020). *Dwarf Fortress Is the Craziest Game You've (Probably) Never Heard Of*. Retrieved from: <https://www.ign.com/articles/2019/03/16/dwarf-fortress-steam-story>.
- Dead-Cells. (2018). *What is Dead Cells?*. Retrieved from: <https://dead-cells.com/>.
- Dealessandri, M. (2020). *What is the best game engine: is GameMaker right for you?*. Retrieved from: <https://www.gamesindustry.biz/articles/2020-01-16-what-is-the-best-game-engine-is-gamemaker-the-right-game-engine-for-you>.

- DeVries, J and Altano, B. (2012). *Sonic Generations Review*. Retrieved from: <https://www.ign.com/articles/2011/10/28/sonic-generations-review>.
- Dingman, H. (2018). *This week in games: Blizzard dispels Diablo 4 rumors, and Hitman 2 adds Sean Bean to the cast*. Retrieved from: <https://www.pcworld.com/article/3315265/this-week-in-games-blizzard-dispels-diablo-4-rumors-and-hitman-2-adds-sean-bean-to-the-cast.html>.
- Ditum, N. (2014). *Halo: The Master Chief Collection review*. Retrieved from: <https://www.eurogamer.net/articles/2014-11-10-halo-the-master-chief-collection-review>.
- Diver, M. (2017). *The iPhone Changed Video Gaming Forever*. Retrieved from: https://waypoint.vice.com/en_us/article/8xaagv/the-iphone-changed-video-gaming-forever.
- Donnelly, J. (2015). *What keeps modders modding?*. Retrieved from: <https://www.eurogamer.net/articles/2015-12-13-what-keeps-modders-modding>.
- Donnelly, J. (2016). *The Skyrim mod to Enderal*. Retrieved from: <https://www.eurogamer.net/articles/2016-08-23-skyrim-free-mod-enderal-review>.
- Donovan, T. (2014). *PlayStation at 20: How the PlayStation changed gaming*. Retrieved from: <https://www.stuff.tv/features/playstation-20-how-playstation-changed-gaming>.
- Dornbush, J. (2018). *2017's Top 10 Grossing Domestic Movies*. Retrieved from: <http://uk.ign.com/articles/2018/01/02/2017s-top-10-grossing-domestic-movies>.
- Dutton, F. (2012). *What is Indie?*. Retrieved from: <https://www.eurogamer.net/articles/2012-04-16-what-is-indie>.
- Dutton, F. (2012). *What is Indie?*. Retrieved from: <https://www.eurogamer.net/articles/2012-04-16-what-is-indie>.
- Dwarf Fortress*. (2021). Retrieved from: <http://www.bay12games.com/dwarves/>.
- Dyer, A. (2016). *PC Game Mods - From Smurfs to Counter-Strike and Beyond!*. Retrieved from: <https://www.geforce.com/whats-new/articles/history-of-pc-game-mods>
- Ebert, R. (2010). *Video games can never be art*. Retrieved from: <https://www.rogerebert.com/rogers-journal/video-games-can-never-be-art>.
- Edwards, B. (2011). *Computer Space and the Dawn of the Arcade Video Game*. Retrieved from: <https://www.technologizer.com/2011/12/11/computer-space-and-the-dawn-of-the-arcade-video-game/3/>.
- Edwards, R. (2012). *The Game Production Pipeline: Concept to Completion*. Retrieved from: <https://uk.ign.com/articles/2006/03/16/the-game-production-pipeline-concept-to-completion>.

- Endyo, R. (2019). *What Makes a Battle Royale Fail?* . Retrieved from: <https://gameverse.com/2019/05/23/what-makes-a-battle-royale-fail/>.
- Fahey, R. (2004). *Lionhead and Minter cancel Unity project*. Retrieved from: <https://www.gamesindustry.biz/articles/lionhead-and-minter-cancel-unity-project>.
- Famularo, J. (2017). *The best game engines for making your own 2D indie game*. Retrieved from: <https://www.pcgamer.com/uk/the-best-2d-game-engines/>
- Farokhmanesh, M. (2013). *Indie developers sound off on next-gen consoles and the importance of self-publishing* . Retrieved from: <https://www.polygon.com/2013/6/7/4387478/indie-developers-sound-off-next-gen-consoles-and-the-importance-of>.
- Farrell, M. (2014). *Why most indie games are 2D games.*. Retrieved from: <https://vertostudio.com/gamedev/?p=216>.
- Fenlon, W. (2016). *Dwarf Fortress' creator on how he's 42% towards simulating existence*. Retrieved from: <https://www.pcgamer.com/uk/dwarf-fortress-creator-on-how-hes-42-towards-simulating-existence/>.
- Fenlon, W. (2017). *The creator of Dwarf Fortress doesn't really like to play games like Dwarf Fortress*. Retrieved from: <https://www.pcgamer.com/uk/the-creator-of-dwarf-fortress-doesnt-really-like-to-play-games-like-dwarf-fortress/>.
- Fenlon, W. (2018). *GDC's 'realistic' talk about game sales on Steam paints a grim picture*. Retrieved from: <https://www.pcgamer.com/uk/gdcs-realistic-talk-about-game-sales-on-steam-paints-a-grim-picture/>.
- Fick, M. (2014). *Stay a while and game on....* Retrieved from: <http://za.ign.com/ps4/64636/feature/the-5-longest-console-lifespans>.
- Fischer, T. (2019). *Beware: Star Wars Jedi: Fallen Order Has a Game-Breaking Bug*. Retrieved from: <https://comicbook.com/gaming/2019/11/15/star-wars-jedi-fallen-order-ps4-xbox-pc-bug/>.
- Fleischauer, M. (2013). *A Programmer's Guide to Creating Art for Your Game*. Retrieved from: <https://www.gamefromscratch.com/post/2013/06/11/Creating-art-for-your-game-when-you-are-a-programmer.aspx>.
- Fleming, J. (2007). *The History Of Activision*. Retrieved from: https://www.gamasutra.com/view/feature/129961/the_history_of_activision.php.
- Fleming, J. (2007). *The History of Activision*. Retrieved from: https://www.gamasutra.com/view/feature/129961/the_history_of_activision.php. Last accessed 4th March 2018.

- Fram, L. (2018). *5 Best Free Game Engines To Create Your Game*. Retrieved from: <https://learn.g2.com/free-game-engines>.
- Frank, A. (2016). *Ark: Survival Evolved slammed on Steam for paid DLC*. Retrieved from: <https://www.polygon.com/2016/9/2/12776612/ark-survival-evolved-early-access-paid-dlc>.
- Frank, A. (2018). *Metal Gear Solid 3 finds beauty in an endlessly long ladder climb*. Retrieved from: <https://www.polygon.com/2018/5/22/17343374/metal-gear-solid-3-gameplay-ladders>.
- Franzese, T. (2018). *Icons: Combat Arena Developer Wavedash Games Lays Off a Majority of its Staff*. Retrieved from: <https://www.dualshockers.com/icons-combat-arena-wavedash-games-layoffs/>.
- Franzese, T. (2019). *Icons: Combat Arena — The Past and Future of this Troubled Fighting Game*. Retrieved from: <https://www.dualshockers.com/icons-combat-arena-post-mortem-definitive-edition/>.
- Fraser, M. (2016). *The 10 best-selling video game franchises ever*. Retrieved from: <https://www.redbull.com/gb-en/10-best-selling-video-game-franchises-of-all-time>.
- Frederiksen, E. (2017). *Just 5% of Super Mario Run downloads cross the finish line into sales*. Retrieved from: <https://www.technobuffalo.com/2017/01/31/super-mario-run-sales-percentage-of-downloads/>.
- Fruhlinger, J. (2019). *Candy Crush Addiction Is Real—and Can Lead to Destructive Results*. Retrieved from: <https://observer.com/2019/02/candy-crush-addiction-real-problem/>.
- Gamasutra. (2018). *GDC State of the Industry: Dev interest in Nintendo Switch up, VR interest down*. Retrieved from: https://www.gamasutra.com/view/news/313561/GDC_State_of_the_Industry_Dev_interest_in_Nintendo_Switch_up_VR_interest_down.php.
- Gamecentral. (2017). *Games Inbox: Video game hand-holding, Nintendo Switch vs. PS4 and Xbox One, and Korix PSVR*. Retrieved from: <https://metro.co.uk/2017/04/11/games-inbox-video-game-hand-holding-nintendo-switch-vs-ps4-and-xbox-one-and-korix-psvr-6568873/>.
- Gamefaqs. (2019). *Why isn't this considered a AAA game?*. Retrieved from: <https://gamefaqs.gamespot.com/boards/204212-octopath-traveler/76886200>.
- Garst, A. (2019). *The Smash Bros. community: An oral history*. Retrieved from: <https://www.polygon.com/2019/10/2/20887994/the-smash-bros-community-an-oral-history>.
- Gartenberg, C. (2020). *Cyberpunk 2077 gets delayed again, will now be released on November 19th*. Retrieved from: <https://www.theverge.com/2020/6/18/21295705/cyberpunk-2077-delayed-again-release-date-november-19th-bug-fixes-balance-cd-projekt-red>.

- Geier, B. (2015). *What Did We Learn From the Dotcom Stock Bubble of 2000?*. Retrieved from: <http://time.com/3741681/2000-dotcom-stock-bust/>.
- George, R. (2012). *Rebuilding Super Smash Bros*. Retrieved from: <https://uk.ign.com/articles/2012/04/20/rebuilding-super-smash-bros>.
- Gera, E. (2019). *Don't fear the rise of Fortnite and other video games – they bring young people together*. Retrieved from: <https://www.theguardian.com/commentisfree/2019/oct/09/fear-video-gaming-fans-addiction>.
- Gerblick, J. (2019). *Call of Duty: Modern Warfare will provide dedicated servers on all platforms*. Retrieved from: <https://www.gamesradar.com/call-of-duty-modern-warfare-dedicated-servers-platforms/>.
- Gibson, N. (2014). *Top 10 Biggest Video Game Budgets Of All Time*. Therichest. Retrieved from: <http://www.therichest.com/rich-list/the-biggest/top-10-biggest-video-game-budgets-of-all-time/>
- Gilbert, B. (2014). *Why are so many video games broken at launch?*. Retrieved from: <https://www.engadget.com/2014/11/24/broken-video-games/?guccounter=1>.
- Gilbert, S. (2014). *Why indie videogaming is so important*. Retrieved from: <https://www.denofgeek.com/games/indie-games/30768/why-indie-videogaming-is-so-important>.
- Gilyadov, A. (2015). *Publishers are misinterpreting the demand for new MOBAs and MMOs*. Retrieved from: <https://venturebeat.com/2015/07/10/publishers-are-misinterpreting-the-demand-for-new-mobas-and-mmos/>.
- Glitterberri. (2012). *The Development of A Link to the Past*. Glitterberri's Game Translations. Retrieved from: <http://www.glitterberri.com/a-link-to-the-past/development-interview/>
- Godwin, J. (2017). *David Lynch's TV commercials are even weirder than his films*. Retrieved from: <https://lwlies.com/articles/david-lynch-tv-commercials/>.
- Goldberg, H. (2018). *How the West Was Digitized The making of Rockstar Games' Red Dead Redemption 2*. Retrieved from: <https://www.vulture.com/2018/10/the-making-of-rockstar-games-red-dead-redemption-2.html>.
- Good, O. (2017). *Halo director spells out what went wrong in Master Chief Collection, why it can be fixed*. Retrieved from: <https://www.polygon.com/2017/10/21/16513450/halo-the-master-chief-collection-xbox-one-fixed-update-patched-343-industries>.
- Good, O. (2017). *Halo director spells out what went wrong in Master Chief Collection, why it can be fixed*. Retrieved from: <https://www.polygon.com/2017/10/21/16513450/halo-the-master-chief-collection-xbox-one-fixed-update-patched-343-industries>.

Good, O. (2020). *Cyberpunk 2077 still needs crunch time to complete, CEO says*. Retrieved from: <https://www.polygon.com/2020/1/18/21071895/cyberpunk-2077-delay-crunch-cd-projekt-red>.

Gordon, L. (2019). *Indie game makers open up about the money they actually make*. Retrieved from: <https://www.theverge.com/2019/10/9/20903139/indie-game-developers-creators-money-funding>.

Grace, H. (2019). *Ada Lovelace Day: We should never forget the first computer programmer*. Retrieved from: <https://www.independent.co.uk/life-style/women/ada-lovelace-day-first-computer-programmer-forgotten-women-a8557416.html>.

Graebisch, R. (2012). *The Indie Game* [M.Sc. in Media Technology & Games at IT University of Copenhagen, Denmark]. Retrieved from: <http://www.romangraebisch.de/downloads/TheIndieGame.pdf>.

Graft, K. (2010). *Rockstar: 'Typical' Layoffs Hit Red Dead Redemption Studio*. Retrieved from: https://www.gamasutra.com/view/news/120316/Rockstar_Typical_Layoffs_Hit_Red_Death_Redemption_Studio.php.

Graham, B. (2019). *Fortnite World Cup: the \$30m tournament shows esports' future is already here*. Retrieved from: <https://www.theguardian.com/sport/2019/jul/30/fortnite-world-cup-esports>.

Grave, G. (2015). *Emergent narratives in games*. Retrieved from: <https://multiverse-narratives.com/2015/05/07/emergent-narratives-in-games/>.

Grayson, N. (2017). *Thousands Of People Are 'Playing' A Hidden Steam Game*. Retrieved from: <https://kotaku.com/thousands-of-people-are-playing-a-hidden-steam-game-1795315575>.

Grayson, N. (2017). *Why Games Still Have Bad Loading Times*. Retrieved from: <https://kotaku.com/why-games-still-have-bad-loading-times-1795548921>.

Greene, G. (2015). *Gamergate's positive effect: We're now talking about diversity*. Retrieved from: <https://venturebeat.com/2015/05/06/gamergates-positive-effect-were-now-talking-about-diversity/>.

Griffin, A. (2017). *Adobe flash to be killed off by 2020, killed off by iPhone and new web technologies*. Retrieved from: <https://www.independent.co.uk/life-style/gadgets-and-tech/news/adobe-flash-dead-2020-killed-off-iphone-html-5-steve-jobs-what-to-use-how-to-fix-not-working-a7860346.html>.

Grubb, J. (2017). *Why triple-A devs are going indie (and why indies aren't going triple-A)*. Retrieved from: <https://venturebeat.com/2017/09/07/why-triple-a-devs-are-going-indie-and-why-indie-arent-going-triple-a/>.

Grubb, J. (2018). *League of Legends studio Riot promises to take steps to address sexism*. Retrieved from: <https://venturebeat.com/2018/08/29/league-of-legends-studio-riot-promises-to-take-steps-to-address-sexism/>.

Hadzinsky, C. (2014). *A Look into the Industry of Video Games Past, Present, and Yet to Come*, Senior Thesis, Claremont McKenna College, California.

Hall, C. (2017). *Cuphead won't be coming to PlayStation 4*. Retrieved from: <https://www.polygon.com/2017/7/4/15919210/cuphead-ps4-version>.

Hall, C. (2019). *The co-creator of Dwarf Fortress is getting older, but his work remains unfinished*. Retrieved from: <https://www.polygon.com/features/2019/3/14/18264569/dwarf-fortress-steam-tarn-adams-villains-health-care>.

Hamburger, E. (2011). *Angry Birds Just Hit 500 Million Game Downloads Worldwide*. Retrieved from: <http://www.businessinsider.com/angry-birds-sales-numbers-2011-11?IR=T>.

Hamilton, A. (2015). *The cult of Doom: the thriving mod scene behind id's classic*. Retrieved from: <https://www.pcgamer.com/the-cult-of-doom-the-thriving-mod-scene-behind-ids-classic/>.

Harrison, M. (2011). *25 Years of Zelda*. Retrieved from: <https://www.wired.com/2011/02/25-years-of-zelda/>.

Hartup, A. (2017). *The Black Flag team is back for the new Assassin's Creed... here's why that really, really matters*. Retrieved from: <https://www.gamesradar.com/uk/why-assassins-creed-iv-might-be-biggest-game-world/>.

Harvey, A. (2016). *The Debate Is Over...Video Games May Not Be Art After All*. Retrieved from: <https://www.gameskinny.com/ha6o6/the-debate-is-overvideo-games-may-not-be-art-after-all>.

Hausfeld, R. (2016). *Pixel Art: The Emerging Medium Of The Pixel*. Retrieved from: <https://whatpixel.com/pixel-art-industry/>.

Hayward, A. (2018). *The 10 Biggest Esports of 2018 by Total Prize Pool*. Retrieved from: <https://esportsobserver.com/10-biggest-prize-pools-2018/>.

Heater, B. (2017). *Nostalgia still marks the way forward for Nintendo*. Retrieved from: <https://techcrunch.com/2017/06/15/nostalgia-still-marks-the-way-forward-for-nintendo/?guccounter=1>.

Hellman, D. (2008). *The Art Of Braid: Creating A Visual Identity For An Unusual Game*. Retrieved from: https://www.gamasutra.com/view/feature/132147/the_art_of_braid_creating_a_.php?page=2.

Hernandez, P. (2015). *20 Excellent Super Mario Maker Courses You Should Play*. Retrieved from: <https://kotaku.com/20-excellent-mario-maker-courses-you-should-play-1731659732>.

Hernandez, P. (2015). *The Most Popular Levels In Super Mario Maker (So Far)*. Retrieved from: <https://kotaku.com/the-most-popular-levels-in-super-mario-maker-so-far-1730170457>.

Hernandez, P. (2017). *Here's What Legend of Zelda: Breath of the Wild Looked Like In The Early Stages*. Retrieved from: <https://kotaku.com/heres-what-legend-of-zelda-breath-of-the-wild-looked-l-1792868700>.

Herrman, J. (2010). *The 53 Best iPhone Games*. Retrieved from: <https://gizmodo.com/5447391/the-53-best-iphone-games>.

Hester, B. (2019). *How PlayStation democratized 3D video games*. Retrieved from: <https://www.polygon.com/features/2019/12/5/20997745/how-playstation-democratized-3d-video-games>.

Hicks, T. (2018). *Undertale Review - Nintendo Switch Update*. Retrieved from: <https://www.gamespot.com/reviews/undertale-review-nintendo-switch-update/1900-6416315/>.

Hiscott, R. (2014). *Why Indie Game Devs Thrive Without Big Publishers*. Retrieved from: <https://mashable.com/2014/03/08/indie-developers-self-publishing/?europe=true>.

Hiscott, R. (2016). *"Undertale" Creator Toby Fox on the Indie Computer Game that's Become an Industry Darling*. Retrieved from: <https://medium.com/kickstarter/undertale-creator-toby-fox-on-the-indie-computer-game-that-s-become-an-industry-darling-fa4df6cee2db>.

Hodapp, E. (2012). *'Angry Birds Space' Review - The Final Frontier*. Retrieved from: <http://toucharcade.com/2012/03/22/angry-birds-space-review-the-final-frontier/>.

Holmes, J. (2013). *EarthBound: So what's the big deal?*. Retrieved from: <https://www.destructoid.com/earthbound-so-what-s-the-big-deal--258465.phtml>.

Holmes, M. (2016). *Hideo Kojima's new studio will be capped at 100 staff*. Retrieved from: <https://www.gamereactor.eu/hideo-kojimas-new-studio-will-be-capped-at-100-staff/>.

Holmes, M. (2016). *Hideo Kojima's new studio will be capped at 100 staff*. Retrieved from: <https://www.gamereactor.eu/hideo-kojimas-new-studio-will-be-capped-at-100-staff/>.

Hooper, R. (2016). *The man who made 'the worst video game in history'*. Retrieved from: <https://www.bbc.co.uk/news/magazine-35560458>.

Hornshaw, P. (2019). *The history of Battle Royale: From mod to worldwide phenomenon*. Retrieved from: <https://www.digitaltrends.com/gaming/history-of-battle-royale-games/>.

Horowitz, K. (2006). *Interview: Trip Hawkins (Founder of Electronic Arts)*. Retrieved from: <https://www.sega-16.com/2006/08/interview-trip-hawkins/>.

Horowitz, M. (2009). *Advice on updating the Adobe Flash Player*. Retrieved from: <https://www.computerworld.com/article/2481041/internet/advice-on-updating-the-adobe-flash-player.html>.

Horti, S. (2018). *Blizzard faces huge backlash for Diablo mobile game, fans call it a 'slap in the face'*. Retrieved from: <https://www.pcgamer.com/uk/blizzard-faces-huge-backlash-for-diablo-mobile-game-fans-call-it-a-slap-in-the-face/>.

Horti, S. (2018). *Does Braid deserve its status as the iconic breakthrough indie game?*. Retrieved from: <https://www.pcgamer.com/uk/does-braid-deserve-its-status-as-the-iconic-breakthrough-indie-game/>.

Horti, S. (2018). *Does Braid deserve its status as the iconic breakthrough indie game?*. Retrieved from: <https://www.pcgamer.com/uk/does-braid-deserve-its-status-as-the-iconic-breakthrough-indie-game/>.

How Do Free Apps Make Money on Android and iOS in 2018. (2017). Retrieved from: <https://thinkmobiles.com/blog/how-do-free-apps-make-money/>.

Hudson, L. (2015). *Gamergate Target Zoe Quinn Launches Anti-Harassment Support Network*. Retrieved from: <https://www.wired.com/2015/01/gamergate-anti-harassment-network/>.

Humphreys, A. (2019). *What's in a Game?*. Retrieved from: <https://www.bbc.co.uk/programmes/p07cf6w9>.

IGN Boards. (2014). *Does Nintendo Develop AAA Games?*. Retrieved from: <https://www.ign.com/boards/threads/does-nintendo-develop-aaa-games.453835765/>.

IGN Boards. (2018). *With is with indie developers and 2D platformers?*. Retrieved from: <https://www.ign.com/boards/threads/with-is-with-indie-developers-and-2d-platformers.455160331/>.

IGN. (2009). *Top 100 Game Creators of All Time*. Retrieved from: <https://web.archive.org/web/20100809021422/http://games.ign.com/top-100-game-creators/6.html>.

IGN. (2012). *History of the PlayStation*. Retrieved from: <https://uk.ign.com/articles/1998/08/28/history-of-the-playstation>.

IGN. (2019). *Halo Boss Talks Increasing Women's Roles in Game Development and Tech*. Retrieved from: <https://uk.ign.com/articles/2019/03/04/halo-boss-talks-increasing-womens-roles-in-game-development-and-tech>.

Indie Game Jams. (n.d). *About Us*. Retrieved from: <http://www.indiegamejams.com/about-us/>.

Ionica, G. (2018). *Esports That Never Were: 4 Games That Tried but Failed*. Retrieved from: <https://www.hotspawn.com/esports-games-that-never-were/>.

Irwin, J. (2013). *What does it mean when huge companies talk about indie games?*. killscreen. Retrieved from: <https://killscreen.com/articles/what-does-it-mean-when-huge-companies-talk-about-indie-games/>

Is Flash Dead Yet?. (n.d.) Retrieved from: <http://isflashdeadyet.com/>.

Iwaniuk, P. (2018). *What kind of PC do you need for game development?*. Retrieved from: <https://www.pcgamer.com/uk/game-development-pc/>.

Jackson, G. (2019). *Dwarf Fortress Is Coming To Steam Because Its Developer Needs Healthcare*. Retrieved from: <https://kotaku.com/dwarf-fortress-is-coming-to-steam-because-its-developer-1833333064>.

Jarvis, M. (2016). *Average indie game Steam sales halve year-on-year*. Retrieved from: <http://www.develop-online.net/news/average-indie-game-steam-sales-halve-year-on-year/0219745>

Jobs, S. (2010). *Thoughts on Flash*. Retrieved from: <https://www.apple.com/hotnews/thoughts-on-flash/>.

Jobs' original vision for the iPhone: No third-party native apps. (2011). Retrieved from: <https://9to5mac.com/2011/10/21/jobs-original-vision-for-the-iphone-no-third-party-native-apps/>.

Johnson, E. 2014, *The New Tech Wave*, *Instant Magazine*, Fall 2014.

Johnson, J. (2014). *Michael Brough was asked about "indie scene," responds with pull-quote of the millennium*. killscreen. Retrieved from: <https://killscreen.com/articles/michael-brough-wants-know-whats-indie-scene-you-speak/>

Jones, J. (2012). *Sorry MoMA, video games are not art*. Retrieved from: <https://www.theguardian.com/artanddesign/jonathanjonesblog/2012/nov/30/moma-video-games-art>.

Jones, J. (2014). *Faking a fortune: why Damien Hirst's paintings are poor imitations of art*. Retrieved from: <https://www.theguardian.com/artanddesign/jonathanjonesblog/2014/may/20/faking-fortune-damien-hirst-paintings-art-florida-pastor-jailed>.

- Jones, J. (2019). *10 Largest Video Game Companies in the World*. Retrieved from: <https://largest.org/entertainment/video-game-companies/>.
- Jordan, J. (2016). *Flashback Friday: I've played Clash of Clans more than any other game, but now it's time to log off*. Retrieved from: <http://www.pocketgamer.biz/feature/53612/opinion-ive-played-clash-of-clans-more-than-any-other-game-but-now-its-time-to-log-off/>.
- Junkilla, A. (2015). *The mobile games market is an absolute mess, thanks to you*. Retrieved from: <https://www.polygon.com/2015/10/19/9567017/the-mobile-games-market-is-an-absolute-mess-thanks-to-you>.
- Jurcak, M. (2018). *Indie vs. AAA*. Retrieved from: <https://portal.pixelfederation.com/en/blog/article/indie-vs-aaa>.
- Juster, S. (2012). *Unconventionally Creepy Games*. Retrieved from: <https://www.popmatters.com/164975--2495801134.html>.
- Juul, J. (2014). *High-tech Low-tech Authenticity: The Creation of Independent Style at the Independent Games Festival*. Proceedings of the 9th International Conference on the Foundations of Digital Games, 2014. (Expanded paper). Retrieved from: <http://www.jesperjuul.net/text/independentstyle/>.
- Kalata, K. (2008). *The History of Dragon Quest*. Retrieved from: https://www.gamasutra.com/view/feature/131926/the_history_of_dragon_quest.php?page=4.
- Kalning, K. (2013). *The anatomy of the first video game*. Retrieved from: http://www.nbcnews.com/id/27328345/ns/technology_and_science-games/t/anatomy-first-video-game/.
- Kamen, M. (2014). *How 'Never Alone' turns cultural heritage into video game history*. Retrieved from: <http://www.wired.co.uk/article/never-alone-interview>.
- Kaplan, O. (2019). *The truth about hypercasual games*. Retrieved from: <https://venturebeat.com/2019/03/24/the-truth-about-hypercasual-games/>.
- Karmali, L. (2014). *Final Fantasy 7 Has Been Completely Recreated in LittleBigPlanet*. Retrieved from: <http://uk.ign.com/articles/2014/11/18/final-fantasy-7-has-been-completely-recreated-in-littlebigplanet>.
- Kent, E. (2019). *After two months, 94% of players have deserted Realm Royale*. Retrieved from: <https://www.eurogamer.net/articles/2018-08-16-realm-royale-loses-94-per-cent-of-steam-player-base-in-two-months>.

Kerr, C. (2017). *How Stardew Valley creator Eric Barone coped with a four year dev cycle*. Retrieved from:

https://www.gamasutra.com/view/news/307316/How_Stardew_Valley_creator_Eric_Barone_coped_with_a_four_year_dev_cycle.php.

Kickstarter. (2012). *Double Fine Adventure*. Retrieved from:

<https://www.kickstarter.com/projects/doublefine/double-fine-adventure>.

Kickstarter. (2016). *Pier Solar HD an RPG for XBOX360, PC, Mac, Linux & Dreamcast*. Retrieved from: <https://www.kickstarter.com/projects/573261866/pier-solar-hd-an-rpg-for-xbox360-pc-mac-linux-and>.

Kim, T. (2017). *EA's day of reckoning is here after 'Star Wars' game uproar, \$3 billion in stock value wiped out*. Retrieved from: <https://www.cnbc.com/2017/11/28/eas-day-of-reckoning-is-here-after-star-wars-game-uproar.html>.

King, J. (2021). *E3 Has Shown The Definition Of Indie Means Nothing Anymore*. Retrieved from: <https://www.thegamer.com/what-is-an-indie-game-in-2021/>.

Klepek, P. (2015). *Smash Community In Shock Over Sudden End To Popular Mod, Project M*. Retrieved from: <https://kotaku.com/smash-community-in-shock-over-sudden-end-to-popular-mod-1745742674>.

Klepek, P. (2015). *That Time Final Fantasy Ditched Nintendo For Sony*. Retrieved from: <https://kotaku.com/that-time-final-fantasy-ditched-nintendo-for-sony-1735720127>.

Klepek, P. (2015). *The Death Of Adobe Flash Is Coming, And Game Developers Are Worried*. Retrieved from: <https://kotaku.com/the-death-of-flash-is-coming-and-not-everyones-happy-1717824387>.

Kohler, C. (2007). *Square Enix Won't Nail Down Dragon Quest IX Release Date*. Retrieved from: <https://www.wired.com/2007/11/square-enix-won/>.

Kohler, C. (2009). *Why's It Called 'Final Fantasy'? Uematsu Explains*. Retrieved from: <https://www.wired.com/2009/07/final-fantasy/>.

Kohler, C. (2013). *The Bad Death of Final Fantasy: Reasons Why It's Over*. Retrieved from: <https://www.wired.com/2013/08/final-fantasy-is-still-dead/>.

Kohler, C. (2017). *Seriously, Nintendo: It's Time For Mother 3*. Retrieved from: <https://kotaku.com/seriously-nintendo-its-time-for-mother-3-1796533984>.

Kordic, A. (2015). *What Exactly is Pixel Art and How Did It Come Back to Life ?*. Retrieved from: <https://www.widewalls.ch/pixel-art/>.

Korotaev, S. (2015). *Why Should You Participate in Game Jams*. Retrieved from: https://www.gamasutra.com/blogs/StasKorotaev/20151123/260043/Why_Should_You_Participate_in_Game_Jams.php.

Kotaku. (2014). *How Much Does It Cost To Make A Big Video Game?*. Retrieved from: <https://kotaku.com/how-much-does-it-cost-to-make-a-big-video-game-1501413649>.

Kovanto, A. (2013). *The Improvements for Indie Game Development*, Bachelor's Thesis, Karelia University, Joensuu.

Kroll, A. (2017). *Closing Greenlight Today, Steam Direct Launches June 13*. Retrieved from: <https://steamcommunity.com/games/593110/announcements/detail/1265922321514182595>

Kuchera, B. (2015). *Gaming has left the LAN party behind*. Retrieved from: <https://www.polygon.com/2015/1/29/7944755/lan-party-gaming-call-of-duty>.

Kyei-Nimakoh, M. (2017). *Management and referral of obstetric complications: a study in the upper east region of Ghana*. PhD Thesis. Victoria University, Melbourne.

Lamble, R. (2013). *The 1983 videogame crash: what went wrong, and could it happen again?* Retrieved from: <http://www.denofgeek.com/games/24531/the-1983-videogame-crash-what-went-wrong-and-could-it-happen-again>. Last accessed 2nd March 2018.

Lane, R. (2016). *A Conspiracy of Silence: How NDAs Are Harming The Games Industry*. Retrieved from: <https://www.kotaku.co.uk/2016/01/25/a-conspiracy-of-silence-how-ndas-are-harming-the-games-industry>.

Lee, J. (2020). *Former Cyberpunk 2077 developer speaks out about brutal 'crunch' working conditions*. Retrieved from: <https://www.yahoo.com/lifestyle/former-cyberpunk-2077-developer-speaks-192734667.html>.

Legler, C. (2018). *Video Games And—Wait, Another Darn Tutorial?*. Retrieved from: <https://the-artifice.com/video-games-tutorial/#note-118196-2>.

Leone, M. (2017). *Final Fantasy 7: An Oral History*. Retrieved from: <https://www.polygon.com/a/final-fantasy-7>.

Leray, J. (2013). *Double Fine Bringing 'Broken Age' to Steam Early Access in Search of More Development Funds*. Retrieved from: <http://www.mtv.com/news/2467472/double-fine-broken-age-steam/>.

- Lewthwaite, S and Nind, M. (2020). A conceptual-empirical typology of social science research methods pedagogy. *Research Papers in Education*. 35 (4), p467-487.
- Liao, S. (2019). *Colleges are helping students start careers in esports*. Retrieved from: <https://edition.cnn.com/2019/11/09/tech/tsm-esports-careers-college/index.html>.
- Linneman, J. (2017). *DF Retro: we play every single Doom console conversion*. Retrieved from: <https://www.eurogamer.net/articles/digitalfoundry-2017-every-doom-console-port-tested-and-analysed>.
- Linneman, J. (2017). *Digital Foundry: how Cuphead takes retro to the cutting edge*. Retrieved from: <https://www.eurogamer.net/articles/digitalfoundry-2017-how-cuphead-takes-retro-to-the-cutting-edge>.
- Linneman, J. (2018). *Red Dead Redemption 2 analysis: a once-in-a-generation technological achievement*. Retrieved from: <https://www.eurogamer.net/articles/digitalfoundry-2018-red-dead-redemption-2-tech-analysis>.
- Lipkin, N. (2013). An Art World for Artgames . *Indie, Eh?*. 7 (11).
- Lipkin, N. (2019). *The Indiepocalypse: the Political-Economy of Independent Game Development Labor in Contemporary Indie Markets*. Retrieved from: <http://gamestudies.org/1902/articles/lipkin>.
- Lister, B. (2018). *God of War Director Shares Early Development Footage*. Retrieved from: <https://gamerant.com/god-of-war-ps4-early-dev-footage-beta/>.
- Livingston, C. (2019). How battle royale changed the last decade of games (and the next one). Retrieved from: <https://www.pcgamer.com/uk/how-battle-royale-changed-the-last-decade-of-games-and-the-next-one/>.
- Logan, D. (2021). *Dissecting Discord: How to Set Up an Indie Game Discord*. Retrieved from: https://www.gamasutra.com/blogs/DavidLogan/20210310/378314/Dissecting_Discord_How_to_Set_Up_an_Indie_Game_Discord.php.
- Loomis, M. (2015). *Gaming Tutorials Can Tread A Thin Line Between Instructive & Patronizing*. Retrieved from: <https://gamerant.com/video-game-tutorials-good-bad-331/>.
- Lowensohn, J. (2009). *A brief history of downloadable console games*. Retrieved from: <https://www.cnet.com/news/a-brief-history-of-downloadable-console-games/>.
- Lowensohn, J. (2009). *A brief history of downloadable console games*. Retrieved from: <https://www.cnet.com/news/a-brief-history-of-downloadable-console-games/>.
- Lufkin, B. (2012). *Journey Becomes Fastest-Selling PlayStation Download Ever*. Retrieved from: <https://www.wired.com/2012/03/journey-sales/>.

Lyles, T. (2020). Cyberpunk 2077 dev breaks promise, will force employees to work six days a week. Retrieved from: <https://www.theverge.com/2020/9/29/21494499/cyberpunk-2077-development-crunch-time-cd-projekt-red>.

MacDonald, K. (2018). *Red Dead Redemption 2: three hours with the most anticipated game of the year*. Retrieved from: <https://www.theguardian.com/games/2018/oct/10/red-dead-redemption-2-wild-west-adventure-realism-preview>.

Macgregor, J. (2021). Apex Legends hits record Steam player count with 198,235 concurrents. Retrieved from: <https://www.pcgamer.com/uk/apex-legends-hits-record-steam-player-count-with-198235-concurrents/>.

Mackenzie, T. (2012). *App store fees, percentages, and payouts: What developers need to know*. Retrieved from: <https://www.techrepublic.com/blog/software-engineer/app-store-fees-percentages-and-payouts-what-developers-need-to-know/>.

Mackey, B. (2015). *The Road to Super Mario Maker*. Retrieved from: <https://www.usgamer.net/articles/the-road-to-super-mario-maker>.

Mackey, B. (2016). *'Final Fantasy XV' and Other Games that Escaped Development Hell*. Retrieved from: <http://fandom.wikia.com/articles/final-fantasy-xv-games-development-hell>.

Makar, C. (2019). *Failbetter Games' quest to eradicate crunch*. Retrieved from: <https://www.gamesindustry.biz/articles/2019-05-30-failbetter-games-quest-to-eradicate-crunch>.

Maria B. Garda, P. G. (2016). *Game Studies. Is Every Indie Game Independent? Towards the Concept of Independent Game*, 16(1).

Marks, T. (2016). *Interview: What's next for Stardew Valley*. Retrieved from: <https://www.pcgamer.com/uk/stardew-valley-interview/>.

Marks, T. (2016). *Interview: What's next for Stardew Valley*. Retrieved from: <https://www.pcgamer.com/uk/stardew-valley-interview/>.

Marks, T. (2017). *We asked developers how they would fix Early Access*. Retrieved from: <https://www.pcgamer.com/we-asked-developers-how-they-would-fix-early-access/>.

Marks, T. (2018). *Diablo: Immortal's Reveal Was an Unnecessary Mess*. Retrieved from: <https://uk.ign.com/articles/2018/11/07/diablo-immortals-reveal-was-an-unnecessary-mess>.

Marsal, K. (2008). *Carmack: iPhone more powerful than Nintendo DS, PSP combined*. Retrieved from: https://appleinsider.com/articles/08/08/01/carmack_iphone_more_powerful_than_nintendo_ds_psp_combined.

- Matthews, D. (2014). *The Independent AAA Proposition*. Hellblade. Retrieved from: <http://www.hellblade.com/?p=16972>.
- Matulef, J. (2015). *Bethesda removes paid mods in Skyrim* . Retrieved from: <https://www.eurogamer.net/articles/2015-04-28-bethesda-removes-paid-mods-in-skyrim>.
- Matulef, J. (2015). *Xbox 360 at 10: How XBLA changed the industry forever* . Retrieved from: <https://www.eurogamer.net/articles/2015-11-27-xbox-360-at-10-how-xbla-changed-the-industry-forever>.
- Matulef, J. (2016). *Resident Evil 7's demo isn't part of the full game*. Retrieved from: <https://www.eurogamer.net/articles/2016-06-14-resident-evil-7s-demo-isnt-part-of-the-full-game>.
- Matulef, J. (2016). *Skyrim and Fallout 4 will receive mod support on PS4*. Retrieved from: <https://www.eurogamer.net/articles/2016-10-05-skyrim-and-fallout-4-to-receive-mod-support-on-ps4>.
- Matulef, J. (2016). *Skyrim mods space is 1GB on PS4, but 5GB on Xbox One* . Retrieved from: <https://www.eurogamer.net/articles/2016-10-21-skyrim-mods-can-only-be-1gb-on-ps4-but-5gb-on-xbox-one>.
- Mäyrä, F. (2015). *Mobile Games*. Article Accessed Online: https://people.uta.fi/~frans.mayra/Mobile_Games.pdf.
- McAulay, C. (2017). *2D vs 3D Indie Games*. Retrieved from: <http://batholithgames.com/2d-vs-3d-indie-games/>.
- McCaffrey, R. (2015). *Opinion: How to Solve Xbox One's Indie Problem*. Retrieved from: <http://uk.ign.com/articles/2015/05/14/opinion-how-to-solve-xbox-ones-indie-problem>.
- McCaffrey, R. (2019). *Halo: The Master Chief Collection Review (2019)*. Retrieved from: <https://uk.ign.com/articles/2019/12/13/halo-the-master-chief-collection-review-2019>.
- McFerran, D. (2012). *Crippled by Nostalgia: The Fraud of Retro Gaming*. Retrieved from: <https://www.eurogamer.net/articles/2012-09-12-crippled-by-nostalgia-the-fraud-of-retro-gaming>.
- McFerran, D. (2012). *Crippled by Nostalgia: The Fraud of Retro Gaming*. Retrieved from: <https://www.eurogamer.net/articles/2012-09-12-crippled-by-nostalgia-the-fraud-of-retro-gaming>.
- McFerran, D. (2014). *Born slippy: the making of Star Fox*. Retrieved from: <https://www.eurogamer.net/articles/2013-07-04-born-slippy-the-making-of-star-fox>.
- McFerran, D. (2017). *Star Fox 2 and the legacy of the Super FX chip*. Retrieved from: <https://www.techradar.com/news/star-fox-2-and-the-legacy-of-the-super-fx-chip>.

- McFerran, D. (2019). Cadence of Hyrule Is What You Get When You Cross Crypt of the NecroDancer With Zelda. Retrieved from: https://www.nintendolife.com/news/2019/03/cadence_of_hyrule_is_what_you_get_when_you_cross_crypt_of_the_necrodancer_with_zelda.
- McGowan, D. (2019). *Cuphead: Animation, the Public Domain, and Home Video Remediation*. Retrieved from: <https://onlinelibrary.wiley.com/doi/full/10.1111/jpcu.12751>.
- McGrath, M. (n.d). *Something's wrong* . Retrieved from: <https://www.tate.org.uk/art/artists/tracey-emin-2590/somethings-wrong>.
- McHugh, A. (2018). *What is a Roguelike?*. Available: <https://www.greenmangaming.com/blog/what-is-a-roguelike/>.
- McMillen, E. (n.d). *Edmund McMillen (Bluebaby)*. Retrieved from: <https://bluebaby.newgrounds.com/games/>.
- McWhertor, M. (2014). *Call of Duty moving to 3-year, 3-studio dev cycle, Sledgehammer on 2014 game*. Retrieved from: <https://www.polygon.com/2014/2/6/5387530/call-of-duty-moving-to-3-year-3-studio-dev-cycle-sledgehammer-on-2014>.
- Meetup. (n.d). *Indie Games*. Retrieved from: <https://www.meetup.com/topics/indie-games/>.
- Mendonca, N. (2019). *Game Jam Survival Kit*. Retrieved from: https://www.gamasutra.com/blogs/NielissonMendonca/20190410/340456/Game_Jam_Survival_Kit.php.
- Meslow, S. (2018). *Revisiting Braid, the Indie Video Game That Set the Industry Ablaze*. Retrieved from: <https://www.gq.com/story/revisiting-braid-the-indie-video-game-that-set-the-industry-ablaze>.
- Messner, S. (2017). *The forgotten origins of JRPGs on the PC*. Retrieved from: <https://www.pcgamer.com/uk/the-forgotten-origins-of-jrpgs-on-the-pc/>.
- Metacritic. (2018). *Best Video Games of All Time*. Retrieved from: <http://www.metacritic.com/browse/games/score/metascore/all/all/filtered?sort=desc>.
- Mignano, M. (n.d). *Game development pipeline: from concept to store*. Retrieved from: <https://gamedevelopertips.com/game-development-pipeline/>.
- Minkinen, T. (2016). *Basics of Platform Games*. Degree Thesis. University of Applied Sciences, Vantaa.
- Minotti, M. (2014). *Here's who won each console war*. Retrieved from: <https://venturebeat.com/2014/08/20/heres-who-won-each-console-war/>.

- Minter, J and Minter, P. (2009). *A History of Llamasoft*. Retrieved from: <https://s3.amazonaws.com/lsshop/AHistoryofLlamasoft.pdf>.
- Mitchell, R. (2010). *Game-breaking bug found in Metroid: Other M*. Retrieved from: <https://www.engadget.com/2010/09/18/game-breaking-bug-found-in-metroid-other-m/>
- Moore, B. (2014). *Microsoft Can't Fix Its Halo: Master Chief Collection Fail*. Retrieved from: <https://www.wired.com/2014/12/halo-master-chief-collection/>.
- Moosa, T. (2017). *eSports are real sports. It's time for the Olympic video games*. Retrieved from: <https://www.theguardian.com/commentisfree/2017/aug/11/esports-olympic-video-games-ioc-gaming>.
- Moss, R. (2018). *7 notable puzzle-platformers every dev should study*. Retrieved from: https://www.gamasutra.com/view/news/313062/7_notable_puzzleplatformers_every_dev_should_study.php.
- Muncy, J. (2017). *You Might Not Miss Flash, But Videogames Will*. Retrieved from: <https://www.wired.com/story/rip-flash-games/>
- Murray, S. (2019). *Will There Ever Be Another Smash-Hit MOBA?*. Retrieved from: <https://www.thegamer.com/will-there-be-another-smash-hit-moba/>.
- Narcisse, E. (2012). *What the Hell These Game Developers Did with Your Kickstarter Money*. Retrieved from: <https://kotaku.com/what-the-hell-these-game-developers-did-with-your-kicks-5902280>.
- Narendra, S. (2016). *Exactly, What Does it Mean 'Independent' in Filmmaking?* Retrieved from: <http://filmmakersfans.com/meaning-of-indie-independent-filmmaking/>.
- Nettey, J. (2014). *Interview: Wii U Daily talks Pier Solar HD with WaterMelon Co.*. Retrieved from: <https://nintendotoday.com/pier-solar-hd-interview/>.
- Neugebauer, F. (2016). *The formation of sustainability strategies: An Action Research inquiry into sustainability strategy making in a corporate innovation project*. PhD Thesis. University of Kassel, Kassel.
- Niedenthal, S. (2011). *What We Talk About When We Talk About Game Aesthetics*. DiGRA '09 - Proceedings of the 2009 DiGRA International Conference: Breaking New Ground: Innovation in Games, Play, Practice and Theory.
- NintendoSoup. (2018). *Nintendo Reveals The Best Selling Switch Games in 2018 On The EShop in America*. Retrieved from: <https://nintendosoup.com/nintendo-reveals-the-best-selling-switch-games-in-2018-on-the-eshop-in-america/>.

- Nix, M. (2009). *IGN Presents the History of Final Fantasy*. Retrieved from: <https://www.ign.com/articles/2009/06/18/ign-presents-the-history-of-final-fantasy>.
- Northcountrynotes. (2007). *Exclusive Preview: Braid*. Retrieved from: http://www.northcountrynotes.org/jason-rohrer/arthouseGames/seedBlogs.php?action=display_post&post_id=jcr13_1170707395_0&show_author=1&show_date=1.
- Northfield, R. (2018). *Gaming's golden age: top 10 retro-vintage arcade classics*. Retrieved from: <https://eandt.theiet.org/content/articles/2018/07/gaming-s-golden-age-top-10-retro-vintage-arcade-classics/>.
- Nystedt, D. (2007). *Microsoft's 'Halo 3' Breaks First-Day Sales Records*. Retrieved from: <https://www.pcworld.com/article/137737/halo3.html>.
- Obenson, T. (2013). *How Do You Define Independent Film?* Indiewire. Retrieved from: <http://www.indiewire.com/2013/02/how-do-you-define-independent-film-138001/>.
- O'Connor, J. (2019). *Hideo Kojima Has Been Awarded Two Guinness World Records, But Not For What You Might Expect*. Retrieved from: <https://www.gamespot.com/articles/hideo-kojima-has-been-awarded-two-guinness-world-r/1100-6471334/>.
- O'Leary, A. (2012). *In Virtual Play, Sex Harassment Is All Too Real*. Retrieved from: <https://www.nytimes.com/2012/08/02/us/sexual-harassment-in-online-gaming-stirs-anger.html>.
- O'Reilly, T. (2005). *What Is Web 2.0*. Retrieved from: <https://www.oreilly.com/pub/a/web2/archive/what-is-web-20.html>.
- Orland, K. (2012). *Review: Papo & Yo's dreamlike fable will stick with you*. Retrieved from: <https://arstechnica.com/gaming/2012/08/review-papo-yos-dream-like-fable-will-stick-with-you/>.
- Orsini, L. (2015). *Why It's Time To Stop Arguing About Whether Video Games Are Art*. Retrieved from: <https://www.forbes.com/sites/laurenorsini/2015/09/17/game-art-puts-the-video-game-art-debate-to-bed-by-giving-creators-a-say/#31645a884e97>.
- Osborn, A. (2016). *PlayStation 3 Launch Price a 'Total Shock' to Microsoft – IGN Unfiltered*. Retrieved from: <http://uk.ign.com/articles/2016/07/27/playstation-3-launch-price-a-total-shock-to-microsoft-a-ign-unfiltered>.
- Osborn, A. (2018). *God of War Director Discusses Alleged Death of Single-Player Games*. Retrieved from: <https://uk.ign.com/articles/2018/05/04/god-of-war-director-discusses-alleged-death-of-single-player-games>.

- Osborn, A. (2018). *Resident Evil 7 Sales Pass 5 Million Units Worldwide*. Retrieved from: <http://uk.ign.com/articles/2018/04/09/resident-evil-7-sales-pass-5-million-units-worldwide>.
- OVH. (2019). *Game Servers*. Retrieved from: https://www.ovh.co.uk/dedicated_servers/game/.
- Ovide, S. (2019). *The 30 Percent App Fees Are Too Damn High*. Retrieved from: <https://www.bloomberg.com/news/articles/2019-01-07/the-30-percent-fees-app-developers-have-to-pay-are-too-damn-high>.
- Owen, D. (2013). *The story of Net Yaroze, Sony's first indie push*. Retrieved from: <https://www.eurogamer.net/articles/2013-07-16-the-story-of-yaroze-sonys-first-indie-push>.
- Oxspring, S. (2015). *#LincJam 24 Hour Game Jam*. Retrieved from: <https://oxyoxspring.co.uk/2015/11/19/lincjam-24-hour-game-jam/>.
- Parelius, R. (2019). *The Return of the LAN*. Retrieved from: <https://steelseries.com/blog/return-of-the-lan-89>.
- Parfitt, B. (2017). *Server crashes, 40GB patches and DLC: gaming's biggest irritations explained*. Retrieved from: <https://www.theguardian.com/technology/2017/jul/04/server-crashes-patches-dlc-video-game-irritations-explained>.
- Parish, J. (2013). *A Link Between Worlds: Looks Like Crap, Plays Like a Dream*. Retrieved from: <http://www.usgamer.net/articles/a-link-between-worlds-looks-like-crap-plays-like-a-dream>.
- Parish, J. (2016). *Mother 2 Soundtrack Reissue Review: It's EarthBound, for The Record*. Retrieved from: <https://www.usgamer.net/articles/mother-2-soundtrack-reissue-review-its-earthbound-for-the-record>.
- Parker, F. (2013). *An Art World for Artgames . Indie, Eh?. 7 (11)*.
- Parkin, S. (2008). *Jonathan Blow: The Path to Braid*. Retrieved from: https://www.gamasutra.com/view/feature/132180/jonathan_blow_the_path_to_braid.php.
- Parkin, S. (2013). *Earthbound retrospective*. Retrieved from: <https://www.eurogamer.net/articles/2013-07-28-earthbound-retrospective>.
- Parkin, S. (2015). *Jenova Chen: Journeyman*. Retrieved from: <https://www.eurogamer.net/articles/2012-04-02-jenova-chen-journeyman>.
- Parkin, S. (2018). *The great video game exodus*. Retrieved from: https://www.gamasutra.com/view/news/318588/The_great_video_game_exodus.php.
- patents.google.com. (n.d). *Cathode-ray tube amusement device*. Available: <https://patents.google.com/patent/US2455992A/en>.

Pearson, D. (2017). *Learning to love Dwarf Fortress, gaming's deepest simulation*. Retrieved from: <https://www.eurogamer.net/articles/2017-04-16-how-to-actually-get-started-in-dwarf-fortress-gamings-grandest-sim>.

Peckham, M. (2016). *Exclusive: See How Cuphead's Incredible Cartoon Graphics Are Made*. Retrieved from: <https://time.com/4123150/cuphead-preview/>.

Pereira, C. (2017). *2016's Best-Selling Games in the US Revealed*. Retrieved from: <https://www.gamespot.com/articles/2016s-best-selling-games-in-the-us-revealed/1100-6447090/>.

Petty, J. (2018). *How Dragon Quest's Creator Invented JRPGs: An Hour With Yuji Horii*. Retrieved from: <http://uk.ign.com/articles/2018/08/29/how-dragon-quests-creator-invented-jrpgs-an-hour-with-yuji-horii>.

Phillips, T. (2015). "Don't clone my indie game, bro": Informal cultures of videogame regulation in the independent sector. *Cultural Trends*. 24 (2), p143-153.

Phillips, T. (2020). *Cyberpunk 2077 developer will force six-day weeks leading up to launch* . Retrieved from: <https://www.eurogamer.net/articles/2020-09-30-cyberpunk-2077-developer-will-force-six-day-weeks-leading-up-to-launch>.

Picalo, C. (2017). *Top 15 Highest Grossing Video Game Franchises Of All Time*. Retrieved from: <https://www.thegamer.com/top-15-highest-grossing-video-game-franchises-of-all-time/>.

Pierce, D. (2018). *The WIRED Guide to the iPhone*. Retrieved from: <https://www.wired.com/story/guide-iphone/>

Plagge, K. (2018). *Undertale Review*. Retrieved from: <https://uk.ign.com/articles/2018/09/18/undertale-review>.

Plante, C. (2017). *Apogee: Where Wolfenstein got its start*. Retrieved from: <https://www.polygon.com/features/2017/10/26/16511514/wolfenstein-origins-apogee>.

Plunkett, L. (2009). *Modern Warfare 2 Gets Dedicated PC Servers (Well, Sort Of)*. Retrieved from: <https://kotaku.com/506391461>.

Plunkett, L. (2011). *What Makes the Mother Series so Great?* Retrieved from: <https://kotaku.com/what-makes-the-mother-series-so-great-5836442>.

Poh, M. (2018). *Evolution of Home Video Game Consoles: 1967 – 2011*. Retrieved from: <https://www.hongkiat.com/blog/evolution-of-home-video-game-consoles-1967-2011/>.

Polygon. (2017). *he 500 best games of all time: 100-1*. Retrieved from: <https://www.polygon.com/features/2017/12/1/16707720/the-500-best-games-of-all-time-100-1>.

- Ponce, T. (2013). *AAA game development teams are too damn big*. Retrieved from: <https://www.destructoid.com/aaa-game-development-teams-are-too-damn-big-247366.phtml>.
- Powell, S. (2015). *Why we still love platform games*. Retrieved from: <https://www.bbc.co.uk/news/newsbeat-34070835>.
- Prassol, A. (1999). *Some Features of the Sentence-Final Particles in Japanese*. Retrieved: <https://core.ac.uk/display/70372283?recSetID=>
- Priestman, C. (2015). *The glory days of Net Yaroze as told by the game creators who were there*. Retrieved from: <https://killscreen.com/previously/articles/glory-net-yaroze-game-creators-there/>.
- Prokos, H. (2019). Zoë Quinn Accuses 'Night in the Woods' Game Developer and Ex-Partner Alec Holowka of Harassment and Abuse. Retrieved from: <https://www.newsweek.com/zoe-quinn-accuses-night-woods-game-developer-ex-partner-alec-holowka-harassment-abuse-1456452>.
- Purchase, R. (2010). *How green is the games industry?*. Retrieved from: <https://www.eurogamer.net/articles/how-green-is-the-games-industry>.
- Purchase, R. (2011). *Games industry votes Apple as biggest influence*. Retrieved from: <https://www.eurogamer.net/articles/2011-11-02-games-industry-votes-apple-as-biggest-influence>.
- Purchase, R. (2011). *Triple-A games are "crushing innovation"*. Retrieved from: <https://www.eurogamer.net/articles/2011-09-06-triple-a-games-are-crushing-innovation>.
- Purchase, R. (2011). *Witcher dev making two "AAA+" games for 2014/15*. Retrieved from: <https://www.eurogamer.net/articles/2011-11-18-witcher-dev-making-two-aaa-games-for-2014-15#comments>.
- Purchase, R. (2014). *LittleBigPlanet Final Fantasy 7 remake finished*. Retrieved from: <https://www.eurogamer.net/articles/2014-11-18-littlebigplanet-final-fantasy-7-remake-finished>
- Purchase, R. (2017). *Is Kickstarter for video games dead?*. Retrieved from: <https://www.eurogamer.net/articles/2017-05-11-is-kickstarter-for-video-games-dead>.
- Qualls, E. (2017). *What is the Xbox Live Arcade?*. Retrieved from: <https://www.lifewire.com/what-is-the-xbox-live-arcade-3563181>.
- Quinn, Z. (2019). *Zoe Quinn Twitter*. Retrieved from: <https://twitter.com/UnburntWitch/status/1166212005629325313>.
- Quora. (2018). *Are single player games dying? Do video game industries realise that there is a significant portion of gamers who are introverted?*. Retrieved from: <https://www.quora.com/Are>

[single-player-games-dying-Do-video-game-industries-realise-that-there-is-a-significant-portion-of-gamers-who-are-introverted.](#)

Rabin, N. (2012). *Landfill-Ready Case File #13: E.T.: The Extra-Terrestrial (Atari 2600)*. Retrieved from: [https://games.avclub.com/landfill-ready-case-file-13-e-t-the-extra-terrestri-1798230802.](https://games.avclub.com/landfill-ready-case-file-13-e-t-the-extra-terrestri-1798230802)

Radulovic, P. (2018). *Journey comes to PC for the first time*. Retrieved from: [https://www.polygon.com/game-awards-tga/2018/12/6/18130052/journey-pc-trailer-release-tga-2018.](https://www.polygon.com/game-awards-tga/2018/12/6/18130052/journey-pc-trailer-release-tga-2018)

Ramsey, R. (2018). *Blizzard Reiterates More Diablo Projects are in the Works After Diablo Immortal Backlash*. Retrieved from: [http://www.pushsquare.com/news/2018/11/blizzard_reiterates_more_diablo_projects_are_in_the_works_after_diablo_immortal_backlash.](http://www.pushsquare.com/news/2018/11/blizzard_reiterates_more_diablo_projects_are_in_the_works_after_diablo_immortal_backlash)

Rancea, B. (2019). *Why Pixel Art Can Be a Perfect Training Ground for Graphic Design*. Retrieved from: [https://ecommerce-platforms.com/articles/why-pixel-art-can-be-a-perfect-training-ground-for-graphic-design.](https://ecommerce-platforms.com/articles/why-pixel-art-can-be-a-perfect-training-ground-for-graphic-design)

Reddit (Mystic87). (2016). *Why do people hate RPG maker and the games made using it?*. Retrieved from: [https://www.reddit.com/r/Games/comments/44wyuy/why_do_people_hate_rpg_maker_and_the_games_made/.](https://www.reddit.com/r/Games/comments/44wyuy/why_do_people_hate_rpg_maker_and_the_games_made/)

Reddit. (2017). *Do you think Indies will ever embrace retro 3D graphics?*. Retrieved from: [https://www.reddit.com/r/truегaming/comments/4mnu52/do_you_think_indies_will_ever_embrace_retro_3d/.](https://www.reddit.com/r/truегaming/comments/4mnu52/do_you_think_indies_will_ever_embrace_retro_3d/)

Reddit. (2018). *The Death of the Single Player Game*. Retrieved from: [https://www.reddit.com/r/gaming/comments/6gv1j8/the_death_of_the_single_player_game/.](https://www.reddit.com/r/gaming/comments/6gv1j8/the_death_of_the_single_player_game/)

Reddit. (2019). *C&C Update from EA*. Retrieved from: [https://www.reddit.com/r/commandandconquer/comments/9nbrfm/cc_update_from_ea/.](https://www.reddit.com/r/commandandconquer/comments/9nbrfm/cc_update_from_ea/)

Reddit. (2019). *Can we have fallout 4 for xbox have its mod limit size increased to atleast 3gb?*
Retrieved from: [https://www.reddit.com/r/Fallout/comments/a7m3a9/can_we_have_fallout_4_for_xbox_have_its_mod_limit/.](https://www.reddit.com/r/Fallout/comments/a7m3a9/can_we_have_fallout_4_for_xbox_have_its_mod_limit/)

Reddit. (2019). *Diablo on mobile*. Retrieved from: [https://www.reddit.com/r/Diablo/comments/9tnawi/diablo_on_mobile/.](https://www.reddit.com/r/Diablo/comments/9tnawi/diablo_on_mobile/)

Reddit. (2019). *Modern AAA video games try too hard to be movies or "experiences" that they often forget how to be a video game*. Retrieved from:

https://www.reddit.com/r/Games/comments/b036y8/modern_aaa_video_games_try_too_hard_to_be_movies/.

Reddit. (n.d). *Retro Gaming: Gaming in the 70s, 80s, and 90s*. Available:

<https://www.reddit.com/r/retrogaming/>.

Reed, C. (2018). *Multiple Diablo Projects Are In The Works At Blizzard*. Retrieved from:

<https://www.gamespot.com/articles/multiple-diablo-projects-are-in-the-works-at-blizz/1100-6461021/>.

Regan, T. (2017). *'Cuphead' Interview: How 3 Corporate Workers Made 2017's Most Exciting Indie*.

Retrieved from: <https://www.fandom.com/articles/cuphead-interview-indie>.

Reilly, J. (2012). *Why Dead Space 2 Has Multiplayer*. Retrieved from:

<https://uk.ign.com/articles/2010/09/13/why-dead-space-2-has-multiplayer>.

Reilly, L. (2017). *GTA Online: From Near Failure to Grand Success*. Retrieved from:

<https://za.ign.com/grand-theft-auto-online/112347/feature/gta-online-from-near-failure-to-grand-success>.

Reilly, L. (2018). *Red Dead Redemption 2 Review*. Retrieved from:

<https://uk.ign.com/articles/2018/10/25/red-dead-redemption-2-review>.

Reimer, J. (2005). *Total share: 30 years of personal computer market share figures*. Retrieved from:

<https://arstechnica.com/features/2005/12/total-share/5/>.

Reseigh-Lincoln, D. (2017). *Skins, Smurfs and Skyrim: A brief history of PC modding*. Retrieved

from: <https://www.techradar.com/news/skins-smurfs-and-skyrim-a-brief-history-of-pc-modding>.

Resetera. (2018). *The never ending trend of 2D indie games going after the pixel art look is getting*

tiring. Retrieved from: <https://www.resetera.com/threads/the-never-ending-trend-of-2d-indie-games-going-after-the-pixel-art-look-is-getting-tiring.20752/>.

Resistance Studio. (2018). *Making your Pixel Art Game look Pixel Perfect in Unity3D*. Retrieved

from: <https://hackernoon.com/making-your-pixel-art-game-look-pixel-perfect-in-unity3d-3534963cad1d>.

Ritchie, R. (2018). *App Store Year Zero: Unsweet web apps and unsigned code drove iPhone to an*

SDK. Retrieved from: <https://www.imore.com/history-app-store-year-zero>.

Rivington, J. (2008). *Sony PlayStation: The first 20 years*. Retrieved from:

<https://www.techradar.com/uk/news/gaming/consoles/sony-playstation-the-first-20-years-249792>.

- Roberts, S. (2018). *The influence of Nintendo on indie games*. Retrieved from: <https://www.pcgamer.com/uk/the-influence-of-nintendo-on-indie-games/>.
- Robertson, A. (2015). *Unity officially releases its new game engine: Unity 5*. Retrieved from: <https://www.theverge.com/2015/3/3/8142099/unity-5-engine-release>.
- Robinson, M. (2016). "Never in my wildest imagination did I think *The Last Guardian* would take this long". Retrieved from: <https://www.eurogamer.net/articles/2016-11-10-never-in-my-wildest-imagination-did-i-think-the-last-guardian-would-take-this-long>.
- Robinson, M. (2018). *Unbottling Sonic's secret sauce: the making of Sonic Mania*. Retrieved from: <https://www.eurogamer.net/articles/2018-07-19-unbottling-sonics-secret-sauce-the-making-of-sonic-mania>.
- Robinson, M. (2019). *Red Dead Redemption 2 review - a peerless open world, and a story in the shadow of its predecessor*. Retrieved from: https://www.eurogamer.net/articles/2018-10-25-red-dead-redemption-2-review_9.
- Romano, A. (2021). *What we still haven't learned from Gamergate*. Retrieved from: <https://www.vox.com/culture/2020/1/20/20808875/gamergate-lessons-cultural-impact-changes-harassment-laws>.
- Roper, C. (2008). *LittleBigPlanet Review*. Retrieved from: <http://uk.ign.com/articles/2008/10/13/littlebigplanet-review?page=1>.
- Rose, M. (2013). *How indies made an impact on a generation of game consoles*. Retrieved from: https://www.gamasutra.com/view/feature/205136/how_indies_made_an_impact_on_a_.php.
- Rouse, L. (2020). *Former Cyberpunk 2077 Dev Talks About Their Experience With Crunch*. Retrieved from: <https://www.kotaku.com.au/2020/10/cyberpunk-2077-ps5-xbox-crunch-culture-former-dev/>.
- Salter, A and Murray, J. (2014). *How Flash Games Shaped the Internet*. Retrieved from: <https://www.theatlantic.com/technology/archive/2014/11/how-flash-games-shaped-the-internet/383136/>.
- Samyn, M. (2011). *Gamers vs Developers vs Publishers*. Retrieved from: https://v1.escapistmagazine.com/articles/view/video-games/issues/issue_291/8608-Almost-Art.
- Sanders, M. (2018). *Diablo Immortal Trailer Receives Huge Down Votes On YouTube*. Retrieved from: <https://www.eteknix.com/diablo-immortal-trailer/>.
- Santangelo, N. (2018). *EA Announces Command & Conquer, Red Alert Remasters*. Retrieved from: <https://uk.ign.com/articles/2018/11/14/ea-announces-command-conquer-red-alert-remasters>.

Sao, A. (n.d). *Super Mario Bros. & Super Mario Bros. 3 Interview with Shigeru Miyamoto, Takeshi Tezuka, and Koji Kondo*. Retrieved from: <https://www.nintendo.com/nes-classic/super-mario-bros-and-super-mario-bros-3-developer-interview/>.

Sarkar, S. (2014). *Microsoft officially owns Minecraft and developer Mojang now*. Retrieved from: <https://www.polygon.com/2014/11/6/7167349/microsoft-owns-minecraft-mojang-acquisition-closes>.

Savage, J. (no date). *Coming of Age with the Internet: Remembering Web 1.0*. Retrieved from: <http://theamericanreader.com/coming-of-age-with-the-internet-remembering-web-1-0/>.

Sayer, M. (2017). *The surprising explosion of RPG Maker on Steam*. Retrieved from: <https://www.pcgamer.com/the-surprising-explosion-of-rpg-maker-on-steam/>.

Schilling, C. (2018). *The making of Undertale*. Retrieved from: <https://www.pcgamer.com/the-making-of-undertale/>.

Schmitz, T. (2014). *Inside Nintendo 48: Über die wahren Retter von Prinzessin Zelda*. Retrieved from: <http://nintendo-online.de/artikel/report/18302/inside-nintendo-48-ber-die-wahren-retter-von-prinzessin-zelda>.

Schreier, J. (2012). *This RPG Was First Released On Sega Genesis. Now It's Coming To Dreamcast. (And Xbox)*. Retrieved from: <https://kotaku.com/this-rpg-was-first-released-on-sega-genesis-now-its-co-5964575>.

Schreier, J. (2015). *Microsoft Punishes Gears of War Leakers [UPDATE]*. Retrieved from: <https://kotaku.com/microsoft-punishes-gears-leakers-by-making-their-xbox-o-1704531500>.

Schreier, J. (2018). *Some Reasons Why The Games Industry Is So Secretive (And Why Maybe It Shouldn't Be)*. Retrieved from: <https://kotaku.com/some-reasons-why-the-games-industry-is-so-secretive-an-1825929139>.

Schreier, J. (2018). *Some Reasons Why The Games Industry Is So Secretive (And Why Maybe It Shouldn't Be)*. Retrieved from: <https://kotaku.com/some-reasons-why-the-games-industry-is-so-secretive-an-1825929139>.

Schreier, J. (2018). *The 'Magic Formula' Behind Horizon: Zero Dawn's Success*. Retrieved from: <https://kotaku.com/the-magic-formula-behind-horizon-zero-dawns-success-1823647530>.

Schreier, J. (2018). *The 'Magic Formula' Behind Horizon: Zero Dawn's Success*. Retrieved from: <https://kotaku.com/the-magic-formula-behind-horizon-zero-dawns-success-1823647530>.

Schreier, J. (2019). *As Cyberpunk 2077 Development Intensifies, CD Projekt Red Pledges To Be 'More Humane' To Its Workers*. Retrieved from: <https://kotaku.com/as-cyberpunk-2077-development-intensifies-cd-projekt-r-1834849725>.

Schreier, J. (2019). *Breath Of The Wild Is Getting A Sequel Because The Team Had Too Many DLC Ideas (And Other Info From Zelda's Producer)*. Retrieved from: <https://kotaku.com/breath-of-the-wild-is-getting-a-sequel-because-the-team-1835624233?IR=T>.

Schreier, J. (2020). *Cyberpunk 2077 Publisher Orders 6-Day Weeks Ahead of Launch*. Retrieved from: <https://www.bloomberg.com/news/articles/2020-09-29/cyberpunk-2077-publisher-orders-6-day-weeks-ahead-of-game-debut>.

Schultz, W. (2018). *What Is a AAA Video Game?*. Retrieved from: <https://www.thoughtco.com/what-is-aaa-game-1393920>.

Scott, J. (2017). *Retro gaming: Why players are returning to the classics*. Retrieved from: <https://www.bbc.co.uk/news/uk-40427838>.

Scott-Jones, R. (2016). *With 25 million sold, is CS:GO the bestselling game on PC?*. Retrieved from: <https://www.pcgamesn.com/counter-strike-global-offensive/csgo-bestselling-pc-game-minecraft>.

Samuels, A. (2019). *'Every Game You Like Is Built on the Backs of Workers.'* Video Game Creators Are Burned Out and Desperate for Change. Retrieved from: <https://time.com/5603329/e3-video-game-creators-union/>.

Servideo, Z. (2016). *Gamemakers spent nearly \$630M on TV ads in 2015*. Retrieved from: <https://venturebeat.com/2016/01/11/gamemakers-spent-nearly-630m-on-tv-ads-in-2015/>.

Sevakis, J. (2016). *Why Is It Unusual For Japanese People To Use Computers?*. Retrieved from: <https://www.animenewsnetwork.com/answerman/2016-05-23/102406>.

Shaver, M. (2017). *Indie or Not: Finding Success Within the Industry*. Retrieved from: <https://ag.hyperxgaming.com/article/3355/indie-or-not-finding-success-within-the-industry>.

Shaw, P. (2012). *Memories of Abusive Childhood Inspire Emotional PlayStation Game*. Retrieved from: <https://www.wired.com/2012/03/papo-and-yo-vander-caballero/>.

Shea, C. (2012). *Al Alcorn Interview*. Retrieved from: <https://uk.ign.com/articles/2008/03/11/al-alcorn-interview?page=1>.

Sheffield, B. (2007). *Llamas In Space: Catching Up with Llamasoft's Jeff Minter*. Retrieved from: https://www.gamasutra.com/view/feature/129999/llamas_in_space_catching_up_with_.php.

Sherr, I. (2017). *Just admit it, we love game sequels*. Retrieved from: <https://www.cnet.com/news/e3-there-are-a-lot-of-video-game-sequels-and-thats-not-gonna-change/>.

- Sinclair, B. (2013). *Ubisoft Montreal: Convincing a AAA studio to try "indie" games*. Retrieved from: <https://www.gamesindustry.biz/articles/2013-11-05-ubisoft-montreal-convincing-a-aaa-studio-to-try-indie-games>.
- Sini, R. (2017). *How 'MeToo' is exposing the scale of sexual abuse*. Retrieved from: <https://www.bbc.co.uk/news/blogs-trending-41633857>.
- Skipper, B. (2016). *Battlefield 1 interview: EA Studios EVP on World War 1 setting, single player, remasters and horses*. Retrieved from: https://www.ibtimes.co.uk/battlefield-1-interview-ea-studios-evp-world-war-1-setting-single-player-remasters-horses-1558771?es_p=1774145.
- Sliva, M. (2018). *Red Dead Redemption 2 -- Road to E3 2018*. Retrieved from: <https://uk.ign.com/articles/2018/05/22/red-dead-redemption-2-road-to-e3-2018>.
- Smith, C. (2014). *Here's the real reason Flappy Bird was removed*. Retrieved from: <https://bgr.com/2014/02/11/why-flappy-bird-was-removed/>
- Smith, D. (2000). *Tony Hawk's Pro Skater 2*. Retrieved from: <http://uk.ign.com/articles/2000/09/20/tony-hawks-pro-skater-2-7>.
- Smith, E. (2017). *How Third-Party Game Devs Reverse-Engineered Their Way Onto Your Consoles (and Into Your Heart)*. Retrieved from: https://motherboard.vice.com/en_us/article/9amg87/how-third-party-game-devs-reverse-engineered-their-way-onto-your-consoles-nintendo-sega-atari.
- Smith, G. (2014). *Total Converts: Unpotting The History Of Half-Life Modding*. Retrieved from: <https://www.rockpapershotgun.com/2014/05/08/total-converts-a-potted-history-of-half-life-modding/>
- Smith, K. (2012). *History of the Dot-Com Bubble Burst and How to Avoid Another*. Retrieved from: <https://www.moneycrashers.com/dot-com-bubble-burst/>.
- Snyder, C. (2013). *4 Ways To Improve The Performance Of Flash Games*. Retrieved from: <https://www.makeuseof.com/tag/4-ways-to-improve-the-performance-of-flash-games/>.
- Soma. (2015). *Sakurai on Melee: Pushing the Limits*. Retrieved from: <https://www.sourcegaming.info/2015/08/10/sakuraimelee/>.
- Sotamaa, O. (2008). *When the Game Is Not Enough: Motivations and Practices Among Computer Game Modding Culture*. *Games and Culture*. 5 (3).
- Spalding, J. (2012). *Julian Spalding: Damien Hirsts are the sub-prime of the art world*. Retrieved from: <https://www.independent.co.uk/voices/commentators/julian-spalding-damien-hirsts-are-the-sub-prime-of-the-art-world-7586386.html>.

Spence, E. (2014). *Freemium Is The New Shareware, As In-App Purchasing Matches Traditional Conversion Rates*. Retrieved from: <https://www.forbes.com/sites/ewanspence/2014/03/01/freemium-is-the-new-shareware-as-in-app-purchasing-matches-traditional-conversion-rates/#79ab4b977e55>.

Srikant, R. (2019). *The Economics of Gaming Consoles (SNE, MSFT)*. Retrieved from: <https://www.investopedia.com/articles/investing/080515/economics-gaming-consoles.asp>.

SS_Downboat. (2020). *Cyberpunk 2077 Dev Team Will Work Extra Long Hours After Latest Delay*. Retrieved from: https://www.reddit.com/r/Games/comments/epwa0q/cyberpunk_2077_dev_team_will_work_extra_long/.

Stafford, P. (2016). *Solo Indie Game Development – Not for Faint of Heart*. Retrieved from: <https://www.rollingstone.com/culture/culture-news/solo-indie-game-development-not-for-faint-of-heart-160478/>.

Stanford, D. (2017). *What makes a successful eSports game*. Retrieved from: https://www.gamasutra.com/blogs/DanielStanford/20170307/292977/What_makes_a_successful_eSports_game.php.

Stanton, R. (2015). *Halo: The Master Chief Disaster*. Retrieved from: <https://www.vg247.com/2015/01/26/halo-the-master-chief-disaster/>.

Stanton, R. (2016). *Rocket League: how the game's overnight success was a decade in the making*. Retrieved from: <https://www.theguardian.com/technology/2016/sep/06/rocket-league-psyonix-online-sports-game-football-motor-racing-combat>.

Starkey, D. (2016). *How the hell is Super Smash Bros. Melee still this popular?.* Retrieved from: <https://www.geek.com/tech/how-the-hell-is-smash-bros-melee-still-this-popular-1662268/>.

Statt, N. (2018). *Valve's new Steam revenue agreement gives more money to game developers*. Retrieved from: <https://www.theverge.com/2018/11/30/18120577/valve-steam-game-marketplace-revenue-split-new-rules-competition>.

Steam. (2019). *Enderal: Forgotten Stories*. Retrieved from: https://store.steampowered.com/app/933480/Enderal_Forgotten_Stories/.

SteamCommunity (Davadin). (2017). *What Makes a Good/Bad RPG Maker Game?.* Retrieved from: <https://steamcommunity.com/app/220700/discussions/0/1484359403777443946/>.

Strickland, D. (2017). *Square Enix commits to games as a service business model*. Retrieved from: <https://www.tweaktown.com/news/59228/square-enix-commits-games-service-business-model/index.html>.

- Stuart, K. (2005). *Jeff Minter vs Xbox 360: how Microsoft bought the light synth vision*. Retrieved from: <https://www.theguardian.com/technology/gamesblog/2005/jul/05/jeffmintervs>.
- Stuart, K. (2014). *Gamergate: the community is eating itself but there should be room for all*. Retrieved from: <https://www.theguardian.com/technology/2014/sep/03/gamergate-corruption-games-anita-sarkeesian-zoe-quinn>.
- Stuart, K. (2019). *Battle royale: the design secrets behind gaming's biggest genre*. Retrieved from: <https://www.theguardian.com/games/2019/feb/23/battle-royale-games-design-fortnite-pubg-call-of-duty>.
- Stuart, K. (2019). *Fortnite World Cup kicks off with \$30m at stake*. Retrieved from: <https://www.theguardian.com/games/2019/jul/26/fortnite-world-cup-kicks-off-with-30-million-at-stake-professional-games-tournament>.
- Stubbs, M. (2019). *The incredible rise of Dota*. Retrieved from: <https://www.redbull.com/gb-en/the-history-of-dota>.
- Sulic, I. (2004). *Alien Hominid: The Truth*. Retrieved from: <http://uk.ign.com/articles/2004/11/24/alien-hominid-the-truth>.
- Sullivan, L. (2013). *Papo & Yo review*. Retrieved from: <https://www.gamesradar.com/uk/papo-yo-review/>.
- Sullivan, M. (2013). *The Harsh Reality of Indie Game Success*. Retrieved from: <https://uk.ign.com/articles/2013/07/23/the-harsh-reality-of-indie-game-success>.
- Supercell. (2019). *Clan War Leagues Matchmaking - how does it work?*. Retrieved from: <https://supercell.helpshift.com/a/clash-of-clans/?s=clan-war-leagues&f=clan-war-leagues-matchmaking---how-does-it-work&p=web>.
- Surette, T. (2005). *Xbox 360 pricing revealed: \$299 and \$399 models due at launch*. Retrieved from: <https://www.gamespot.com/articles/xbox-360-pricing-revealed-299-and-399-models-due-at-launch/1100-6131245/>.
- Suszek, M. (2014). *1930s cartoon-inspired Cuphead targeting late 2014 on PC*. Retrieved from: <https://www.engadget.com/2014/01/04/1930s-cartoon-inspired-cuphead-targeting-late-2014-launch-on-pc/>.
- Szabo, C. (2010). *Independent, Mainstream and In Between: How and Why Indie Films Have Become Their Own Genre*, Honors Thesis, Pace University, New York.

Takahashi, D. (2016). *Vlamber's Rami Ismail shows why speaking out on behalf of indies pays off*. Retrieved from: <https://venturebeat.com/2016/05/08/vlamberts-rami-ismail-shows-why-speaking-out-on-behalf-of-indies-pays-off/>.

Takahashi, D. (2017). *Assassin's Creed: Origins — How Ubisoft created the art for the massive open world*. Retrieved from: <https://venturebeat.com/2017/12/17/how-ubisoft-created-the-art-for-the-massive-world-of-assassins-creed-origins/view-all/>.

Takahashi, D. (2018). *The DeanBeat: How much did Red Dead Redemption 2 cost to make? (updated)*. Retrieved from: <https://venturebeat.com/2018/10/26/the-deanbeat-how-much-did-red-dead-redemption-2-cost-to-make/>.

Takahashi, D. (2019). *How Devolver Digital pursues the indie fringe and brings it to mainstream gamers*. Retrieved from: <https://venturebeat.com/2019/06/28/how-devolver-digital-pursues-the-indie-fringe-and-brings-it-to-mainstream-gamers/>.

Takahashi, D. (2019). *How Devolver Digital pursues the indie fringe and brings it to mainstream gamers*. Retrieved from: <https://venturebeat.com/2019/06/28/how-devolver-digital-pursues-the-indie-fringe-and-brings-it-to-mainstream-gamers/>.

Takahashi, D. (2020). *Sexual abuse allegations rock the game industry again*. Retrieved from: <https://venturebeat.com/2020/06/24/sexual-abuse-allegations-rock-the-game-industry-again/>.

Te, Z. (2014). *Dust to Dust: The History of Counter-Strike*. Retrieved from: <https://www.gamespot.com/articles/dust-to-dust-the-history-of-counter-strike/1100-6419676/>.

Te, Z. (2014). *Dust to Dust: The History of Counter-Strike*. Retrieved from: <https://www.gamespot.com/articles/dust-to-dust-the-history-of-counter-strike/1100-6419676/>.

Tham, P. (2015). *Pixel Perfect 2D*. Retrieved from: <https://blogs.unity3d.com/2015/06/19/pixel-perfect-2d/>.

The best teams make the best games. (2016). Retrieved from: <http://supercell.com/en/our-story/>.

Thier, D. (2017). *Yes, AAA Single-Player Games Are Dying, And That's Fine*. Retrieved from: <https://www.forbes.com/sites/davidthier/2017/10/18/star-wars-visceral-yes-aaa-single-player-games-are-dying-thats-fine/#5cb5079468aa>.

Thomas, J. (2016). *Why Retro and Indie Gaming Might Save the Industry*. Retrieved from: <https://culturedvultures.com/why-retro-and-indie-gaming-might-save-the-industry/>.

- Thompson, D. (2013). *The Big Business of Big Hits: How Blockbusters Conquered Movies, TV, and Music*. Retrieved from: <https://www.theatlantic.com/business/archive/2013/10/the-big-business-of-big-hits-how-blockbusters-conquered-movies-tv-and-music/280298/>.
- Thursten, C. (2017). *How PlayerUnknown's Battlegrounds emerged from the messy history of survival shooters*. Retrieved from: <https://www.eurogamer.net/articles/2017-06-29-how-playerunknowns-battlegrounds-emerged-from-the-messy-history-of-survival-shooters>.
- Tidy, J. (2019). *Fortnite: UK player finishes second in e-sports World Cup*. Retrieved from: <https://www.bbc.co.uk/news/technology-49141738>.
- Tidy, J. (2019). *The cheat hackers 'ruining' gaming for others*. Retrieved from: <https://www.bbc.co.uk/news/av/technology-49740155/the-cheat-hackers-ruining-gaming-for-others>.
- Tighe, M and Longhurst, S. (2019). *Tips on porting your indie game (and how we can help!)*. Retrieved from: https://www.gamasutra.com/view/news/338042/Tips_on_porting_your_indie_game_and_how_we_can_help.php.
- Tong, S. (2011). *Creating a AAA Indie Game*. Gamespot. Retrieved from: <http://www.gamespot.com/articles/creating-a-aaa-indie-game/1100-6324719/>
- Tuffcooke. (2020). *CD Projekt Red is breaking their promise of no crunch and forcing a mandatory six day work week until release*. Retrieved from: https://www.reddit.com/r/cyberpunkgame/comments/j294ea/cd_projekt_red_is_breaking_their_promise_of_no/.
- Unity. (n.d). *Extend the power of the world's most performant real-time development platform*. Retrieved from: <https://unity.com/products>.
- USgamer. (2018). *What's Your Favorite Puzzle Game?*. Retrieved from: <https://www.usgamer.net/articles/whats-your-favorite-puzzle-game>.
- Usher, W. (2014). *The Witness Dev: Microsoft Threatened To Ruin My Life*. Retrieved from: <https://www.cinemablend.com/games/Witness-Dev-Microsoft-Threatened-Ruin-My-Life-61068.html>.
- Valdes, G. (2016). *Final Fantasy XV director on keeping a flagship Japanese series relevant in 2016*. Venturebeat. Retrieved from: <http://venturebeat.com/2016/06/12/final-fantasy-xv-director-on-keeping-a-japanese-flagship-series-relevant-in-2016/>
- Valentine, R. (2019). *The accidental authenticity of Devolver Digital*. Retrieved from: <https://www.gamesindustry.biz/articles/2019-05-21-the-accidental-authenticity-of-devolver-digital>.

- Valentine, R. (2021). *Update: Riot Games Special Committee Says "No Evidence" its CEO Sexually Harassed Assistant*. Retrieved from: <https://www.ign.com/articles/former-employee-sues-riot-games-ceo-for-sexual-harassment-discrimination>.
- Vargas-Iglesias, J. (2018). Making sense of genre: The logic of videogame genre organization. *Games and Culture*. 15 (2), p158-178.
- Vine, R. (2008). *What is indie cinema?* The Guardian. Retrieved from: <https://www.theguardian.com/film/filmblog/2008/nov/04/what-is-indie-cinema>.
- Volcomm. (2018). *Who says lan parties are dead?!*. Retrieved from: https://www.reddit.com/r/gaming/comments/6w6tdo/who_says_lan_parties_are_dead/.
- Volpe, J. (2015). *It's complicated: Nintendo's relationship with indie gaming*. Retrieved from: <https://www.engadget.com/2015/03/04/nintendo-indie-gaming/>.
- Wade, J. (2018). *Blizzard Scales Down Heroes of the Storm Development*. Retrieved from: <https://uk.ign.com/articles/2018/12/14/blizzard-scales-down-heroes-of-the-storm-development>.
- Wade, J. (2018). *In Wake of Red Dead 2 Crunch Discussion, Rockstar Office Now Explicitly Told Overtime Is Optional*. Retrieved from: <https://uk.ign.com/articles/2018/10/19/in-wake-of-red-dead-2-crunch-discussion-rockstar-office-now-explicitly-told-overtime-is-optional>.
- Wade, J. (2018). *Update: Blizzard Says It 'Didn't Pull Any Announcements From BlizzCon'*. Retrieved from: <https://uk.ign.com/articles/2018/11/06/diablo-4-announcement-reportedly-pulled-from-blizzcon-2018>.
- Wallett, A. (2016). *David Crane (Atari) – Interview*. Retrieved from: <http://www.arcadeattack.co.uk/david-crane/>. Last accessed 1st March 2018.
- Walt. (2017). *(Not so) Quick thoughts on Final Fantasy XV and its lack of direction*. Retrieved from: <https://medium.com/@watsu/not-so-quick-thoughts-on-final-fantasy-xv-and-its-lack-of-direction-3d134bd2591a>.
- Walton, M. (2017). *iPhone at 10: How Apple changed gaming for the better and the worse*. Retrieved from: <https://arstechnica.com/gadgets/2017/06/iphone-changed-gaming/>.
- Warde-Aldam, D. (2019). *Tracey Emin's Unlikely Journey from Vulgar Upstart to Art World Establishment*. Retrieved from: <https://www.artsy.net/article/artsy-editorial-tracey-emins-journey-vulgar-upstart-art-establishment>.
- Warren, J. (2014). *It's time for us to stop calling games "indie"*. killscreen. Retrieved from: <https://killscreen.com/articles/its-time-us-stop-calling-games-indie/>

Warren, T. (2017). *Adobe will finally kill Flash in 2020*. Retrieved from: <https://www.theverge.com/2017/7/25/16026236/adobe-flash-end-of-support-2020>.

Watts, M. (2014). *Feature: The History of Super Smash Bros*. Retrieved from: http://www.nintendolife.com/news/2014/08/feature_the_history_of_super_smash_bros.

Wawro, A. (2014). *What exactly goes into porting a video game? BlitWorks explains*. Retrieved from: https://www.gamasutra.com/view/news/222363/What_exactly_goes_into_porting_a_video_game_BlitWorks_explains.php.

Wawro, A. (2014). *What exactly goes into porting a video game? BlitWorks explains*. Retrieved from: https://www.gamasutra.com/view/news/222363/What_exactly_goes_into_porting_a_video_game_BlitWorks_explains.php.

Webb, K. (2019). *Here's how the family behind the indie video game 'Cuphead' sold 3 million copies without any formal training in game design*. Retrieved from: <https://www.businessinsider.com/cuphead-origin-story-studio-mdhr-red-bull-gaming-2019-1?r=US&IR=T>.

Weber, R. (2015). *Konami boss: "Mobile first" doesn't mean just doing mobile*. Retrieved from: <https://www.gamesindustry.biz/articles/2015-05-14-konami>.

Webster, A. (2014). *'Shovel Knight' is a long-lost NES classic without the cartridge*. Retrieved from: <https://www.theverge.com/2014/6/26/5844364/shovel-knight-review>.

Webster, A. (2016). *Nintendo partners with SF public library to teach kids about game design*. Retrieved from: <https://www.theverge.com/2016/3/31/11327140/nintendo-super-mario-maker-education-sfpl>.

Webster, A. (2017). *Cuphead: creating a game that looks like a 1930s cartoon*. Retrieved from: <https://www.theverge.com/2017/9/28/16378364/cuphead-art-design-1930s-animation>.

Webster, A. (2017). *These are the developers creating new games for old consoles*. Retrieved from: <https://www.theverge.com/2017/5/9/15584416/new-games-retro-consoles-nes-snes-sega-genesis-famicom>.

Webster, A. (2018). *Indie game publishers are the new indie rock labels*. Retrieved from: <https://www.theverge.com/2018/4/4/17199388/indie-game-publishers-double-fine-annapurna-devolver-skybound>.

Webster, A. (2019). *The Fortnite World Cup Finals were a victory lap for Epic Games*. Retrieved from: <https://www.theverge.com/2019/7/29/8934329/fortnite-world-cup-finals-epic-games-esports-ninja-tfue-bugha-marshmello>.

- Welsh, O. (2012). *Indie Game: The Movie Review*. Retrieved from: <https://www.eurogamer.net/articles/2012-03-06-indie-game-the-movie-review>.
- Welsh, O. (2017). *A complete history of Nintendo console launches*. Retrieved from: <https://www.eurogamer.net/articles/2017-02-24-a-complete-history-of-nintendo-console-launches>.
- Werner, N. (2018). *Shady Video Game Kickstarters That Ran Away With Your Money*. Retrieved from: <https://www.svg.com/111321/shady-video-game-kickstarters-ran-away-money/>.
- Westecott, E. (2013). An Art World for Artgames . *Indie, Eh?*. 7 (11).
- Weststar, J. et al. (2014). IGDA Developer Satisfaction Survey 2014 Summary Report. Retrieved from: https://www.researchgate.net/publication/308890066_IGDA_Developer_Satisfaction_Survey_2014_Summary_Report.
- White, S. (2018). *Valley Forged: How One Man Made the Indie Video Game Sensation Stardew Valley*. Retrieved from: <https://www.gq.com/story/stardew-valley-eric-barone-profile>.
- Wick, T. (2019). *Opinion | Battle Royale: attack of the Fortnite clones*. Retrieved from: <https://pittnews.com/article/139402/opinions/opinion-battle-royale-attack-of-the-fortnite-clones/>.
- Wilde, T. (2019). Nintendo reveals surprising new Switch game ‘Cadence of Hyrule,’ a Zelda-themed sequel to recent indie hit. Retrieved from: <https://www.geekwire.com/2019/nintendo-reveals-surprising-new-switch-game-cadence-hyrule-zelda-themed-sequel-recent-indie-hit/>.
- Williams, I. (2015). *Crunched: has the games industry really stopped exploiting its workforce?*. Retrieved from: <https://www.theguardian.com/technology/2015/feb/18/crunched-games-industry-exploiting-workforce-ea-spouse-software>.
- Williams, J. (2016). *Communication in the game industry is almost the most vital thing ever Read more*: <https://www.tweaktown.com/news/51756/communication-game-industry-vital-thing/index.html>. Retrieved from: <https://www.tweaktown.com/news/51756/communication-game-industry-vital-thing/index.html>.
- Williams, M. (2014). *Final Fantasy XIII: A Franchise Firmly Leaves Fans Behind*. Retrieved from: <https://www.usgamer.net/articles/final-fantasy-xiii-a-franchise-firmly-leaves-fans-behind>.
- Wiltshire, A. (2017). *Why do indie developers sign with publishers?*. Retrieved from: <https://www.pcgamer.com/uk/why-do-indie-developers-sign-with-publishers/>.
- Wiltshire, A. (2018). *PUBG, Fortnite Battle Royale and the question of how new genres form*. Retrieved from: <https://www.eurogamer.net/articles/2018-01-31-pubg-fortnite-battle-royale-and-the-question-of-how-new-genres-form>.

Wiltshire, A. (2018). *The daunting aftermath of releasing your dream game, as told by the devs of Stardew Valley, Owlboy, and more*. Retrieved from: <https://www.pcgamer.com/uk/the-daunting-aftermath-of-releasing-your-dream-game-as-told-by-the-devs-of-stardew-valley-owlboy-and-more/>.

Wright, S. (2018). *Despite Resistance, Crunch Continues to Define the Video Game Industry*. Retrieved from: <https://variety.com/2018/gaming/uncategorized/video-game-union-crunch-industry-practice-1202985642/>.

Wright, S. (2018). *Despite Resistance, Crunch Continues to Define the Video Game Industry*. Retrieved from: <https://variety.com/2018/gaming/uncategorized/video-game-union-crunch-industry-practice-1202985642/>.

Wulf, T. (2018). Video Games as Time Machines: Video Game Nostalgia and the Success of Retro Gaming. *Media and Communication*. 6 (2).

Yan, M. Gilbert, B. (2018). *Here's the reason most new console video games cost \$60*. Retrieved from: <https://www.businessinsider.com/why-video-games-always-cost-60-dollars-2018-10?r=US&IR=T>.

Yang, R. (2012). *A People's History Of The FPS, Part 2: The Mod*. Retrieved from: <https://www.rockpapershotgun.com/2012/09/20/a-peoples-history-part-2-the-mod/>.

Yin-Poole, W. (2013). *Sega sues bankrupt THQ for £630k over Company of Heroes 2 Steam pre-orders*. Retrieved from: <http://www.eurogamer.net/articles/2013-07-10-sega-sues-bankrupt-thq-for-630k-over-company-of-heroes-2-pre-orders>.

Yin-Poole, W. (2014). *Valve tightens Steam Early Access rules for developers* . Retrieved from: <https://www.eurogamer.net/articles/2014-11-21-valve-tightens-steam-early-access-rules-for-developers>.

Yin-Poole, W. (2019). *Dwarf Fortress coming to Steam*. Retrieved from: <https://www.eurogamer.net/articles/2019-03-13-dwarf-fortress-coming-to-steam>.

Yin-Poole, W. (2019). *Dwarf Fortress coming to Steam*. Retrieved from: <https://www.eurogamer.net/articles/2019-03-13-dwarf-fortress-coming-to-steam>.

Yin-Poole, W. (2019). *UK video game sales now 80% digital*. Retrieved from: <https://www.eurogamer.net/articles/2019-01-03-uk-video-game-sales-now-80-percent-digital>.

Yin-Poole, W. (2020). *PC beta for Dark Souls-like Mortal Shell now open to all* . Retrieved from: <https://www.eurogamer.net/articles/2020-07-05-pc-beta-for-dark-souls-like-mortal-shell-now-open-to-all>.

Young, C. (2018). GAME CHANGERS: EVERYDAYGAMEMAKERS AND THE DEVELOPMENT OF THE VIDEOGAME INDUSTRY. PhD Thesis. University of Toronto, Toronto. Retrieved from:

https://tspace.library.utoronto.ca/bitstream/1807/89734/3/Young_Chris_J_201806_PhD_thesis.pdf

Youngblood, J. (2018). *When (and What) Queerness Counts: Homonationalism and Militarism in the Mass Effect Series*. Retrieved from: <http://gamestudies.org/1803/articles/youngblood>.

Zavarise, G. (2017). *The secret history of underdog game engine RPG Maker and how it got its bad reputation*. Retrieved from: <https://www.pcgamer.com/the-secret-history-of-underdog-game-engine-rpg-maker-and-how-it-got-its-bad-reputation/>.

Zavarise, G. (2018). *Are RPG Maker games as bad as people think?*. Retrieved from: <https://www.eurogamer.net/articles/2018-09-01-are-rpg-maker-games-as-bad-as-people-think>.

Zavarise, G. (2018). *Are RPG Maker games as bad as people think?*. Retrieved from: <https://www.eurogamer.net/articles/2018-09-01-are-rpg-maker-games-as-bad-as-people-think>.

Zeldadungeon. (2017). *Breath of the Wild Had 300 Staff, Took 4 Years of Development*. Retrieved from: <https://www.zeldadungeon.net/breath-of-the-wild-had-300-staff-took-4-years-of-development/>.

Bibliography - Non-Cited

Books

Baker, K (2013). *The Ultimate Guide to Classic Game Consoles*. Google.com: eBookIt.com

Bogost, I., 2007. *Persuasive Games: The Expressive Power of Videogames*. Cambridge, Mass: MIT Press (MA).

Champion, E., 2015. *Critical Gaming: Interactive History and Virtual Heritage*. Aldershot: Ashgate Publishing Group.

Juul, J., 2010. *A Casual Revolution: Reinventing Video Games and Their Players*. Cambridge, MA : The MIT Press.

Swalwell, M., 2007. *Independent Game Development: Two Views From Australia, An Interview With Julian Oliver and Kipper. Videogames and Art, Andy Clarke and Grethe Mitchell*. Bristol : Intellect Books.

Journals/Articles

Aarseth, E. (2007). *I Fought the Law: Transgressive Play and The Implied Player*. Retrieved from: <http://www.digra.org/wp-content/uploads/digital-library/07313.03489.pdf>.

Gnade, M. (2010). What Makes an Indie Game...Indie? Retrieved from: <http://venturebeat.com/2010/07/13/what-makes-an-indie-gameindie/>.

Guevara-Villalobos, O. (2011). *Cultures of independent game production: Examining the relationship between community and labour*. DiGRA '11 - Proceedings of the 2011 DiGRA International Conference: Think Design Play, January, 2011, Volume: 6.

Kemppainen, J. (2008). *Independent games: what they are and are they different*. [MA Thesis]. University of Jyväskylä, Finland. Retrieved from: <https://jyx.jyu.fi/dspace/handle/123456789/18922>.

Lipkin, N. (2013). Examining Indie's Independence: The Meaning of "Indie" Games, the Politics of Production, and Mainstream Co-optation. *Loading... The Journal of the Canadian Game Studies Association*. Vol. 7 (11), pp.8-24.

Ruffino, P. (2013). Narratives of independent production in video game culture. *Loading... The Journal of the Canadian Game Studies Association*. Vol. 7 (11), pp. 106-121.

Simon, B. (2013). Indie Eh? Some kind of Game Studies. *Loading... The Journal of the Canadian Game Studies Association*. Vol. 7 (11), pp. 1-7.

Zimmerman, E. (2002). *Do Independent Games Exist?* Retrieved from: <http://www.ericzimmerman.com/texts/indiegames.html>

Websites

Ashcraft, B. (2010). *The Search For The Video Game Auteurs*. Kotaku. Retrieved from <http://kotaku.com/5477174/the-search-for-the-video-game-auteurs>

Jagneaux, D. (2015). *Stop Hating on 'RPG Maker,' the Easy-Bake Game Development Tool*. Retrieved from: https://motherboard.vice.com/en_us/article/z43vme/stop-hating-on-rpg-maker-the-easy-bake-game-development-tool.

Long, V. (2013). *Here's what the future of video game development looks like*. Retrieved from: <https://venturebeat.com/2013/06/20/heres-what-the-future-of-video-game-development-looks-like/>.

Sarkar, S. (2013). *Ubisoft polls fans on Assassin's Creed's future and pirate spinoff (update)*. Polygon. Retrieved from: <http://www.polygon.com/2013/12/6/5183496/ubisoft-survey-future-of-assassins-creed-separate-pirate-spinoff>.

Tassi, P. (2014). Over Sixty 'Flappy Bird' Clones Hit Apple's App Store Every Single Day. Forbes. Retrieved from: <http://www.forbes.com/sites/insertcoin/2014/03/06/over-sixty-flappy-bird-clones-hit-apples-app-store-every-single-day/>.

Wawro, A. (2015). *Too Many Cooks: Valiant Hearts director departs Ubisoft*. Gamasutra. Retrieved from:

http://www.gamasutra.com/view/news/238434/Too_Many_Cooks_Valiant_Hearts_director_departs_Ubisoft.php

Appendix A

Interviewee 1 – Shaun Spalding

Could you introduce your latest game and provide a brief explanation of what it's about?

Shaun: My latest game is a 2D platformer called *PokeyPoke*. The player is a young pilot girl who crash lands on an island and discovers a magical Spear which she can throw, jump on, stab, climb and swing with to navigate the world. It's early in production and has no release date as of yet!

Sounds very interesting. I was hoping you could share whether there was any indie games that have been the most influential for you?

Shaun: Ooh that's a big question, lots of games have been very influential to me both indie and not. And some will have been highly influential in ways I don't even consciously recognise. I'm noticing things I've done with *PokeyPoke* that I've clearly osmosed from other games but having made those decisions without really recognising that influence at the time. The character in *PokeyPoke* (some gifs are here for reference: <https://twitter.com/search?q=%23PokeyPoke&src=typd>) has this massive grin which follows from its early prototype but I'm recognizing now that that idea has its roots in games like *I Wanna Be The Guy* and *VVVVVV* which have both inspired *PokeyPoke* in a number of different ways. I think if I had to talk about one obvious inspiration I'd say that Jonathan Blow's *Braid* had a pretty profound impact on me and my first commercial game *Another Perspective* (<http://shaunspalding.co.uk/AnotherPerspective/>).

Lots of things I had taken on board from that game which consciously (and unconsciously) influenced how I build platformers. Such as having a really long and forgiving jump buffer, where the player can walk off a ledge but still jump for a few frames. This is in loads of platformers but some of this stuff was really pronounced in *Braid*, and I've tended to emulate that when I build similar things. I think that's partly down to *Braid* being a game I played at a time when I was first really starting to play and break down games as a designer, rather than just as a player. I could really go on forever about the influence of other games in my work though, because all ideas come from somewhere! I'm starting to see that the key to making something "original" (for how much that matters) is to be influenced by other places than games. But so

many games have been super important and formative to my design process. Too many to list and there are many I don't even consciously recognise yet!

Very informative answer Shaun, and you raise a great point about being unconsciously influenced. You mention that being influenced by other places could be key, could you elaborate?

Shaun: Well if you draw all your ideas from games, then you can largely only create, combine and refine what already exists. Right? And there's nothing wrong with that. That might be the main goal of your project. But you only really see truly "New" ideas in games that have come from somewhere else, some other experience in your life be that some other medium or some event or anything. An example for me is a jam game I made called *Life is Short*, which is a kind of RPG where starting from 10 years old your character ages. At first you age slowly and then as you grow older time starts to pass more quickly. So, at the start of the game an in-game year is like a minute, and by the end it's something like 15 seconds. This isn't directly communicated to the player they're just expected to *feel* the difference. Which is something I drew from the feeling of... well, getting older. Time starts to feel like it passes more quickly, as each year becomes a smaller fraction of the whole.

Something very interesting to me but I guess less on the "indie" side is how Nintendo have talked about how they prefer to hire designers who are not necessarily super enthusiastic about games. But enthusiastic about other things. Because it's how they see themselves getting new kinds of play. Rather than iterating and perfecting what they have.

A very good point. I believe you are onto something there. I may come back to you another time on that concept, it's a very interesting idea and I believe we could almost have an entire interview on that topic alone!

Shaun: Probably!

Can you tell me about a time when you had challenges with the development of *Another Perspective*?

Shaun: (laughs) there's a lot of different things I could talk about there. Uhm, outside of the process of actually building it and the nitty gritty of that, I actually had a pretty decent time with that one. I worked on it at home while I was a junior designer at Ubisoft Reflections. So, I had this advantage, or what I think is a big advantage, whereby I wasn't (and still am not) relying on its success in order to make a living. That's something that's always been really important to me. Making and selling indie games is hard. We tend to only focus on successes when talking about the indie scene, but most indie games fail. So, I have always been cautious, I've always worked above a safety net. The downside to that of course is at the time I had a lot less time to work on it.

So, I was working, coming home, working and sleeping. Which I got through okay because I was lucky to be so highly motivated that *Another Perspective* didn't feel too much like work, and the project was short enough that I could be carried to the finish line by that feeling which is incredibly rare. But I still over did it. By the end of the project I found that when I ran the game, I could taste the flavour of orange monster

energy in my mouth just out of nowhere. Because I had come to associate the game with those drinks. That was the point it hit me that I was going too hard on both the game and energy drinks and pretty much swore off the latter (laughs).

Even with the motivation, sounds exhausting! With such little spare time, did you manage to work with the players? E.g. Gather feedback and so on?

Shaun: Yeah, so a lot of that "crunch" was aimed at a very specific deadline. YoYo Games and Microsoft had teamed up to put on a competition for GameMaker games on the Windows 8 store. So, I wanted to "finish" the game in order to get it ready for that competition. The game still needed work by the time I got it into the contest, at least in order to be released on my own terms and standards but it ended up winning the competition. From there I took the time to polish, playtest much more heavily and release on Steam & itch.io about half a year later. Puzzle games are really tough in this regard and need more playtesting than most other genres.

I put everyone I could in front of the game and a lot of things changed as a result. Lots of ideas I thought were cool or interesting that just didn't pay off had to go or be changed, and lots of early levels had to be constantly re-worked in order to make sure the correct information was getting through to the player as they played. Some levels were just brick walls that eventually got changed from being true puzzles into well disguised tutorials that still sort of felt like puzzles. Then, allowing me to re-introduce the concept later on to test the player on their knowledge, rather than hoping they develop that knowledge from scratch.

Very impressive, and well done on winning! Apart from the competition, was there a time when you had to collaborate with others (external)?

Shaun: Sure, that game itself wasn't all me. A couple of friends of mine from university worked freelance on it. A friend of mine Hannah Pretswell (@HannahPretswell) did the character sprites for the game, and another friend Matt Harrington (@MattHaton) did some of the music. Like, I didn't have much of a budget for this game, so everything was done pretty economically. There were three music tracks in the game, including Matt's ending track. There was only one character who has many "clones" of himself in the game. The rest of the world is made of a single tile set that I made. I'm very much a generalist and have lots of skills and tend to work either alone or in very small teams. Not so much out of preference but my projects tend to be very personal and self-driven and because I believe very much in making sure people are paid well for work they do, I don't often hire others to work on my stuff because I don't feel I can afford to pay them what I'd value the work at (laughs). Also, I tend to flake on my own stuff and move from project to project so I don't like to get others really invested in a project unless I really committed to shipping it.

Could you discuss some of your design decisions regarding Another Perspective? You mentioned your projects being personal and self-driven, but what about aesthetic/genre/game engine etc?

Shaun: Why did I design it economically? Or in what way in particular?

Sorry if that was unclear. Apart from economical decisions. Why did you make the decisions you did regarding your chosen aesthetic, the choice of it being a puzzle platformer and the chosen game engine. Was this a personal choice or was your hand forced by economical decisions?

Shaun: Oh, uh. A bit of both. So, I didn't really do anything in the game just because I couldn't afford to do it "Better". It was part of scoping the game. I knew my constraints were time and money but that doesn't mean that like, I wish the game was longer or made in another engine or had more graphics. It was designed around my constraints in order to make those things into its strengths. It is a short game, but I feel it doesn't out stay its welcome, it does what it came to do and ends as I wish more games did. It is visually repetitive, it looks dark, foggy and oppressive throughout but that fits with the games theme. The music is slow, very subtle, and contemplative. The game is all about the player character and his relationship with the player so other characters are a distraction from that, etc. It wasn't a game that was constrained by limitations it was a game that was designed to fit and be lifted up by its constraints.

So yes, a lot of the game was designed around what I was... not just economically but like, my available skills as well. What I was capable of doing. And I feel I got the best out of that. I started from a place of just wanting to make a fun puzzle game, inspired by lots of other games. Some of the fourth wall-iness of the *Stanley Parable*, some of the clever puzzling and mechanical design of *Braid* and then the themes of the game kind of revealed themselves to me as I built, and I carved the game to fit what it eventually became which is a game that reflects on the relationship between a developer, a game and the people that play it and questions of identity. This arose from what was initially just a set of puzzles and mechanics. But it arose naturally from the game as it was developed, rather than being what inspired it to begin with.

Stepping back a little and looking at things from a bigger picture, how do you feel indies (like you) fit into the industry?

Shaun: Well, I don't know. Indie is an incredibly broad term that covers a lot of different ways of "fitting into" the industry. There are a lot of indies. A lot more than there ever were. Which is amazing but also makes things very difficult. Or it makes being a traditional indie very difficult. So, I mentioned before about safety nets? My full-time job isn't being an indie developer. Like *Another Perspective* doesn't pay my bills (Though it fortunately did have its share of financial success in many ways). My living is earned through being a video maker. I write tutorial videos for GameMaker that show other developers how to get started and how to do the things I do in video game development. That's supported through Patreon, ad revenue, source code sales and so on. That's a niche I carved in order to earn my living independently from whether or not a commercial video game of mine succeeds or fails. The reason I bring all this up is it provides you with my very unique lens and context through which I see myself "fitting into" the industry and I think too many indies these days are chasing a really, really difficult proposition that isn't (in my opinion) necessarily worth the risk/reward balance.

That is, they're trying to be full time indies who live or die on the sales of their game. I've given a talk before that was (partly) about how I think people are tricked into thinking that in order to be living their dream to the fullest they have to be earning a living from their creative endeavour. When really the dream is just to pursue that endeavour as much as possible. There are other ways to build a space for your art than to quit your job and start an indie game studio. Because as I said, most indie games fail to recoup their losses. This doesn't have to be a bleak reality though. I think relying on games to succeed in order to pay your bills is the quickest way to compromise your art and the most stressful way to undertake it. I love that I can do whatever I want with my games. Because if they're not the next breakout success, it doesn't matter.

This is all sort of a laborious way of talking about your question, but to bring it back around I think "indies" and smaller developers are so important to this industry and it's absolutely incredible that we have so many. They can do things bigger studios can't and I think that "AAA" and "Indies" form a symbiosis where they inspire and lift each other up in many ways. But, under the microscope of that, indies are very often not looked after by the industry and then also tragically, all too often don't look after themselves. And I think that needs to change.

To conclude this question, do you feel that indies are separate (from AAA) rather than forming one large coherent industry?

Shaun: Hm, I'm not sure what you mean.

If I was to discuss the video game industry, do you feel indies fall under that same category? Or is there more than one industry (perhaps several?) e.g. AAA industry, indie industry? Do you feel it's useful to separate them?

Shaun: I don't know, I feel that's all just semantics. I don't think there's any important dividing thing that makes a big blockbuster game fundamentally a different entity to a smaller team's game at least not in any way that every game isn't already unique with its own goals etc. I think it's important and useful to be able to talk about smaller developers in contrast to much bigger ones because of how differently shifts in circumstances and especially shifts in policy can affect them. For example, EU VAT Moss is a huge deal for self-publishing indie developers (and small online businesses in general).

It might be a bit fuzzy to define what is "Indie" and what isn't, and western culture tends to not like fuzzy definitions. We argue and argue about them because we want everything sharp, in focus, defined. Otherwise we think it's meaningless and we can't have real conversations about them. I think it's fine to have some things just be fuzzy and still have important meaning. I think Indie is one of those things. So, in conclusion "Sometimes, yes." (laughs).

(laughs), please don't hate me too much for these tricky questions! Moving on to something simpler, the last question is a little more directed at aspiring video game developers.

You mentioned earlier that most indie games fail, and where most of the "huge" successes are the only games discussed. Do you feel that perhaps indie development isn't everything it's portrayed to be in the media? (e.g. *Indie Game: The Movie*)

Shaun: Oh well *Indie Game: The Movie* especially. I like that piece a lot and it is inspiring, but it went out of date so fast. It's gone from being a bit-too-success-oriented and somewhat problematic in its glorification of crunch, and emotional burnout to having those problems SO exacerbated by the passage of time that it's just downright misleading and borderline dangerous. Like, I think the media does a 'better' job of some of those things these days, but then I finely curate my own media intake, so it can be harder for me to see the bigger picture. But possibly as a result of not just that movie but media that is like that, which carries the message that if you just "work hard enough" you can accomplish whatever you want, there are now many budding developers out there who are heading for utter disaster.

Like, games being really, really hard to make and even harder to sell is a huge topic. I think this idea that just buckling down and working harder when things get tough and you'll eventually make It is a problem in wider culture in general not just in indie games. Rami Ismail did an excellent talk about the reality of game development, delivered to students (who need to hear it the most). He quickly brings home just how unprepared young people are for the reality of independent development. So, I'd recommend looking at that (link found here <https://www.youtube.com/watch?v=PZn9a9-Gyc0>)

Thank you, I will make sure to look at that video. With all that in mind, would you recommend an aspiring developer to go indie? Is there a choice?

Shaun: What I would recommend is making sure whatever you do, you're able to fail. What happens when your game doesn't sell? The reality of being an indie developer full time is you're betting X years of your salary that people are going to buy game Y. At the end of X years, you get to see if you were right or not. Can you afford to do that? If you can, some people can, then go for it. If you're ok with whatever the worst outcome is then you can really do whatever you want. That's the privilege of privilege. Use it if you have it, why not? If you're able to fail then failure will teach you so much. You can then use that to start again with less chance of failure. But if quitting your job and going full time indie is the cataclysmic risk that it is for most people, then you really ought to think through what you really want. If you just want to make games, you can build a space to do that which isn't going to kill your confidence, your love for the work and well.. you. Literally. Find ways to make that space as big as you can. Find ways you can take risks where the worst outcome isn't so bad. Then fail in that way as often you can and learn as much as you can. Then eventually, you'll be able to make that space in your life bigger and bigger as the risk is less and less.

Fantastic advice Shaun, and that concludes the questions. One final thing, where can readers in (hopefully not so distant future) preferably purchase your game and keep up to date with your future endeavours?

Shaun: *PokeyPoke* is very, very early in development and can be followed at the hashtag #PokeyPoke or just @ShaunSpalding on Twitter. Not even a landing page yet! But my other games including Another

Perspective are all available from my website: <http://shaunspalding.co.uk/games-page/>. If people want to get into game development, the other big place of interest would be my YouTube channel! over at <https://www.youtube.com/c/ShawnSpalding> where I have lots of guide an tutorials for GameMaker.

Interviewee 2 – Justin French

I know you're developing *Neuroslicers*, I was wondering if as an indie developer there was any indie games you could pin point as the most influential game for you?

Justin: Ooh, It's a hard question. For me I started off in AAA, personally, the main reason I went indie was not because of any particular game, but it was more to do with creative freedom that we have as indie developers. Obviously, there's been a large number of very interesting titles by small teams, you got the classics like *Super Meat Boy*, *Braid* and *Papers Please*, yeah there's lots. But, I wouldn't say it was any particular title that pushed me towards indie development as such.

Would you say it was the indie movement as a whole that pushed you towards indie development? Rather than any specific game?

Justin: Yeah. I think for me it was more um, the industry was changing. You know, prior to 10-15 years ago, it was very hard to get into video game development unless you were working for a big AAA studio. The tool sets weren't there, we didn't have Unity, we didn't have access to Unreal Engine. If you wanted to get into game development, you either worked with a big team who had developed their own engine, or you were a programmer who was capable of building your own engine to develop your games. With the easy access of tools, such as Unity, it has democratized the process, and literally anyone can be a developer now. Which is kind of good and bad in many respects.

Yeah, you're seeing that with Steam now. When indies first came into the industry they were getting attention just for being indie, now you're seeing thousands of indie games releasing every year on Steam.

Justin: For me, there's a lot of titles being released on Steam that aren't by indies, they're by hobbyists. To me they're not indies, they're just people doing something in their bedroom with no understanding or willingness to learn the business side of the industry. Which to me is 80% of the job, only 20% is the game. The business is a lot more important, understanding the market, and understanding the market research and users. You know, a lot of people have got lucky, launching something and not really understanding that stuff. They just happen to be in the right place at the right time and managed to make a career out of it. It's those that understand that this a business that truly succeed in the long run.

So, do you feel like being indie is something that you've got to learn to do? People commonly separate studios, assuming if you're not AA or AAA then you're indie.

Justin: Yeah, it's weird. There's an ongoing argument about what is indie. Is it a team that is unpublished or unfinanced from outside sources? Is it a team that's small? There's a number of bigger studios with 30-

40 people who still consider themselves indie. You know, even Jagex, one of the biggest UK studios could be considered indie even though they had over 400 people, or well they could have been considered indie, they were recently bought by a big Chinese investor. So yeah, it's weird, the term indie, what does it really mean? That's the big question for a lot of people I think.

Yeah, by using that sort of analogy you could say that companies like Epic Games are indie because they self-publish their games. It's tricky isn't it?

Justin: Yes, it really is. For me personally, I think indie is someone who tries to push against the grain, who has the ability to have that creative freedom. And that isn't dictated by a third-party.

Am I right in thinking *Neurolicers* is your first indie game?

Justin: Yes, yes, it's the first game for this studio.

Were there any challenges you faced during the development of *Neurolicers* that springs to mind?

Justin: So, the big one is financing. Financing is always a massive struggle for a studio that hasn't released anything before. Especially with a game of this scale, we're trying to compete with the big boys, with AAA titles, but with a team of only 4. I should say current team size of 4, we are looking to expand. And the issue is that when you are trying to secure financing from publishers, who often don't actually do much financing of projects anymore. It's very hard to convince people that you can build something that is competitive in the market, or of the same scale of a company that has say, a 100 people in it. But for us personally, we have managed to secure financing, at least some financing, because we managed to convince people.

We often hear that with indie developers because you're small, when members of the community communicate with an indie studio they are usually talking directly with the developers. Rather than a spokesperson for example. Was there any particular way you work with the players in comparison to your previous experience with AAA games?

Justin: Yeah, definitely. For us personally we put community at the centre of our business strategy. We do everything centred around community on discord, through our newsletter, through Twitter and Facebook. For us, we're very, very, very open with our development process, we literally share the good, the bad and the ugly (laughs). You know, bugs we'll share, we'll share very early concept art, we'll get the community to vote on the visual direction of things. We live stream our early play tests every week, these are things that AAA studios are still very, very protective of, their process and their IP. But as an indie studio, I think you have to do these types of things, because we haven't got that audience yet. This is actually a mistake I find a lot of indie studios do, we're friends with a very large number of indie studios, a lot of them wait until the last moment to start building their community, to start doing their marketing, which is a massive, massive mistake (laughs). You know you need to build a bit of that hype, you need have people ready and waiting to purchase your game when it launches. I've always said to people it's really important that they start building their community from the moment they have their first playable build. I think that's key to

success in the current climate of indie games, because yeah the market is very saturated at the moment, and unless you've got that fan base already there who are spreading the word about your game, it's very easy to fail even if you have an excellent game.

Was that a decision you made or was that something you felt like you had to do?

Justin: I wouldn't say we had to do it, I would say it was the right decision I think. For me, it was just common sense. Even with our next game we are going to continue putting the community at the centre of everything we do. There are a number of advantages to doing that, firstly you get people doing a "sanity" check for you in terms of what you're building. People are going to give you very early feedback, and you can work with that feedback to create a better product. You can make use of those people as testers, especially in the early stages where a lot of indie studios don't have the budget to hire a QA (Quality Assurance) studio. You can make use of those community members as QA, at least to a certain degree. Most importantly, these people are there to share their passion with other people, and within their own communities. So, for me, yeah, it's just a common-sense thing to do. The issue I find with a lot of smaller indie studios is that they just don't have man power to have a dedicated community person. The only reason we're able to do it is because our team work ridiculous hours, 7-days a week, we work around 70-hours a week. It's the only way we're able to do it, but a lot of people aren't willing to do that.

Are you happy to work that many hours?

Justin: The fact that I've been doing for three years now, non-stop, so literally three years of continuous "crunch". It's starting to get to me. We're now looking to grow the team and get a dedicated community guy, a dedicated marketing manager. I'll probably never step away from the community, because I really enjoy talking to them and they've almost become like our extended family. But I would like to have slightly more normal working hours (laughs).

It's a hot topic at the moment, "crunch" in the industry, and this side of the industry has been getting a lot of attention.

Justin: It's not good. In the long run, it's not good. One of the reasons we had to do it was because we needed to hit certain milestones in order to secure bits of funding, that was the only we would be able to secure that funding. It was a matter of: if we don't hit this milestone then no one gets paid, and then everyone has to go back to their old jobs which would have slowed down development considerably. We've been a studio for 4 years already, and we've still got another 18 months, and I don't want to extend that any longer.

Some people feel that the harsh realities of indie development, and video game development in general is not well known. Perhaps this had made indie development seem simpler than it is?

Justin: It's one of the hardest jobs I think, out there. It's a lot harder than software development, it's a lot harder than a lot of jobs. I think that because a lot of people are passionate about it, because I'm so

passionate about it, and I love what I do, makes it a lot easier to do 70-hour weeks obviously. It still takes its toll on you, mentally and physically. One of the things with indie development, in comparison to a AAA studio, a lot of the team members will take the role of multiple people. For instance, our lead designer is also our gameplay programmer, he's also our UI programmer, he's also helping with the narrative. Our composer is also helping with the narrative. I'm the CEO of the company but I also do sound design, which is the area of the industry I came from previously. I'm also doing marketing, I'm also doing community management, and it's like that with all our team members, they all wear many, many hats. Whereas at a big AAA studio you'll have dedicated people for each of those roles, so they're able to concentrate on one aspect of the development process.

I see, so you're sort of taking an interdisciplinary approach. I assume this also means that you're more involved in each other's work than you would be at a AAA studio?

Justin: Yes, one of the advantages of being such a small studio and having a small number deal with a multitude of different things is that the process of iteration is much faster than at a AAA studio. There aren't so many managers to go through to make certain decisions, we can make decisions very quickly. Which means that we're very flexible, we are constantly keeping an eye on what's happening within the industry and what the current trends are. We're able to adjust our design based on current trends and future trends much, much faster than a big studio that might lock down the design or the pre-production quite early on. And then they won't be able to change anything for like three years of development.

I see, so you get things done more efficiently?

Justin: Yes, we're able to adapt to changing trends within the industry much quicker.

Regarding your game, Neuroslicers, is there any reason you chose that genre (RTS) and your aesthetic?

Justin: Okay, so for the first year the studio was up and running we spent about a year developing a number of different prototypes to try get an idea of what we wanted to build as a studio. At the end of that year we decided to do a big game jam between the four of us, at the time we had no artist on our team. So, we were thinking, what type of game can we build that doesn't require an artist? At least for the first couple of years of development (laughs). We all came up with different ideas, and *Neuroslicers*, which at the time was actually called *Failure* was born from our lead designer, Milcho. He originally developed a prototype of it in his own Engine, it was all 2D originally. The simple mechanic was that there were two teams of completely AI controlled bots, all you could do is place or remove blocks to change their path finding, the objective was for your team to destroy the enemy team. It was from this basic premise of an indirect interactive RTS that this idea was born. The narrative that we brought into the game was actually developed during one of previous prototypes, for a game called *The Tower*. *Neuroslicers* is actually set before the events of that game, and we just developed it from there. But the idea of indirect interaction was always at the core of the experience we were trying to create.

There were two things we were trying to solve within the RTS space, firstly was the very steep learning curve when it came to competitive online play. *Neuroslicers* was developed as a multiplayer title very, very early on. We had multiplayer working within the first two months, because we felt the experience as a multiplayer title was a lot more interesting than the single player. One of the main reasons for that was that we always felt that the single player campaign in RTS games don't truly prepare players for the multiplayer experience. Competitive play within RTS games has always been very hard get into, there's a considerable learning curve when it comes to understanding unit balancing. What units are good against what, what buildings do, what build orders you need to do. So, we wanted to try and find a number of ways in which to simplify that process while retaining much of that tactical depth that the super hardcore want. Because one of the issues with the RTS genre is that it hasn't grown much over the last 15 years or so, it's always been considered very hardcore. Then at the same time, we've been seeing in the mobile space, the RTS games there have been bringing in millions and millions of dollars each month. We were trying to work out why these mobile RTS games were doing so well whereas the traditional PC RTS games have been quite stagnant over the last 15 years.

So, we decided to take some ideas about how we do player interaction loops, the fact that you're earning things, the training systems, the process of learning and onboarding for players, we're taking a lot of those ideas from the mobile space and bringing those over to the PC space. It's a real balancing challenge in that respect because people don't like mobile games being on PC, and obviously our game isn't a mobile game because we're not taking actual mechanics, we're taking certain ways of doing things. We've already seen these types of systems within other genres on PC. If you look at *Call of Duty* for instance, you've got this XP system where you're constantly unlocking things, visual customisation items. Even *StarCraft 2* has started doing it with their free to play version of their multiplayer systems, where you can unlock things, you can get new skins for your units, there's this very interesting player loop that keeps people playing your game. We wanted to try and do something different and move away from the traditional actions per minute and micro management aspects of RTS and offer something fresh to players that got them thinking in a new way that wasn't the same as traditional RTS games.

That sounds very interesting, have you had any issues trying to find the right game engine to implement all your ideas?

Justin: So, as I briefly mentioned, Milcho originally developed the game in his own engine, which he developed in C++. That was for the first two months of development when he was obviously prototyping ideas, we very quickly moved over to Unity, our CTO has been using Unity since it first came out so that was a pretty easy decision. It's pretty funny because our lead designer Milcho actually uses Unreal Engine 4 in his full-time job with another studio and then he uses Unity with us (laughs). He's very competent with both, but he actually prefers Unity, it's a much faster process, because our CTO is a very, very talented graphics programmer, network programmer, he can pretty much do anything, therefore we can get Unity looking as good as Unreal very easily.

Was there any experimentation with other Engines? Or was it just Unity?

Justin: We did design on Unity very early on, and once you kind of choose an engine you kind of have to stick to it because the process of bringing everything over to another engine could take three-four months potentially. As a studio we might not stick with Unity for our future games, we might try out Lumberyard which is based on the Crytek engine, but it's owned by Amazon. We might try out Unreal, we're very flexible, just Unity seemed to be the right engine at the time.

You mentioned previously that you were aiming to tackle some of the issues with the RTS genre. Do you feel that game designers should be doing more to challenge game design orthodoxy?

Justin: Yeah, definitely. That's one of the biggest issues, every time you open up the Unity store, you always see another platformer, or another game that seems to just borrow mechanics from everything else. There are a small handful of indie games that do try to do something original and are very successful. *Papers Please* is a great example, really innovative, very simple mechanics, very addictive gameplay and did really well. And now recently, there's been almost a direct clone of the game, although it's a very good game, it's called *Not Tonight*, which is a post-Brexit European simulator pretty much (laughs). It's very good and it sold very well, but it's not very innovative, it's literally the same mechanics of *Papers Please*, but extended slightly. I would love to see more studios really push the boundaries, we're members of a big RTS discord group which has a lot of other developers working on RTS games. And not one of them seems to be doing anything innovative, they're all doing a rehash of the same mechanics we saw in the original *Command and Conquer* or the original *Warcraft*, just with updated graphics. Mechanically, they don't want to push the boundaries, which I find really depressing to be honest (laughs). One of the advantages of being indie is that we have that creative freedom, so why not use it for something that really pushes those boundaries.

There appears to be games going away, like *Age of Empires*, which lasts a certain period of time and then they have a large number of fans craving their return. But rather than come back and innovate on what was, a lot of them appear to be either re-releases, remasters or remakes.

Justin: Yes, that seems to be very prevalent in the industry at the moment, we are seeing rehashes of a number of classic titles but with new names. Last year we had, oh god what was it called? It was like a theme park simulator, but I can't remember what it was called, but it was like a reimagination of the traditional theme park game. Now, today, we have *Two Point Hospital* that has just launched, which is based on the original theme hospital, but it's a brand-new game, updated engine. We're seeing that a lot within the platformer space, especially with the pixel art sort of style games, people are kind of building games based on their love of the games of before. But yeah, for a lot of people when it comes to innovation, people are worried about taking big strides, and would rather take pigeon steps in order to prevent alienating fans of the games they are based on. It's something I'm worried about with our own title, the fact that we are taking such big strides, there is a risk that people won't get what we are trying to do.

But you think it's a risk worth taking?

Justin: Oh yeah, the industry needs it, the genre needs it. Someone needs to take this traditional RTS model and throw it out the window and try something new with it. Creating an RTS game that the core players really enjoy but also bringing new players to the genre.

You mentioned looking at the mobile RTS' and trying to understand why they're so successful. Have you considered drawing on sources from outside the video game industry?

Justin: Yes, of course. Doing a cyberpunk video game, we drew inspiration from the narrative, from the music, from the visual design from a multitude of different sources. Over the last three or four years I've read countless cyberpunk books, all the famous ones, things like *Snow Crash* and *Neuromancer*. Watching all the movies around that, but we're also trying to push the cyberpunk stylisation in a new direction as well. It's funny, because with *Cyberpunk 2077*, CD Project Red's new game, they're trying to do something new with it as well. The fact that they're showing a day time city in a cyberpunk setting is very controversial (laughs). But I think they've pulled it off, having just watched the 48-minute gameplay trailer I think they're managing to pull it off. But it's always a bit controversial, when you go against what people's expectations of a stylisation or a genre or whatever it is, it's always going to be controversial. This goes back to what I was saying earlier, getting that community on-board very early on, and making sure you're doing "sanity" checks with them constantly.

It seems that the video game industry doesn't like change too much? The fans, the players.

Justin: Yeah, the games industry has got some of the most fickle fans. The industries fans are really hard to work with, we have very, very vocal people in the games industry. And a lot of toxicity, which is always a big issue. I'm very proud of our discord community where we have zero toxicity. But it's because I think the fact that we're so open with them and we don't treat them as consumers, we treat them as human beings and patrons of our game really. I think that helps, it's one of the issues I find at a lot of AAA studios, they seem to keep their distance from their community. I think this can lead to toxicity when you're not answering their questions and listening to them, I think listening is really important.

How do you feel indies like you fit into the industry? Do you feel that indies are separate?

Justin: I think we're very much part of the same industry. I think the line between indie and AAA is very blurry at the moment. I think the line between hobbyist and indie isn't so blurry, I think that's the pretty obvious difference. But definitely between AAA and indie, I think the line is very blurry. The fact is, if you want to be a successful indie developer nowadays you pretty much have to sign with a publisher in order to get that marketing budget and to get onto the front page of stores. Indie developers that don't have that backing, generally will struggle to find an audience. Unless they've an audience previously themselves, but even then, there's only so much a small team can do.

There are common accusations such as "they're not a true indie" and "they're not truly independent".

Justin: That's the thing, I've never really called us indie. I don't really like the separation personally. For me, we're a studio, an independent studio in the respect we can make our own creative decisions. But we have investors, we're about to sign with one of the largest Chinese publishers in the world. You have to sign with a Chinese publisher if you want to launch in China (laughs). It's as simple as that. So, any indie studio that wants to bring their game to China or the greater Asian market will need to sign to a publisher. Are they no longer indie at that point? You know, it's a bit of a weird one.

We have already briefly covered this question, but perhaps there's something else you want to add. Do you feel indie is everything it's portrayed to be? Regarding the media, Indie Game: The Movie etc.

Justin: The industry is no longer the way it was portrayed in Indie Game: The Movie, definitely. I do think that, and I think this is true in anything, not just in the games industry, that if you work your ass off to learn everything you possibly can, about all aspects of the industry you're in, and you never give up, I think that can lead to success. The most successful people are always those that have been put down, again, again and again, they've had multiple no's and multiple failings. Those people that have can go through all of that and can still find the passion and drive to keep going will be the ones that will be successful in this industry, and pretty much any industry. I think that's the most important thing, the issue is that there are still so many indie studios, or well so many studios. Not even studios but hobbyists that are trying to get into development or already launching games on the store, but don't realise that this is a business, and it should be treated as a business and everything else that comes along with that. I started my life in this industry, having come from the music industry, and I had to learn all this stuff. It's been fascinating, and it's been tough, it's been exhilarating when we have managed to secure money. I think not enough indies realise they need to go through all that to find success. Well, we haven't found success yet but I'm hoping we're on our way there.

Do you think new, inexperienced indies should expect to fail?

Justin: Yes, I think they should expect to fail. They should expect to fail multiple times before they find something they can be successful with. That's the thing, with that 1 year of prototypes we did, we failed four times. It was very disheartening over that one year. Since then, since we've started this project, we've had no's multiple times in terms of publisher offers. We've been dragged along for six months only to be told no at the end of those six months. It's an emotional rollercoaster, this industry is an emotional rollercoaster and people looking to get into indie have to be prepared to get themselves back up after being knocked down multiple times.

It appears that sometimes the realities of indie development can be misleading. It's not uncommon to get the perception that you can go make what you want, and everything's going to be fine.. (laughs)

Justin: (laughs) Well, it can be like that. It's funny, when I went to casual connect in London earlier in the year, there were a number of developers that were doing these fun, creative projects as side projects to their normal job. They were hobbyist projects, they weren't commercially viable projects, but they were

fun for them to make. That side of it is fun, and it isn't really a business, and you can be like "crazy" in terms of what you're doing. But the true side of indie development is the business side. I think people like Rami for instance, he makes it seem like it's really easy. I dislike the way he presents the indie industry, because he doesn't do anyone any favours by presenting it the way he does. The fact is, he hasn't tried to grow his company at any point. It's always just been him and his colleague, and that is one side of the indie industry I guess, but I don't know, for me personally I think it's a little more serious than that, I don't know.

Sort of like pushing the company forward, keep pushing forward and don't get settled in your ways?

Justin: Yeah, exactly. Trying to grow and try to take on more challenging projects. That's why we threw ourselves into the deep end with this game, RTS' are one of the hardest games to make, and we're trying to push the RTS genre forward, and it is 3D, and we're trying to do visuals, we're a small team of only four. I don't know, maybe we're a bit insane (laughs). To be honest, I'm not even a massive fan of RTS games, I mean I play them, but I enjoy the challenge of trying to push the genre in a new direction. I think that's true of our whole team, we want to push ourselves, we want to see what we're capable of doing.

One last thing I wanted to clarify, you mentioned that indies and hobbyists are often regarded as the same thing..

Justin: Yes. It makes me very angry as well (laughs). You can be an indie developer, someone making a serious game whilst having another job, because you have to fund your game with another job. For me, a hobbyist is someone who's just making a game, launching it, and not really know anything. Not spending the time to learn the business side of things, not learning the market research side of things, not spending time understanding what their game is and how it fits in the genre they're building their game in. It's someone who's just sort of clueless, to be honest (laughs).

Thank you very much for talking to me today Justin, it's been extremely interesting and valuable. I wish you the best of luck with the development and release of *Neuroslicers*.

Justin: No problem, it's been a pleasure. And you too! Good luck with your PhD.

Interviewee 3 – Dave Cooper

Can you tell me a bit more about your game, *Blockships*?

Dave: I've played games all my life, my background is as an academic. I did my PhD in mobile ad-hoc networks, after doing a Masters in BSc in computer science in Newcastle. I'd always been interested in doing video games, but there were never any video game options in the academic routes I was going down. In fact, it was always about a year after I had chosen a path that a new games option opened which was quite funny. After my PhD in 2009 I went to China and got a job as a professor teaching Video Game design and entering scientific journal papers. It was during that time that I got

involved with the Beijing game development scene, and there were some people working for companies and some people working as indies there. I did a bunch of jams, and tried several ideas, and one of those ideas I took to the group and it was a prototype for *Blockships*. The first time I had taken it I had almost no response to it, the second time I took it I expected a similar response. Four hours later, and sixty rounds of blockships and as many beers, it had gone down well. It didn't have any rulesets, it just had the mechanic of picking stuff up and shooting people. As a game, it was really broken. But it was clear that there was a kernel of fun, which we are always looking for. So, I started making that my side project, putting any spare hours I could into it. That would have been about 2012, it was a long time ago. About four years ago I got approached by a chap who wanted me to come and work for his games company, I was at another indie developer's playtest for his game *Arena Gods*, which came out on Steam last year.

This developer approached me after seeing me work on *Blockships*, and said he needed someone for a mobile games team. I said I was leaving China and it probably wasn't worth his time. But he liked me, and he managed to get me out of the University and I went and did some time with him working for Long Two. I worked with them for three months over the summer, at which point the project we were working on got cancelled due to funding drying up in the Chinese finance markets. Long Two, and I think a lot of game companies at the time, they tend to get office space and filling them up with people and try to make as much stuff and spend as much money as fast as possible. You just can't make games that way, you can't just start a game and jump into with a thirty-man team without an idea. They just spent so much money on basically running around with their pants down. Anyway, our project was one of the projects that got cut, despite us being frugal and having an 8-man team until we were ready to start scaling up. We tried being indie for a while, we couldn't make a good deal come to the table, we had a few offers, but our CEO didn't feel that any of them were worth taking. We felt we would be taken advantage of, so when I left China I didn't have a job anymore, so it was the perfect opportunity to go full time on *Blockships*. Around 2015 I came back from China, which is worrying to think it's been three years now and this game should absolutely be finished. I've been working hard on it, over the last two years or so I've been to around twenty events all over the world, I've won six awards and six nominations, given a couple of talks at conferences. Yeah, it's been an exciting ride. Right now, I've run out of money, not entirely but I decided I need to bring some money in. *Blockships* isn't quite ready for full release, so I've taken a full-time contract for the next six months with Sky where I'm doing some development in Unity. Now, if I'm lucky, I'm doing an hour of development on *Blockships* on the way in, and an hour on the way out.

What has been the most influential indie game for you?

Dave: I didn't go into game development because of indie games. I went into video game development because I've always wanted to make games. In a way I've always been making games, when I was a kid I would draw out maps and stuff for little dungeon quests that I would play with my friends. They wouldn't have any rule sets, I would just tell them whether they've died or won or whatever. A bit like *Dungeons & Dragons* but without any rules. When I tried to build games in the past, I'd always run up against problems, essentially the lack of information. Like in the past, if you didn't have the right programming manual for what you were programming for, you'd eventually get stuck. Well, what's the next step for a twelve-year-old kid? You haven't got the book, you say Dad this doesn't work, and Dad doesn't necessarily know why, and you were stuck. These days, you can just look on the internet and get the answer. I never got into trying again until I was starting my PhD, and this was in the heyday of Flash Games. Essentially, seeing how quickly were able to bring stuff together in Flash, people were able to put together simple Flash videos and stuff. People like Jonty Picking, who does "Weeble" stuff and things like that. Joel Viche, I don't know if you remember the video for vines, called "Can you remember?" it's basically got a load of cats singing. All that stuff was great, so I started looking into doing my own animations, I started doing a little bit of Flash development, just running through some tutorials. I never really got very far because I was doing my PhD, I was busy with Rock N Roll bands, and all sorts of other stuff because I've always been creative.

In terms of games that have given me the most influence, it would have been *R-Type* that inspired me to make that kind of thing the most. All these spaceship shooters have got where you shoot bad guys and those powerups you pick up are more powerful than the things they are using to shoot you. So, why aren't they using them? I thought, how can I make a system where what you pick up is what the enemies were using. But at the same time, making it fair? So, if you make it fair in general, it'll be difficult to have these waves of bad guys shooting you with these ridiculous weapons that will just take you apart. I thought let's start trying to do this with different parts of a ship, and how they're built up and stuff. So, I made it so you can shoot off these different parts, they've got different properties and stuff. And that's how I came up with *Blockships*.

Any other games you think deserve a mention?

Dave: If you're thinking about games that have been super influential, then it's probably going to be a lot of Flash games. This was where there was all the creativity in the early 2000's, what you saw coming out from the AAA studios was the same stuff again and again. Not much innovation really, I mean people were taking steps forward, but nothing truly innovative, no one taking a real risk. That's what's great about Flash games, it's comparatively cheap to make and made by people that don't need to make any money, so they can take risks. The one that I remember the most, that is now an indie success is *N++*. That was originally a Flash game, it was originally called *N*, then *N+*, then *N++*. I

played that a lot during my time as a PhD student, too much. In fact, I'd say my PhD was delayed considerably due to how many Flash games I played (laughs). I think that's also to do with the fact that it was about learning to manage your own time, and about having a support network that helps you manage your own time. When I was doing it, although your funding runs out in three years, there was no real pressure to get it done in this time. When I did my PhD, it was not uncommon for PhD's to be three, four or five years. Anyway, *Shift* was another one. There's just been a re-release/remake of that, *Shift Quantum*. That's just come out on a lot of platforms and that's based on the Flash game of seven to ten years ago. *Yeti Sports*, where you hit the penguin as far as you can, and you can bounce it off things. *Learn How to Fly*, which is an incremental game, which is very similar to that, but it adds to it. Not only are you trying to launch things, but you level up each time you play it. This allows you increase angles, movement in the air, etc.

So, are we seeing a lot of original ideas that came from the Flash era?

Dave: Yeah, so I think it came from the Flash era. But, I do know one game that I thought was truly novel from the Flash era was from a Nintendo game, *Advance Wars*. I saw a Flash game that was really like that and thought Nintendo had copied that, but I was wrong. I didn't have a Nintendo at the time, only a PlayStation 2, and mostly only played PC games, so it may have been a lot of these Flash games that were imitating games I didn't know of. But it certainly felt like there was a lot of new stuff, *Shift* was certainly Novel at the time, *N* was novel at the time, but there was also a lot of crap that was novel as well.

What is important about indie for you?

Dave: I don't necessarily see indie as something you can define. I see it very much as, because I've been in the music scene and seen how indie was applied to the music, it's very hard to look at an indie band and go well, "what defines indie?". Because as soon as an indie begins making money, everything that really defined indie, which is low-production values because you didn't really have the money for it, and artistic integrity I guess. No one is making you to make financial based decisions, once you start making it big, even if you're independent and able to be creative, a lot of those things are no longer part of it anymore. I guess I'm talking more video games here, but you become "Triple-I", I know that's a bullshit word, but you're making games you want to make, but you're making them with your own financial decisions because you want to keep your studio alive. That's important, because if you want to survive as an indie developer, you need to make your next game, and the one after that. If you make just enough money to make the next game, then the next game has got to succeed as well, and you've got to keep doing that. You've got to try and make this sustainable model. You've got to try and get business headed, and the more business headed you get, the more commercially motivated your creations are I guess.

But the thing that I value in indie is that creativity, the freedom to pursue things aren't necessarily thought as a great idea because it'll make us loads of money, and we'll make the next clone of *PUBG* or *Fortnite* or whatever. Even though *PUBG* is one of the greatest indie successes of all time. Coming from a Modder who did a bunch of mods for a bunch of games and then eventually hit it huge with *PUBG*, it's ridiculous. What you saw is a guy who had limited budget building a game which is still hideously buggy, with very low-quality art but with a key vision for how it would feel, how it would play, and what the game mechanic would be. Finding that core element of fun, and each time something got in the way of that, whether the community fell apart or whether the community turned toxic in other ways, or the engine he was working in reached its limitations, he moved on. He moved to other engines, to other games, to continue building and eventually got to where he was at with *PUBG* and it just blew up. In terms of where *PUBG* is at now, it's hard to say whether they're making good business decisions. But you know, it's an indie company suddenly thrust into having a lot of money with no business skills. It's a really difficult thing to do.

Yeah, there is not many indie developers who will have the financial cushion to make a few mistakes.

Dave: Oh no, definitely not. If you look at Mike Rose's talk at GDC earlier this year, he states that there were 850 games released in February 2018 alone, 40 a day. With 80% of those games earning not more than the American minimum wage. Yeah, the more there are, the harder the noticeability will become. Until we get more curated platforms, but whether that will be a real solution to it I don't know, since essentially a curated platform is a closed box again. That's moving towards a super platform, and it's about proving you're good enough to be on the super platform, and that's where you were before Steam started and you had to get with a publisher. We've got to the wrong end of the spectrum now, and we need to head towards that magical middle ground now where as an indie if you could show you had something quality, you could get it out there and make some money.

Can you tell me about a time when you had challenges with the development of *Blockships*?

Dave: I think, and this is going to be weird, I think the hardest problem for me is time management. And in that, I don't mean I haven't got enough time, I mean where I went full-time, I had all the time in the world and it was being spent on *Blockships*. But now, I'm suddenly running an entire company, an entire company of just me. I set up a limited company, so now I've got to be doing my finances, keeping the books, and I started taking my game to all the shows and winning awards and stuff. That was all good, but at the same time, trying to develop the game and so the game hasn't really progressed significantly in over a year. Because of trying to balance all sorts of different bits and pieces, and essentially only having yourself to rely on. I guess that's the second crux of it, it's time management, it's that I don't have a team, so I need to a good manager of myself, and I've been a very bad manager of myself. I don't just mean that in terms of I've made poor decisions, let's imagine

I'm a manager because I've put on my managers hat, and then I put on my employee's hat, and I'm an employee. The manager says you've got to get this done for this time, and then me as an employee I put that hat on it, and I say yes boss. Then I start doing it, and I'm not feeling well one day or whatever, and start doing something else, or something else more important comes up. Like, I've realised that in fact, rather than finishing feature X, I need to do some artwork or some banners for an upcoming show that I've forgot about. Without running to my manager and telling him about it and that needs to happen, I just go off and do the work. And then after the show, I put the manager hat back on and then say, well that show was great, but you haven't finished the thing that you were supposed to do, why are you not doing that you moron? (laughs).

Then, as an employee, I say OK, I'll work harder next time, and then you do the next one, but you repeat the same problem again. And then you get angrier, so you think you've got to work harder, but then you work harder and end up overworking yourself. Then you can't produce stuff so well, so you're in this kind of spiral of flogging yourself, and if you're ever in that position in a real-world scenario, you'd either quit as an employee or fire your employee. Because your boss is being an absolute dick for just bullying you the whole time, and the employee is being rubbish by not communicating what is needed. Unfortunately, this is the philosophy I've come to recently, so when I do encounter a problem, something that makes me feel upset or nervous about what I'm about to do with the game, or just feel uncomfortable. I put on both hats, and I just talk to myself, if I'm thinking I don't know which thing is more important, then as an employee I'll tell my manager self what is more important, and then as a manager I'll tell my employee self this and that. This really helps, not just as a developer of indie games, but in all ways.

How do you work with the players?

Dave: That is kind of wrapped up with the same problem, and that's that I'm not really. Because, I'm working on getting the game done, but working with the community takes up more time, so it's like trying to fit it all together. But it doesn't feel like there's enough time to work with the community and work on the game. I have had my hands slapped a bunch of times by people saying, "you need to pull your finger out" and I do. The biggest thing I've worked with my community on is going to shows and running tournaments and interacting with them via my newsletter that I occasionally spit news out on. I have a Twitter account, the game itself doesn't have many Twitter follows but myself as a game developer have over a thousand followers. Facebook doesn't have a huge number, but the newsletter has about a thousand people on it as well.

Can you tell me about a time when you had to collaborate with others externally?

Dave: Just this year I applied for the UK games fund, and I'm currently renting a desk at Brightrock Games, which is an indie studio in Brighton. They make the indie game *War for the Overworld*, which is the spiritual successor for *Dungeon Keeper*. A fellow desk renter, Anna, is an artist, and at

the time I needed some concept work doing for *Blockships 2*, or as it were, the next part of the game that I was hoping to get on with. I worked with her to get some concept work done for what the visuals might look like in a hand-drawn art style, to put in my pitch for the UK games fund. So yeah, I spent a lot of the last year trying to sort out funding, including applying for UK games fund and some other funding routes. I make it all the way to the final round of the UK games fund but failed at final hurdle. I'm wondering whether it's worth applying next year, but I think next year I won't be ready because I'll be too busy with the six-month Sky contract. I won't say exactly what I'm going to do now, but I think I'm going to reduce scope and push it out and then we'll sort out funding for the next game.

There's been a bunch of people who've helped me out on *Blockships*, like lots and lots of different artists. An audio guy who just emailed me out of the blue, who accidentally emailed me because I shared the same name as someone else, and he was emailing him because he had seen him talking about video games on a forum. He had sent this email, saying that he doesn't really agree with what you've just said on this forum, but I do like what you do in video games and wondered whether you'd like to try listening to some of my music to use in one of your video games. I was like, I'm not the Dave you're looking for, but I do make video games. So, his music is now in *Blockships*, it's really good, if you watch the trailer or play the game you'll hear it. Everyone else I've worked with has been a friend or someone I've met in the indie scene, who have done bits of art for me at various times. Very, very cool people who will all be credited in the game when it's finally released.

Why did you design your (latest) game this way?

Dave: I think I've touched on this earlier, but I wanted a game where you could build ships from other ships. To go a bit deeper, the key design in *Blockships* is to keep the player on a knives edge so that it is always possible for any player to win at any given moment considering their skill. If another player has more guns than you, you will be faster than them, so you could outmanoeuvre them. If someone is faster than you and can crash into you, then you can have more blocks than them. This allows you to have another strategy, almost like rock-paper-scissors.

What about in terms of your aesthetics?

Dave: Well, the first artist that I asked to do it, I asked to do it a completely different style. She was an ex Rovio style artist, and I asked her to a style similar to a game called *Awesomenauts*, or *Cannon Brawl*. They have a similar art style but very different game type. I wanted my game to have that art style which I feel was very prevalent in Flash games, which I feel is very approachable. She said she didn't have time to do it, so she said I've done this first draft of pixels for you. That was what I had, so it has stuck.

Have you grown to love this art style or have you just kind of worked with what you have got?

Dave: We have iterated on it a bunch of times. I've had my friend Susan, some of that's really cool and you can see it in the videos. Most recently, Harry, who also done some of the pixel art for *OlliOlli*, has done another pass on it and has done a really, really good job. That's not in the version that's launched at the moment, but there is some really good stuff that he's done for me that will be in the final product. I'm happy with the direction it's taking now as the art style becomes more concrete. While I have an artistic eye, I don't have the artistic language or have the experience putting together those things. It's an unfamiliar thing to be working with, and how describe or to fix art when you're not an artist is a hard thing to sell someone. If *Blockships* ever makes a decent amount of money, I'm hoping to throw some money to certain people.

What about your game engine?

Dave: I'm working with Unity, I have been building the game in a bunch of different engines. I started in Flash, then moved onto Stencil, then Haxar, and eventually moved onto Unity. I had been thinking about it for a long time, but it was when Unity moved over to the model where Unity was free for indie developers to use, I bit the bullet and decided to give it a shot. Up until that point, you had to pay for it or pirate it, and I've had enough pains with pirated stuff that doesn't work properly in the past. Switching onto Unity was like a breath of fresh air, because the support around Unity was huge. If you find a problem, you get stuck somewhere, and suddenly you can reach out and get answers within hours. Whereas with some of these lesser known things, you might be lucky to get an answer in a week. That was quite wonderful. The one thing that drove me along, I don't know why it was so important thinking about it now, but it was important to me that it would be totally cross-platform and Unity was pretty much.

Do you feel developers should be doing more to challenge design orthodoxy?

Dave: I like to see people be creative, and you can't be creative without taking a risk. Indies, or low-budget risks have lower stakes. That's the place where you can take risks, it would be a wonderful world if big companies would turn around and go "here indie studio, here's a hundred grand, make something cool with it and put our name on it" or something like that as a publisher. Because it's the kind of money they can afford to lose in comparison to the sort of money they could gain. If it's good, they've got the publishing power to get behind it. I love to see new stuff, I love to see people doing creative stuff.

Have you considered drawing on sources from outside games?

Dave: I guess in reality you can't not, because in my process yeah, you're building stuff, and your life is already there, it's taking you years to build it. So, your life gets drawn into the game, and the game gets drawn into your life. In terms of the mechanics of *Blockships*, is there anything from my outside

life that's in there? Not really, but by taking my game to shows, and exhibiting it, I would see a lot of people's reactions to the game and see people get hyped up about bits and pieces. This isn't really what you were asking, but the physical interactions of people would drive me to change or heighten moments to increase those things. So, like, people didn't find something exciting enough or find out when the next round is starting, so I made it clear again with the big "3-2-1" that was at the start of the game, in between each round. That was only added in, because in real life it became clear that something was needed. Again though, I don't think that's an answer to your question. Not in *Blockships* for example, but I've got several games simmering in my mind that are born off real world experiences.

Does your audience influence the development process of your game?

Dave: They have done. For good or for bad. A lot of people have said they want networking in the game, network multiplayer, including relatively influential Twitch or YouTubers. I've spent too much time developing it, I've developed networking twice for it now. The first time the tool I was using discontinued, so I started again. That's part of the problems of this last year. The importance of networking was partly because I felt it was important for a successful game. Because of those people adamant about Networking, I have thought a lot harder about getting Network features implemented. I think if I didn't have those people wanting it I would have binned it, and maybe I should have done, I'm not sure. Because the amount of development time it's taken I could have got the single-player aspect done and launched the game, and then found out if the players or the community really needed it or not.

How do you broaden the appeal of your game and ensure people are aware of its existence?

Dave: That's one of the reasons I've been to all these shows, to build a network of not only fans (community) but also a community of influences who know about the game and are interesting in promoting it when it comes out. I've got a big influence list and I've got some people who have large numbers of followings, I've got a showing by a group called Stumpt. They are an American group trying to be the American version of Yogscast, or well they are like Yogscast. They showed my game in 2016, and it got over 20,000 views from their video. Once I get around to launching it I'll be putting another video out with them, and they seem happy to do so. Other groups alongside those have shown interest, so it's a matter of reaching out to that network again. The other thing I've been thinking about doing is starting a development stream/community stream. There's a bunch of different ideas in that, such as getting other indie developers to talk about indie life whilst playing *Blockships*. Or before or after playing *Blockships*. Or holding a monthly or bi-monthly tournament to generate more interest as we approach launch. Whether or not that happens, we will have to see.

Do you believe there is an "indie audience"?

Dave: Yes. There are people who prefer to buy indie games rather than AAA games. I was one of those people for a very long time, and I'm only now starting to play AAA games again. Given the option, I'd almost always play an indie game over a AAA game. For a bunch of different reasons, one being the creativity and two being shorter playtime. No, there's a billion different reasons and I can't list them all. But yeah, I don't want to play a hundred-hour game, knowing that it's going to take me a hundred hours to complete it. I've played over a thousand hours of *The Binding of Isaac*, now that's an influential game for me, which I forgot to mention before. Both the original one which was a Flash game, and the subsequently *The Binding of Isaac: Rebirth* which was a console release. The game itself can be completed in thirty minutes, but it's a roguelike, and it takes a lot of time to get good at it. I don't think I finished it for the first time until I was about twenty hours in or whatever. It's captivating, and I like the fact that you're not tied to it. The games where it's like a massive story to finish, yeah, I really enjoy that, I really enjoy the story, but when you've padded it out to eighty hours or a hundred hours or whatever. I don't have that time that I can say, I'll put it into this game and this game. If you play *Skyrim*, and only played fifteen hours of it, you probably wouldn't feel like you got a proper experience out of it. I never finished *Skyrim* and I played 80 hours of it, but I got a pretty much a full experience because I completed several of the side quest storylines and stuff. I got far in the main quest before I realised my character was too strong to make it interesting anymore.

Interviewee 4 – Eric Barone

What has been the most influential indie game for you?

Eric: Probably Minecraft.

Are there any other games that you think deserve a mention as well?

Eric: For indies, Terraria. I didn't play many indie games before releasing Stardew Valley, as I was worried they would influence or demoralize me.

What is important about indie for you?

Eric: Indies will always be the ones who pursue novel and unique ideas. I think that's very important. Indie games often spawn the ideas that end up catching on in the mainstream, becoming the new norm. We have different priorities and incentives than large companies do... just as a result of economic reality, if nothing else.

Can you tell me about a time when you had challenges with the development of one of your indie games?

Eric: It's hard to stay positive and motivated for 4.5+ years on a project that has no guarantee of bearing fruit. That in itself was a challenge. More specifically, working on dialogues and character events was probably the most tedious part of development... it takes a lot of time and it can be difficult to think of new & interesting things for your characters to say & do.

How do you work with the players?

Eric: I've always tried to stay close to the fans/players of Stardew Valley. Before the game came out, I'd post monthly development updates and had a running dialogue with people who were following

me. Some of their ideas and feedback helped me improve the game. Now that the game is established, my relationship with the audience is a bit different, but I still do my best to stay involved, take everyone's feedback into account, and create new content that I think the community will enjoy.

Can you tell me about a time when you had to collaborate with others (external)?

Eric: I didn't collaborate with anyone when making Stardew Valley, but after launch I started getting business help from Chucklefish (my publisher). That was a whole new world for me, but in the past couple of years I've learned a lot about the industry and how to navigate it.

Why did you design your (latest) game this way?

Eric: The way Stardew Valley turned out wasn't all that deliberate, it was more the product of all the games I played as a child influencing me. I played a lot of Japanese RPG's from the Super Nintendo & PlayStation years, so that's my major influence. Of course, Harvest Moon was the #1 inspiration for Stardew Valley.

Do you feel developers should be doing more to challenge game design orthodoxy?

Eric: I don't think it's necessary for developers to challenge game design orthodoxy. I mean, doing so can lead to a new & interesting game, for sure. But taking classic design and improving upon it is also a good approach... that's basically the approach I took for Stardew Valley!

Do you believe there is an “indie audience”?

Eric: Yes, you can see the same phenomenon in music, movies, or really any artistic arena. There will always be "indie" artists, and people who appreciate what they do.

How do you broaden the appeal of your game? (advertising, let's play videos, etc).

Eric: Giving away free copies to twitch/YouTube people is good, but I really didn't do much to market Stardew Valley. It just organically spread through word-of-mouth because people liked it so much. It helps if your game is open-ended, so that people who see it on streams or videos don't feel like there's no point in buying it... like they've seen it all already.

Interviewee 5 – Tim Constant

What has been the most influential indie game for you?

Tim: Papers Please

Are there any other games that you think deserve a mention as well?

Tim: Cart Life and Binding of Isaac.

What is important about indie for you?

Tim: Being able to work on games I want to make. Essentially freedom to express my creativity.

Can you tell me about a time when you had challenges with the development of one of your indie games?

Every day. Translations are always an obvious oversight. Always left to last. Always a pain to retroactively fit.

How do you work with the players?

Tim: Work with the players? As in customers. Discord is our best method of communicating with our players.

Can you tell me about a time when you had to collaborate with others (external)?

Tim: All my workers are contractors so it's continuous ongoing collaboration.

Why did you design your (latest) game this way?

Tim: Visual design? due to a love of pixel-art and finding a good artist.

Why did you choose that Genre/Aesthetic/Game Engine?

Tim: Love work simulator games as it takes something known by the player and mixes it up. Game engine? Unity as it's popular.

Do you feel developers should be doing more to challenge game design orthodoxy?

Tim: Game makers are doing a pretty good job, it's just an evolving practice so patience is needed.

Have you considered drawing on sources from outside games?

Tim: Everyone does in game design. For example, in my case Brexit.

How does the audience (consumers) effect the development process of your game?

Tim: It depends on the product. For Not Tonight mainly pre-launch the audience (Discord) gave us feedback through beta testing. Post launch the reception of a game can of course impact plans for DLC and if a games development can continue at all.

How do you feel indies (like you) fit into the industry?

Tim: Just a segment of the industry.

Do you feel indies are separate?

Tim: Not separate, just a different segment/market

Is indie everything it's portrayed to be? (e.g. Indie Game: The Movie)

Tim: I can't remember Indie Game: The Movie's portrayal but 'Indie' to me is just the equivalent of a smaller business producing a product for a smaller market share than the larger companies. (non-indies). Of course, the scale goes from 1 man -> the largest and everything in between.

Interviewee 6 – Nick Sherman

What has been the most influential indie game for you?

Nick: Prison Architect, it showed what was possible in terms of both content and level of success for just a couple of guys working initially in their spare time.

Are there any other games that you think deserve a mention as well?

Nick: The early free viral mobile games such as Logos Quiz were very influential for me, having just got back into programming this sort of game seemed achievable, and to date my biggest successes have been spin-offs called Football Logos Quiz and Football Kits Quiz.

Is there anything you feel is important about indie for you?

Nick: Indie breeds originality, you can't compete with big software companies on existing genres and ideas, so you have to come up with something unique. Having worked at a games company where making games was treated like a science, it's important that developers just love making games, whether or not they make money in the end.

Can you tell me about a time when you had challenges with the development of your most recent game/project?

Nick: Since moving on from mobile I almost always am too ambitious with my projects. Getting to the working prototype stage is fine, but going beyond that to finish the last 20% of the game and flesh out content is very difficult.

How do you work with the players?

Nick: I am not good at this either. The slightest bit of criticism, even if it is valid, can set me back a long way in terms of motivation. I have a very small group of enthusiastic players that I communicate with to get feedback and flesh out ideas for improvements.

Can you tell me about a time when you had to collaborate with others?

Nick: I worked as a contractor at a large mobile games firm, and had to work with an artist designer. It was frustrating having to wait for art and direction when I'm used to being responsible for everything. This guy was a bored artist who wasn't heavily into games yet was in charge of a project that everyone knew was doomed to fail.

Why did you design your latest game/project this way?

Nick: It's difficult to say what my 'latest' project is. I have many projects in progress but have not been enjoying any of them, so have been writing games for the C64 lately. Because there's a very small market and I'm a relative beginner on the machine, there's no pressure to be successful, just have fun.

Can you tell me why your latest game/project looks (aesthetically) the way that it does?

Nick: As a general answer, I'm not an artist so I have to find ways to get close to professional looking graphics, although I have an eye for what looks good so I will never put out something that looks like 'programmer art'. Unity makes it easier because A) there are a huge amount of affordable assets available to purchase, and B) even just coloured or textured cubes arranged in the right way with the right lighting can look good.

Do you feel developers should be doing more to challenge game design orthodoxy?

Nick: I think it's a case that pushing boundaries and coming up with totally fresh ideas is a very rare skill. I certainly don't possess it, so I look for ways to take an existing idea and put a new spin on it.

Do you believe there is an indie audience?

Nick: I think the majority of casual games are only interested in AAA titles, but there's enough of a subset of gamers who are distrusting of big gaming companies with their microtransactions and countless sequels, and prefer to buy unique experiences from small indie studios.

How do you broaden the appeal of your game?

Nick: At present I don't, because my projects aren't at that stage, but I also have no skills in that area. When I first started in mobile games if you had a good game it didn't need marketing, but that market is now completely saturated and the big publishers have moved in.

Interviewee 7 – Alex Barrett and Samantha Davenport

What has been the most influential indie game for you?

Alex and Samantha: We don't really go out of our way to play indie games. The indie games that we do end up playing are multiplayer and owned by a friend of ours. We end up playing those as a fun group activity.

That being said, we have played the first couple of levels of the game *Shovel Knight*. While we did enjoy it, the game bothered us that the aspect ratio of pixels was not the same throughout the game. As collectors of retro games, we decided that someone needed to make a Retro Recreation that was completely accurate to the time-frame it was claiming to call from.

Are there any other games that you think deserve a mention as well?

Alex and Samantha: We don't play many modern indie games but retro games, with their small teams, smaller budgets and shorter development times resemble indie games more than the AAA industry they evolved into. An example of this kind of game would be *Door Door* for the Famicom and Japanese computers.

What is important about indie for you?

Alex and Samantha: Independent game development is all about freedom. It's freedom from investors, freedom from the will of others, and freedom to follow a passion that might not be followed through completely in a large company setting. Indie is really about being able to truly follow an idea and attempt to create game you desperately want, because no one will make the game you see in your head except for you.

Can you tell me about a time when you had challenges with development of one of your indie games?

Alex and Samantha: During the development of *Squidlit*, Alex began to have what she later realized were anxiety attacks. They were probably caused by working long hours and financial insecurity, coupled with waaaaay too much coffee.

How do you work with the players?

Alex and Samantha: During the development of *Squidlit*, we didn't have any players yet. We kept the game completely under-wraps until it was completed, as we weren't sure as to if the project would ever be completed in marketable format. It wasn't until after the game was released that we started to feverishly look over the discussion board, reviews, and videos about *Squidlit*. This led us to our patches that we put out to solve various bugs and glitches that cropped up.

One community, in particular, found most of the glitches, and that was the Speed-running community. If you need a glitch found, they're the people to find it.

Can you tell me about a time where you had to collaborate with others (external)?

Alex and Samantha: We ended up collaborating with a friend of ours who owned a physical cartridge of LSDJ for the Game Boy, which was very instrumental in getting *Squidlit* started until we had our own copy.

For game testing, we would often force our friend to play as well as visit a local public library next to a high-school. We would get the students waiting for their rides home to playtest our game for free, which was very easy and informative.

Why did you design your (latest) game this way?

Alex and Samantha: During the the development of *Squidlit*, Alex would show something she had created to Sam and if she smiled and laughed it would stay in. If not Alex would rework it until it made Sam tell her it was adorable and giver her a hug. Most of *Squidlit* was made using this highly advanced and innovative process.

Why did you choose that Genre/Aesthetic/Game Engine?

Alex and Samantha: *Squidlit's* aesthetic was chosen to be akin to the squidlit and other cute invertebrate doodles Alex would make in high school. The side scrolling platformer genera was chosen to match up with these doodles' perspective.

Barely functional prototypes of *Squidlit* were made in Unity and Construct 2 before GameMaker was chosen as the engine. GameMaker best handled low resolution 2D games and had a well-documented programming language whereas Unity seemed more geared towards 3D and used languages that Alex found hard to find useful information on.

Do you feel developers should be doing more to challenge game design orthodoxy?

Alex and Samantha: Yes and no. Challenging the game design orthodoxy is a very risky thing to do, as the game has a higher chance of “flopping”, or not selling enough to cover development costs. This can cause people to lose their jobs when they've only done good work, or even entire companies to die.

That being said, we do believe that the game design we see now-a-days really does need to change. The same kind of tropes, styles, and story formats are being reused too much. Players are getting bored playing the same type of game in a different package. The indie development market, while being volatile and ever-changing, stands suited to change this with success stories of game titles like *Undertale*. With more success stories like that, we could stand poised to change the game market into something more accepting of new ideas.

Have you considered drawing on sources from outside games (other mediums)?

Alex and Samantha: All the time! *Squidlit* is inspired from Alex's love of invertebrates, zoology, palaeontology, and folk-lore as well as Sam's love of all forms fantasy, storytelling, table top RPG's, and science in general. A lot of the coolest creatures you see in games are usually inspired from something that walked this planet sometime in history.

We also attempt to go out into the world and see what natural wonders, fossils, and experiences we can in order to help fulfil the experience needed to create truly immersive gameplay.

Does your audience influence the development process of your game?

Alex and Samantha: They do now, within reason. In *Squidlit*, one of our more controversial choices was not including a feature to save your game. Back in the Game Boy era, games of *Squidlit*'s size just didn't have that feature due to sheer expense of adding a battery backup to the cartridge.

Our next titles will include a save feature, primarily because they will be large enough to warrant one.

Do you believe there is an “indie audience”?

Alex and Samantha: Kind of? There are people who primarily buy indie games, but these are usually individuals who are tired of the AAA formula. If that formula was to change, whoever is publishing the game would probably not be a factor. There are, as always, exceptions to the rule however.

How do you broaden the appeal of your game? (Advertising, Let's Play, etc.)

Alex and Samantha: We spent about \$600 on advertising with Google's adwords service, putting trailers for *Squidlit* on YouTube videos. The YouTubers we narrowed the commercials down to were chosen based upon our personal preferences. We figured since we made the game and we liked these people, others who like these YouTubers would have a good chance of liking *Squidlit* too.

Along with our advertisement, we sent a lot of free copies of our game to YouTubers, curators, and gaming news sites but ended up not hearing back from over 90% of them. The largest ones that we got, like Gamasutra and Jim Sterling, we actually didn't contact.

How do you feel indies (like you) fit into the industry?

Alex and Samantha: Indies like us are honestly rather independent of the game industry. We set out to create a game that we feel is lacking from the market and we want to play. Indies are kind of like explorers. We set out to create something that we feel hasn't been fulfilled yet, hopefully paving the way for others with more money to make a big change.

Do you feel indies are separate?

Technically, no we are not separate from the industry. Indie developers are like small/local business owners. We affect the industry, but usually in a way that only affects our niche. The requirements of being a indie developer, however, are completely separate from what a larger industry employee requires.

Is indie everything it's portrayed to be? (e.g. Indie Game: The Movie)

Alex and Samantha: No. Being an indie developer is an incredibly personal experience. You are taking ideas that you believe people will love, and betting your whole livelihood upon it. Everyone in *Indie Game: The Movie* had some form of connections, otherwise they wouldn't have been in the movie. Making your way into the game development industry circle without someone on the inside is incredibly difficult. It isn't impossible, but it is a cross-country hike that demands a lot of hard work, luck, and path-finding skills.

Interviewee 8 – Nicolas Discord Interview

I was hoping you could share some of the motives behind Enderal. I'm aware of the immense praise the mod has received, with many journalists/reviewers comparing it not to other mods, but rather full game releases. I can only imagine this mod have must taken 1000's of hours of work, and I would like to ask why you decided to pursue creating Enderal as a mod instead of creating your own game?

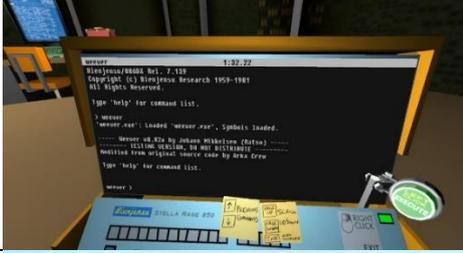
Nicolas: Well, I can only speak for myself. For me, it was a mix of creating a portfolio piece to jumpstart my career in the games industry, and, more importantly, wanting to tell that story. A standalone game would have been unfeasible with our resources, particularly considering our lack of programmers and artists. That's the short answer.

Oh, that's understandable! I was also wondering whether at any point you considered charging for the mod? I personally was very surprised to discover that such a huge project is completely free? Is this a "mod culture" thing that mods must be free? Or was it a required stance?

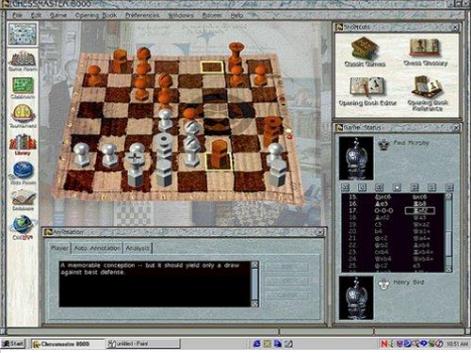
Nicolas: It was a required stance, mods aren't allowed to be sold. There was a brief period when Bethesda tried introducing the Workshop, but that backfired, and we weren't really considering it neither.

Appendix B - Typology

IGF Winners 2015 - 2018

Year	Name/Developer	Screenshot	Aesthetic	Genre
2015	Outer Wilds By Mobius Digital		3D Stylised Slightly Cartoony Colourful	Open World Exploration
2016	Her Story By Sam Barlow		Real Life	Interactive Movie
2017	Quadrilateral Cowboy By Blendo Games		3D Stylised Retro/Old Assets “Blockhead aesthetic”	Puzzle/ Adventure
2018	Night in the Woods By Infinite Fall		2D Stylised Cartoony “Indistinguishable from Concept Art”	2D Platformer /Adventure

2000

Name/Developer	Screenshot	Aesthetic	Genre	Engine
Jarrett & Labonte Stock Car Racing By Codemasters				
Chessmaster 8000 By Mattel 80 MC	 <p>The screenshot shows the Chessmaster 8000 interface. The main window displays a 3D-rendered chessboard with pieces. On the right, there is a menu with options like 'Classic Games', 'Chess Strategy', 'Opening Book Editor', and 'Opening Book Preferences'. Below the menu is a 'Game Status' window showing a list of moves and player names 'Paul Hirsch' and 'Henry 800'. At the bottom, there is a chat window with the text: 'A miserable computer... but it should play only a draw against best outside.' The taskbar at the bottom shows 'Chessmaster 8000' and 'Control Panel'.</p>	16-bit graphics	Chess/Board Game	Custom
Happyland Adventures				

2001

Name/Developer	Screenshot	Aesthetic	Genre	Engine
<p>Severance: Blade of Darkness</p>	 <p>Retrieved from: https://www.gameskinny.com/642vo/retrowatch-severance-blade-of-darkness-the-dark-souls-of-2001</p>	<p>3D</p>	<p>Action RPG</p>	<p>Custom</p>
<p>Remote Assault 62 MC</p>	 <p>Retrieved from: http://dev.megagames.com/demos/remote-assault</p>	<p>3D</p>	<p>Strategy</p>	<p>Custom</p>

2002

Name/Developer	Screenshot	Aesthetic	Genre	Engine
Out of the Park Baseball 4 By Out Of The Park Developments 87 MC	N/A	Text Based	Sport Sim	Custom

2003

Name/Developer	Screenshot	Aesthetic	Genre	Engine
Purge By Freeform Interactive LLC 53 MC		3D	FPS	Littech Talon
Anito: Defend a Land Enraged By Anino Entertainment 63 MC	 <p>Retrieved from: https://www.gamespot.com/anito-defend-a-land-enraged/images/</p>	2D/3D	Adventure/RPG	Unknown

2004

Name/Developer	Screenshot	Aesthetic	Genre	Engine
<p>Gish By Cryptic Sea</p> <p>80MC</p>	 <p>Retrieved from: https://store.steampowered.com/app/9500/Gish/</p>	<p>2D</p> <p>simple but stylized</p> <p>Polygon/Hand-drawn</p>	<p>Platformer</p>	<p>Unknown</p>
<p>Alien Hominid By The Behemoth</p> <p>78MC</p>	 <p>Retrieved from: www.mobygames.com</p>	<p>2D</p> <p>Hand-drawn</p>	<p>2D Shooter</p> <p>Run and Gun</p>	<p>Custom Engine</p>

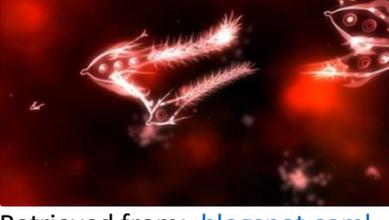
2005

Name/Developer	Screenshot	Aesthetic	Genre	Engine
<p>Wik and the Fable of Souls By Reflexive Entertainment 77 MC</p>	 <p>Retrieved from: https://www.bigfishgames.com</p>	<p>2D/3D Hand-painted Hand-drawn</p>	<p>Platformer</p>	<p>Custom</p>
<p>Outpost Kaloki X By NinjaBee 77MC</p>	 <p>Retrieved from: http://www.ninjabee.com</p>	<p>3D simplistic but retain a distinct personality</p>	<p>City-Builder</p>	<p>Unknown</p>

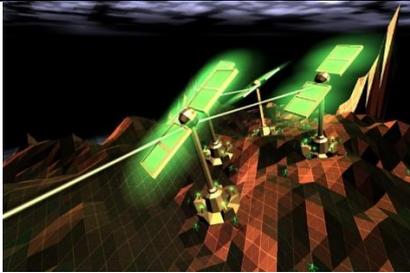
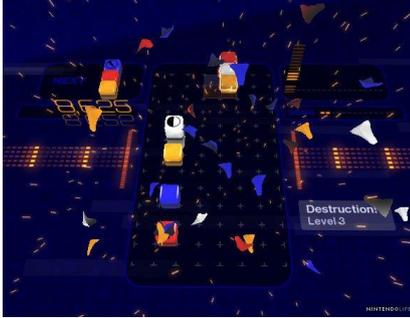
Name/Developer	Screenshot	Aesthetic	Genre	Engine
Armadillo Run 88 MC	 <p>Retrieved from: gamasutra.com</p>	2.5D “clean” style	Puzzle	Custom
Cloning Clyde 80 MC	 <p>Retrieved from: engadget.com</p>	2.5D “unique look”	Platformer	Custom
RoboBlitz 80MC	 <p>Retrieved from: gamespot.com</p>	3D	Puzzle/Action	Unreal Engine 3
Marble Blast Ultra 79MC	 <p>Retrieved from: gamespot.com</p>	3D “generic look”	Puzzle	Torque Shader Engine
Al Emmo and the Lost Dutchman’s Mine 77 MC		2D “hand- painted”	Adventure	Adventure Game Studio

	Retrieved from: steampowered.com			
Jewel Quest 68MC	 <p>Retrieved from: gamespot.com</p>	2D "bright and clean"	Puzzle	Unknown
Novadrome 50MC	 <p>Retrieved from: gamespot.com</p>	3D "generic"	Vehicle Action	Custom

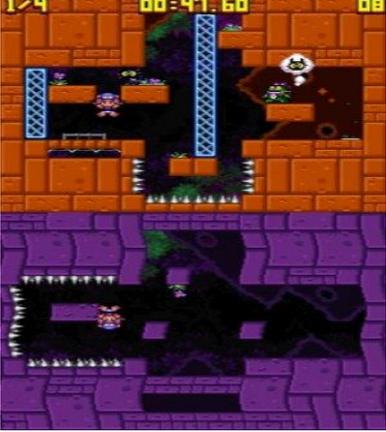
Name/Developer	Screenshot	Aesthetic	Genre	Engine
<p>Puzzle Quest: Challenge of the Warlords</p> <p>87MC</p>	 <p>Retrieved from: imdb.com</p>	<p>2D</p> <p>“anime art style”</p>	<p>Puzzle/RPG</p>	<p>Vicious Engine</p>
<p>Alien Hominid HD</p> <p>79MC</p>	 <p>Retrieved from: gamespot.com</p>	<p>2D</p> <p>“hand-drawn style”</p>	<p>Run n Gun</p>	<p>Custom</p>
<p>Switchball</p> <p>78MC</p>	 <p>Retrieved from: gamespot.com</p>	<p>3D</p>	<p>Puzzle/Action</p>	<p>Custom</p>
<p>Eets: Chowdown</p> <p>77MC</p>	 <p>Retrieved from: eurogamer</p>	<p>2D</p> <p>“cartoonishly warped art style” “hand- drawn”</p>	<p>Puzzle</p>	<p>Custom</p>
<p>Mutant Storm Empire</p> <p>77MC</p>	 <p>Retrieved from: www.eurogamer</p>	<p>3D</p>	<p>Shooter</p>	<p>Tripper 3D Engine</p>

<p>Undertow</p> <p>76MC</p>	 <p>Retrieved from: gamespot.com</p>	<p>2D/3D</p> <p><i>“glub-glub setting”</i></p>	<p>Shooter</p>	<p>Unreal Engine 3</p>
<p>F10w</p> <p>71MC</p>	 <p>Retrieved from: blogspot.com</p>	<p>3D</p> <p><i>“generic visuals”</i></p>	<p>Simulation</p>	<p>PhyreEngine</p>
<p>Luxor 2</p> <p>70MC</p>	 <p>Retrieved from: uk.ign.com</p>	<p>2.5D</p> <p><i>“simple-looking”</i></p>	<p>Puzzle</p>	<p>Unknown</p>
<p>Space Giraffe</p> <p>68MC</p>	 <p>Retrieved from: gamespot.com</p>	<p>3D</p> <p><i>“stylized graphics”</i></p>	<p>Shooter</p>	<p>Custom</p>

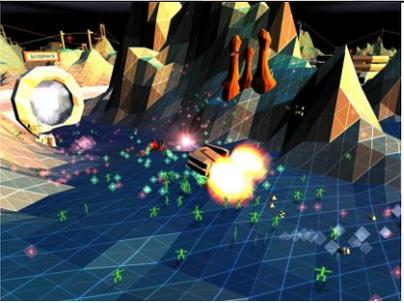
Name/Developer	Screenshot	Aesthetic	Genre	Engine
World of Goo 94MC	 <p>Retrieved from: destructoid.com</p>	2D “sensatio nal visual style” “hand- drawn”	Puzzle	Custom
Braid 93MC	 <p>Retrieved from: gamespot.com</p>	2D “Hand- drawn” “serene visuals” “subtle visuals”	Puzzle/ Platfor mer	Custom
N+ 83MC	 <p>Retrieved from: gamespot.com</p>	2D “stylish design” “minimal style”	Platfor mer	Custom
Castle Crashers 82MC	 <p>Retrieved from: playstation.com -</p>	2D “unique art style” “hand- drawn”	Beat 'em up RPG	Custom
Out of the Park Baseball 9 82MC	 <p>Retrieved from: gamespot.com</p>	2D/3D	Sports Simulati on	Custom

<p>Multiwinia: Survival of the Flattest</p> <p>76MC</p>		<p>2D/3D</p> <p>“lo-fi aesthetic”</p>	<p>Real- Time Strategy</p>	<p>Unkno wn</p>
<p>Groovin’ Blocks</p> <p>75MC</p>		<p>2.5D</p> <p>Pixel Aesthetic</p> <p>“16-bit”</p>	<p>Puzzle</p>	<p>RapidFir e</p>
<p>Shred Nebula</p> <p>66 MC</p>		<p>3D</p>	<p>Shooter</p>	<p>Custom</p>
<p>TiQal</p> <p>58 MC</p>		<p>2D/3D</p> <p>“polished -looking”</p>	<p>Puzzle</p>	<p>Unkno wn</p>
<p>Dash of Destruction</p> <p>53 MC</p>		<p>2D/3D</p> <p>“simplisti c looking”</p>	<p>Racing</p>	<p>Unkno wn</p>
<p>Retrieved from: alchetron.com</p>				

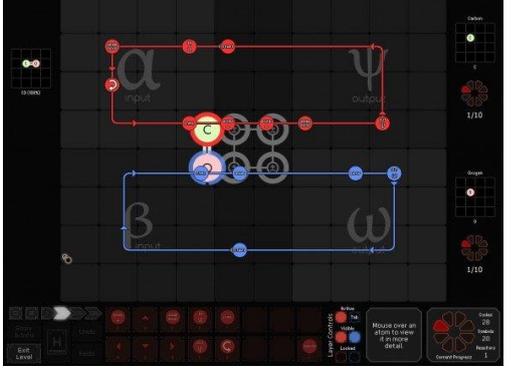
Name/Developer	Screenshot	Aesthetic	Genre	Engine
Minecraft By Mojang 93MC	 <p>Retrieved from: theverge.com</p>	3D Pixels	Sandbox	LWJGL (Lightweight Java Game Library 3)
Critter Crunch By Capybara Games 87 MC	 <p>Retrieved from: capybara games.com</p>	2D Hand-Drawn Hand-Animated	Puzzle	PhyreEngine
flower by thatgamecompany 87MC	 <p>Retrieved from: playsta tion.com</p>	3D “incredible aesthetic” “experimental artistry”	Adventure / Art	PhyreEngine
Machinarium By Amanita Design 85MC	 <p>Retrieved from: store.steampowered.com</p>	2D/3D Hand-Drawn “enchanting visuals”	Point & Click Adventure	Flash
'Splosion Man By Twisted Pixel 84MC	 <p>Retrieved from: microsoft.com</p>	2.5D	Platformer	BEARD (Custom)
Time Gentlemen, Please! By Zombie Cow Studios 84MC	 <p>Retrieved from: store.steampowered.com</p>	2D Hand-Drawn	Point & Click Adventure	Adventure Game Studio

<p>Swords & Soldiers By Ronimo Games</p> <p>84MC</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D</p> <p>“cartoonish”</p> <p>“drawn”</p>	<p>Strategy</p>	<p>Unknown</p>
<p>Comet Crash By Pelfast</p> <p>83MC</p>	 <p>Retrieved from: playstation.com</p>	<p>2D</p> <p>“sterile style”</p> <p>“simplistic visuals”</p>	<p>Tower Defense</p>	<p>Unknown</p>
<p>Mighty Flip Champs! By WayForward Technologies</p> <p>83MC</p> <p>Game 126</p>	 <p>Retrieved from: nintendolife.com</p>	<p>2D</p> <p>“retro vibe”</p> <p>Pixel Art</p> <p>“throwback to 8 and 16-bit limitations”</p>	<p>Puzzle Platformer</p>	<p>Unknown</p>
<p><i>NyxQuest: Kindred Spirits</i></p> <p>82 MC</p>	 <p>Retrieved from: steampowered.com</p>	<p>2.5D</p> <p>Hand-drawn</p>	<p>Platformer</p>	<p>Custom</p>

Name/Developer	Screenshot	Aesthetic	Genre	Engine
<p>Limbo By Playdead</p> <p>90Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D</p> <p>Hand-Drawn</p> <p>“atmospheric”</p> <p>“minimalist art style”</p>	<p>Puzzle Platformer</p>	<p>Custom</p>
<p>Super Meat Boy</p> <p>By Team Meat</p> <p>90 MC</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D</p> <p>Pixel Art</p>	<p>Platformer</p>	<p>Custom</p>
<p>Art of Balance</p> <p>By Shin'en Multimedia</p> <p>88MC</p>	 <p>Retrieved from: nintendolife.com</p>	<p>3D</p> <p>Polygons</p>	<p>Puzzle</p>	<p>Custom/Unknown</p>
<p><i>Shantae: Risky's Revenge</i></p> <p>By WayForward Technologies</p> <p>85MC</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixel Art</p>	<p>Platformer</p>	<p>Custom</p>
<p>Amnesia: The Dark Descent</p> <p>By Frictional Games</p> <p>85MC</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>3D</p>	<p>Survival Horror</p>	<p>HPL Engine 2</p>

<p><i>And Yet It Moves</i> By Broken Rules 83MC</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D</p> <p>“unique visual style”</p> <p>“looks like a collage from images torn out of National Geographic”</p> <p>“ripped, crumpled paper look”</p>	<p>Platformer</p>	<p>Torque</p>
<p>VVVVVV By Nicalis 81MC</p>	 <p>Retrieved from: https://store.steampowered.com/app/70300/VVVVVV/</p>	<p>2D</p> <p>Pixels</p> <p>“F aesthetic”</p> <p>“Commodore 64-era visual design”</p>	<p>Platformer</p>	<p>Flash</p>
<p><i>Rage of the Gladiator</i> By Ghostfire Games 81MC</p>	 <p>Retrieved from: cheatcc.com</p>	<p>3D</p>	<p>Fighting</p>	<p>Unknown</p>
<p>Darwinia+ By Introversion Software 80MC</p>	 <p>Retrieved from: https://store.steampowered.com/app/1500/Darwinia/</p>	<p>3D</p> <p>Polygons</p>	<p>Strategy</p>	<p>Unknown/Custom</p>

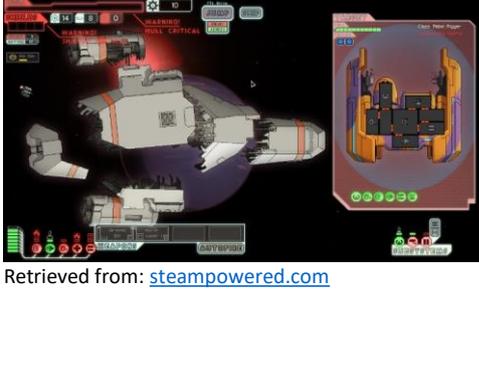
<p><i>Cart Life</i> By Richard Hofmeier</p>	 <p>Retrieved from: https://www.giantbomb.com/cart-life/3030-36155/</p>	<p>2D Pixels “ Stylish black and white visuals”</p>	<p>Simulation</p>	<p>Adventure Game Studio</p>
---	--	---	--------------------------	-------------------------------------

Name/Developer	Screenshot	Aesthetic	Genre	Engine
<p>Joe Danger: Special Edition By Hello Games 88MC</p>	 <p>Retrieved from: hellogames.org</p>	<p>2D/3D</p> <p>“charming visuals”</p>	<p>Side Scroller</p>	<p>Unknown /Custom</p>
<p>Bastion By Supergiant Games 84MC</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D/3D</p> <p>“watercolor painting with stained glass influences”</p> <p>Hand-Painted/ Drawn</p>	<p>Action RPG</p>	<p>Microsoft XNA</p>
<p>SpaceChem By Zachtronics Industries 84MC</p>	 <p>Retrieved from: pcgamer.com</p>	<p>2D</p> <p>“graphics are attractive”</p>	<p>Puzzle</p>	<p>Unknown /Custom</p>
<p>The Binding of Isaac By Edmund McMillen 84MC</p>	 <p>Retrieved from: gamespot.com</p>	<p>2D</p> <p>“hand-drawn pixel style artwork”</p> <p>“Creepy cute”</p>	<p>Roguelike</p>	<p>Adobe Flash</p>

<p>Orcs Must Die! By Robot Entertainment 83MC</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>3D</p>	<p>Action/Tower Defense</p>	<p>Vision</p>
<p>Terraria By Re-Logic</p>	 <p>Retrieved from: microsoft.com</p>	<p>2D Pixel Art</p>	<p>Sandbox</p>	<p>Microsoft XNA</p>
<p>Ms. Splosion Man By Twisted Pixel Games 83MC</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2.5D</p>	<p>Platformer</p>	<p>Beard (Custom)</p>
<p>Gemini Rue By Joshua Nuernberger 82MC</p>	 <p>Retrieved from: wadieteyegames.com</p>	<p>2D Pixel Art draw Graphics “hyper- pixelated style”</p>	<p>Adventure/Point & Click</p>	<p>Adventure Game Engine</p>

<p>To the Moon By Freebird Games</p> <p>81MC</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixel Art</p>	<p>Adventure</p>	<p>RPG Maker XP</p>
<p>Where is my heart? By Die Gute Fabrik</p> <p>81MC</p>	 <p>Retrieved from: ps3maven.com</p>	<p>2D Pixel Art</p>	<p>Platformer</p>	<p>Unknown/Custom</p>

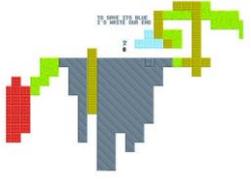
Name/Developer	Screenshot	Aesthetic	Genre	Engine
Fez By Polytron Corporation 89MC	 <p>Retrieved from: ign.com</p>	2D/3D “pixel-painted universe, vibrant art”	Puzzle Platformer	Custom
Thirty Flights of Loving By Blendo Games 88MC	 <p>Retrieved from: rockpapershotgun.com</p>	3D “blocky looks”	First-person Adventure	Id Tech 2
Spelunky By Mossmouth, LLC 87MC	 <p>Retrieved from: pcgamer.com</p>	2D	Platformer/Roguelike	Gamemaker Studio 2
Tales from Space: Mutant Blobs Attack By DrinkBox Studios 86MC	 <p>Retrieved from: nintendo.co.uk</p>	2D “bright visual style inspired by 50's art”	Platformer	Unknown/Custom

<p>Hotline Miami By Dennaton Games 85MC</p>	 <p>Retrieved from: humblebundle.com</p>	<p>2D Pixel Art Entrancing visual design</p>	<p>Top-down shooter</p>	<p>GameMaker 7</p>
<p>FTL: Faster Than Light By Subset Games 84MC</p>	 <p>Retrieved from: steampowered.com</p>	<p>2D “Chunky visual style, pixellated top-down view that is as charming as it is helpful. Retro without being ironic“</p>	<p>Top-Down, RTS, Roguelike</p>	<p>Custom</p>
<p>Orcs Must Die 2 By Robot Entertainment 83MC</p>	 <p>Retrieved from: steampowered.com/</p>	<p>3D</p>	<p>Action/Tower Defense</p>	<p>Vision</p>
<p>Dust: An Elysian Tail By Humble Hearts 83MC</p>		<p>2D Hand-Drawn “rare example of artisanal game craft“</p>	<p>Action RPG</p>	<p>XNA</p>

<p>Superbrothers: Sword & Sworcery EP By Capybara Games 83MC</p>	 <p>Retrieved from: steampowered.com</p>	<p>2D</p> <p>Pixel Art</p> <p><i>“really distinctive art style and personality”</i></p>	<p>Adventure</p>	<p>Custom</p>
<p>Legend of Grimrock By Almost Human 82MC</p>	 <p>Retrieved from: grimrock.net</p>	<p>3D</p>	<p>Dungeon Crawler/ Action RPG</p>	<p>Custom</p>

Name/Developer	Screenshot	Aesthetic	Genre	Engine
<p>The Stanley Parable By Galactic Café 88 Metacritic</p>	 <p>Retrieved from: polygon.com</p>	<p>3D</p> <p>“darkly prosaic world of modern bureaucracy”</p> <p>“textures and designs can still look pretty simple at times”</p>	<p>First Person Walking Simulator/ Story</p>	<p>Source</p>
<p>Gone Home By The Fullbright Company 86 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>3D</p> <p>“realistic, simplified, unfantastical”</p> <p>“Incredibly rich and convincing '90s atmosphere”</p>	<p>First Person Walking Simulator/ Story</p>	<p>Unity</p>
<p>Out of the Park Baseball 14 By Out Of The Park Developments 86 Metacritic</p>	 <p>Retrieved from: steamcommunity.com</p>	<p>2D</p> <p>“looks nice enough without being flashy”</p> <p>“at times looking more like an Excel spreadsheet with a few buttons and dashes of color”</p>	<p>Text-based simulation</p>	<p>Custom?</p>

<p>Path of Exile By Grinding Gear Games</p> <p>86 Metacritic</p>	 <p>Retrieved from: gamespot.com</p>	<p>3D</p> <p>“Dark art style”</p> <p>“Foreboding atmosphere”</p>	<p>Action RPG/ Dungeon Crawler</p>	<p>Custom Engine</p>
<p>Runner2: Future Legend of Rhythm Alien By Gaijin Games</p> <p>85 Metacritic</p>	 <p>Retrieved from: gonintendo.com</p>	<p>3D</p> <p>“mainstream look and appeal”</p> <p>“warm visuals, distinctive characters”</p>	<p>Platformer</p>	<p>Atrophy Engine</p>
<p>Papers, Please By 3909 LLC</p> <p>85 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixels</p> <p>“ominous Soviet-styled nation of Arstotzka”</p> <p>“oppressive 16-bit visuals”</p> <p>“dystopic bleakness setting”</p>	<p>Puzzle</p>	<p>OpenFL Engine</p>
<p>Guacamelee! By DrinkBox Studios</p> <p>84 Metacritic</p>	 <p>Retrieved from: guacamelee.com/</p>	<p>2D</p> <p>“Mexican art”</p> <p>“2D cartoon graphics”</p> <p>“quirky art style”</p>	<p>Metroidvania</p>	<p>Custom Game Engine</p>

<p>Gunpoint By Suspicious Developments</p> <p>83 Metacritic</p>	 <p>Retrieved from: giantbomb.com</p>	<p>2D Pixels</p> <p>“tiny but expressive art”</p> <p>“simple art style that is rich in detail and beautifully animated”</p> <p>“homage to noir and neo-noir”</p>	<p>Stealth/Puzzle/ Platformer</p>	<p>Game Maker</p>
<p>Starseed Pilgrim By Droqen</p> <p>83 Metacritic</p>	 <p>Retrieved from: wired.com</p>	<p>2D</p> <p>“visual design is one of miniaturized squares and symbols”</p> <p>“minimalist art style”</p>	<p>Puzzle/ Platformer</p>	<p>Flash</p>
<p>Monaco: What's Yours Is Mine By Pocketwatch Games</p> <p>83 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixels</p> <p>“stylish, pixelated depiction of the French Riviera”</p> <p>“Novel artistic design”</p>	<p>Action/Stealth</p>	<p>XNA</p>

Name/Developer	Screenshot	Aesthetic	Genre	Engine
<p>Year Walk By Simogo</p> <p>87 Metacritic</p>	 <p>Retrieved from: theverge.com</p>	<p>2D</p> <p>“artful”</p> <p>“mysterious art style”</p>	<p>Adventure</p>	<p>Unity</p>
<p>Legend of Grimrock II By Almost Human</p> <p>Metacritic 85</p>	 <p>Retrieved from: scientificgamer.com</p>	<p>3D</p> <p>“visual diversity”</p> <p>“Dramatic aesthetic”</p>	<p>Action RPG/ Dungeon Crawler</p>	<p>Custom Engine</p>
<p>Super Mega Baseball By Metalhead Software</p> <p>Metacritic 85</p>	 <p>Retrieved from: psnation.com</p>	<p>3D</p> <p>“whimsy, caricature”</p> <p>“cartoony veneer”</p>	<p>Sports</p>	<p>PhyreEngine</p>
<p>Shantae and the Pirate’s Curse By WayForward</p> <p>85 Metacritic</p>	 <p>Retrieved from: nintendolife.com</p>	<p>2D</p> <p>“vibrant look”</p> <p>“charm and energy that you seldom see in 2D pixel art”</p> <p>“8-bit”</p>	<p>Platformer/ Metroidvania</p>	<p>EngineBlack</p>

<p>TxK By Llamasoft</p> <p>84 Metacritic</p>	 <p>Retrieved from: blog.us.playstation.com</p>	<p>3D</p> <p>“retains a little of that classic vector flavour”</p> <p>“Overwhelming art style at times”</p> <p>“warmth and colour”</p>	<p>Shooter</p>	<p>Custom Engine</p>
<p>Frozen Synapse By Mode 7 Games</p> <p>84 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>3D</p> <p>“futuristic setting, using a clean, minimalistic approach”</p> <p>“futuristic setting, using a clean, minimalistic approach”</p>	<p>Turn-based Strategy</p>	<p>Torque</p>
<p>Ultimate General: Gettysburg By Game-Labs</p> <p>84 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D</p> <p>“simple (and somewhat tiny) sprites”</p> <p>“unique art style”</p>	<p>Strategy/ Simulation</p>	<p>Unity</p>
<p>The Blackwell Epiphany By Wadjet Eye Games</p> <p>83 Metacritic</p>	 <p>Retrieved from: rockpapershotgun.com</p>	<p>2D Pixels</p> <p>“retro graphics”</p> <p>“90s-era look”</p> <p>“pixelated visuals hearken back to the</p>	<p>Point & Click Adventure</p>	<p>Adventure Game Studio</p>

<p>Transistor By Supergiant Games 83 Metacritic</p>	 <p>Retrieved from: supergiantgames.com</p>	<p>2D/3D “hand-drawn style” “expressive character design of classic anime” “inspired visuals”</p>	<p>Action RPG</p>	<p>Custom engine</p>
<p>This War of Mine By 11 bit studios 83 metacritic</p>	 <p>Retrieved from: origin.com</p>	<p>2D/3D “beautiful, but portentous, constantly moving pencil art style” “brooding, charcoal-sketch style”</p>	<p>Survival</p>	<p>Custom Engine</p>

2015

Name/Developer	Screenshot	Aesthetic	Genre	Engine
Undertale By Toby Fox 92 Metacritic	 <p>Retrieved from: playstation.com</p>	2D Pixels “goofy 8-bit RPG parody” “basic and uninspired” “retro style 8-bit friendly sprites”	RPG	Gamemaker Studio
Nuclear Throne By Vlambeer 88 Metacritic	 <p>Retrieved from: store.steampowered.com</p>	2D pixels “Simple but colourful” “post-apocalyptic” “oscillates between cuteness and morbidity”	Top-down Shooter Roguelike	Gamemaker Studio
Kerbal Space Program By Squad 88 Metacritic	 <p>Retrieved from: store.steampowered.com</p>	3D “textures are basic and low-res” “utilitarian”	Space Simulation	Unity
Ori and the Blind Forest By Moon Studios 88 metacritic (Published by Microsoft?)	 <p>Retrieved from: windowscentral.com</p>	2D “pleasantly tepid art-house” “hand-painted” “exquisite hand-drawn art style”	Platforming/ Metroidvania	Unity

<p>Crypt of the NecroDancer By Brace Yourself Games 87 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixels “pixel-filled presentation” “delightful 2D aesthetic” “reminiscent of Link to the Past-era Zelda”</p>	<p>Rhythm/ Roguelike/ Puzzle</p>	<p>Monkey X</p>
<p>OlliOlli2: Welcome to Olliwood By Roll7 86 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixels “highly stylised, flat- shaded look” “colourful, pixel-style hand-drawn graphics that look inspired by 90s classics”</p>	<p>Sports</p>	<p>PhyreEngine</p>
<p>Rocket League By Psyonix</p>	 <p>Retrieved from: mcvuk.com</p>	<p>3D “sleek, neon- coated look” “vibrant and chunky visual style”</p>	<p>Sports</p>	<p>Unreal Engine 3</p>

<p>Chaos Reborn By Snapshot Games</p> <p>85 Metacritic</p>	 <p>Retrieved from: pcgamesn.com</p>	<p>3D</p> <p>“very definitive art style”</p> <p>“intriguing art style”</p>	<p>Tactical RPG</p>	<p>Unity</p>
<p>Axiom Verge By Thomas Happ Games</p> <p>84 Metacritic</p>	 <p>Retrieved from: nintendo.co.uk</p>	<p>2D Pixels</p> <p>“authentic 8-bit colour palette”</p> <p>“art style is somewhere in between 8- and 16-bit graphics”</p>	<p>Metroidvania</p>	<p>MonoGame</p>
<p>SOMA By Frictional Games</p> <p>84 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>3D</p> <p>“haunting and extremely disconcerting”</p> <p>“retro-futuristic aesthetic”</p>	<p>Survival Horror</p>	<p>HPL Engine 3</p>

2016

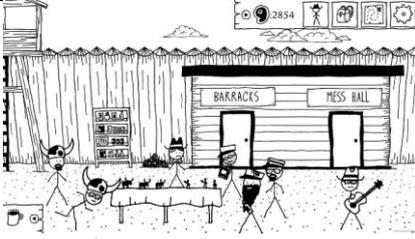
Name/Developer	Screenshot	Aesthetic	Genre	Engine
Stephen's Sausage Roll By Increpare Games 90 Metacritic	 Retrieved from: store.steampowered.com	3D Pixels "Low-Res" "unimpressive graphics" "Abstract style"	Puzzle	Unity
Stardew Valley By ConcernedApe 89 Metacritic	 Retrieved from: polygon.com	2D Pixels Top-Down Pixel Art "16-bit art style"	Farming Simulation/RPG	C# Custom Engine
Owlboy By D-Pad Studio 88 Metacritic	 Retrieved from: store.steampowered.com	2D Pixels Pixel Art "eye-catching pixel art style" "modern day retro classic" "unique, almost hand-drawn artistic style"	Platform Adventure	XNA

The Witness By Thekla, Inc. 87 Metacritic	 Retrieved from: origin.com	3D "deliberately hushed and lifeless" "Unreal, dreamlike" "semi-realistic environmental art style"	Puzzle	Custom Engine
--	---	---	--------	---------------

<p>Pony Island By Daniel Mullins Games</p> <p>86 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixels</p> <p>“retro-themed visuals”</p> <p>“monochromatic style”</p>	<p>Puzzle</p>	<p>Unity</p>
<p>Assault Android Cactus By Witch Beam</p> <p>Metacritic 85</p>	 <p>Retrieved from: assaultandroidcactus.com</p>	<p>3D</p> <p>“Japanese art style”</p> <p>“colorful art style”</p>	<p>Twin Stick Shoot Em up</p>	<p>Unity</p>
<p>The Last Door: Season 2 By The Game Kitchen</p> <p>Metacritic: 85</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixels</p> <p>“purposeful low resolution”</p> <p>“extremely retro-styled”</p> <p>“Chunky pixel art”</p>	<p>Horror Point & Click Adventure</p>	<p>Unity</p>
<p>Salt and Sanctuary By Ska Studios</p> <p>Metacritic 84</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixels</p> <p>“rough-brushed art style”</p> <p>“dull and earthy”</p> <p>“horror through the style of comic strips”</p> <p>“reminiscent of some dour ‘70s”</p>	<p>Side Scroller Action RPG</p>	<p>XMA</p>

<p>Darkest Dungeon By Red Hook Studios 84 Metacritic</p>	 <p>Retrieved from: store.steampowered.com/</p>	<p>2D “hand-drawn gothic crowquill art style” “dark style” “grim but expressive hand-drawn art style” “Little of Mike Mignola’s Hellboy with some pure despair” “visually distinctive”</p>	<p>Roguelike Turn-Based RPG</p>	<p>Custom C++ Engine</p>
<p>Enter the Gungeon By Dodge Roll 84 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixels “unique, charming tone” “charming retro pixel-art style” “incredibly vibrant and endearing art style” “resurrects the 16-bit graphics of the SNES golden age” “JRPG-inspired look”</p>	<p>Dungeon Crawler/ Roguelike Bullet hell “Genre fusion” (IGN)</p>	<p>Unity</p>

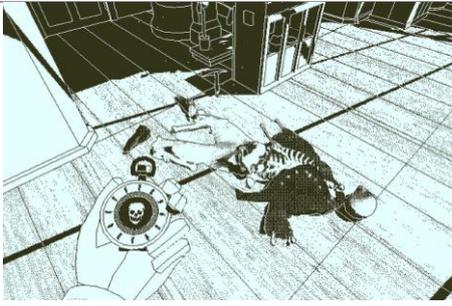
Name/Developer	Screenshot	Aesthetic	Genre	Engine
<p>Shovel Knight: Treasure Trove</p> <p>91 Metacritic</p>	 <p>Retrieved from: nintendo.co.uk</p>	<p>2D Pixels</p> <p>“Rose-tinted 8-bit”</p>	<p>Platformer</p>	<p>Custom C++</p>
<p>Cuphead</p> <p>By StudioMDHR</p> <p>88 Metacritic</p>	 <p>Retrieved from: theverge.com</p>	<p>2D</p> <p>“1930s animation style”</p> <p>“bizarre mix of ‘30s aesthetics and ‘80s design more heady than ever”</p>	<p>Action platformer</p>	<p>Unity</p>
<p>SteamWorld Dig 2</p> <p>By Image & Form</p> <p>88 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixels</p> <p>Pixel Art</p> <p>“Western meets steampunk”</p>	<p>Action-Adventure</p> <p>Platformer/Metroidvania</p>	<p>Custom C++ Engine</p>

<p>Hollow Knight By Team Cherry</p> <p>87 Metacritic</p>	 <p>Retrieved from: uk.ign.com</p>	<p>2D Pixels</p> <p>Pixel Art</p> <p>“Hand-drawn” “Monotone, yet vibrant”</p> <p>“Moody, Dark Souls- inspired”</p>	<p>Metroidvania</p>	<p>Unity</p>
<p>Thimbleweed Park By Terrible Toybox</p> <p>86 Metacritic</p>	 <p>Retrieved from: indiereptronews.com</p>	<p>2D Pixels</p> <p>“Old-school 8- bit art”</p> <p>“style in homage of the specific look and feel of 'golden age' 8- bit computer games”</p> <p>“Retro look”</p>	<p>Point & Click Adventure</p>	<p>Custom Engine</p>
<p>West of Loathing By Asymmetric Publications</p> <p>86 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D</p> <p>Stickman</p> <p>Black & White</p> <p>“Crude hand- drawn art”</p> <p>“black-and- white stick figure art”</p>	<p>Comedy Adventure RPG</p>	<p>Unity</p>

<p>Paradigm By Jacob Janerka</p> <p>85 Metacritic</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D Pixel Art</p> <p>Multiple Art Styles</p> <p>“retro pixel art”</p> <p>“Surreal 2D Graphics: Pixar meets Fallout”</p> <p>“ Hand-drawn”</p> <p>“70/80’s influence”</p> <p>“cross between the work of Andrei Tarkovsky and a 1970s vision of a possible 21st century”</p>	<p>Point & Click Adventure</p>	<p>Visionaire Studio</p>
<p>Battlerite By Stunlock Studios</p> <p>Metacritic 85</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>Top-down 3D</p> <p>“distinct low poly fantasy art style”</p>	<p>Multiplayer Action/ Battle Arena</p>	<p>Unity</p>

<p>Neurovoider By Flying Oak Games</p> <p>Published by Playdius Entertainment</p>	 <p>Retrieved from: neurovoider.com/</p>	<p>2D Pixels</p> <p>“beautiful pixel-art visuals”</p> <p>“distinct pixel art style and vibrant colour palette”</p> <p>“science fiction / cyber punk”</p> <p>“dirty pixel art” (meaning, darkness)</p>	<p>Twin-Stick Shooter</p> <p>shoot-‘em-up</p> <p>“twin-stick shooter RPG”</p>	<p>Custom Engine powered by MonoGame</p>
<p>Pyre By Supergiant Games</p> <p>85 Metacritic</p>	 <p>Retrieved from: playstation.com</p>	<p>2D, but “with tricks to look 3D”</p> <p>“surreal, dreamlike”</p> <p>“vibrant and unique”</p>	<p>Sports/RPG</p>	<p>Custom Engine</p>

Name/Developer	Screenshot	Aesthetic	Genre	Engine
<p>Celeste By Matt Makes Games</p> <p>92 Metacritic</p>	 <p>Retrieved from: eurogamer.net</p>	<p>2D Pixels</p> <p>“retro pixel-art 2D platformer”</p>	<p>Platformer</p>	<p>XNA</p>
<p>INSIDE By Playdead</p> <p>91 Metacritic</p>	 <p>Retrieved from: polygon.com</p>	<p>2.5D</p> <p>“Dreamlike”</p> <p>“Monochrome aesthetic”</p> <p>“Artistic”</p>	<p>Puzzle/Platformer</p>	<p>Unity</p>
<p>Dead Cells By Motion Twin</p> <p>89 Metacritic</p>	 <p>Retrieved from: eurogamer.net</p>	<p>2D Pixels</p> <p>“Low-Res Pixel Art”</p> <p>“color-coded unique art style”</p> <p>“Neo-Retro”</p>	<p>Roguelike/ Metroidvania “Roguevania”</p>	<p>Haxe/ Heaps</p>

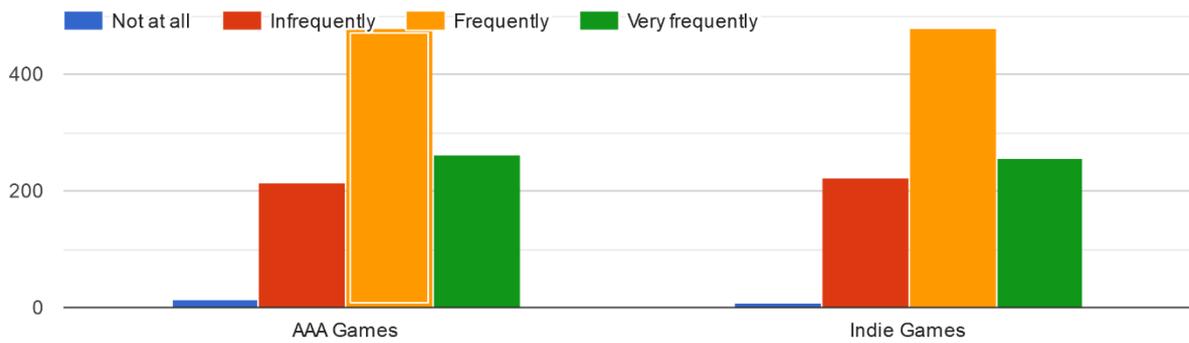
<p>Into the Breach By Subset Games 90 Metacritic</p>	 <p>Retrieved from: rockpapershotgun.com</p>	<p>2D Pixels “Top-Down 2D Pixel Art”</p>	<p>Turn-Based Strategy</p>	<p>C++ Custom</p>
<p>Return of the Obra Dinn By 3909 LLC 89 Metacritic</p>	 <p>Retrieved from: theverge.com</p>	<p>3D “1-bit” “dithered”</p>	<p>Puzzle</p>	<p>Unity</p>
<p>Subnautica By Unknown Worlds Entertainment 87 Metacritic</p>	 <p>Retrieved from: androidcentral.com</p>	<p>3D Stylised “slightly exaggerated silhouettes” “Not too cartoony”</p>	<p>Open World/Survival</p>	<p>Unity</p>

<p>Unavowed By Wadjet Eye Games</p> <p>87 Metacritic</p>	 <p>Retrieved from:</p>	<p>2D</p> <p>“Pixel Art”</p> <p>“Urban Fantasy”</p>	<p>Point & Click Adventure</p>	<p>Adventure Game Studio</p>
<p>Iconoclasts By Konjak</p> <p>(Developed by one guy, but was published)</p> <p>87 Metacritic</p>	 <p>Retrieved from: arstechnica.com</p>	<p>2D Pixels</p> <p>“gorgeous traditional 16-bit-style pixel art”</p> <p>“unique geometric visual style”</p>	<p>Action/Platformer/ Metroidvania</p>	<p>Custom Engine Within Construct Classic</p>
<p>RimWorld By Ludeon Studios</p> <p>86 Metacritic</p>	 <p>Retrieved from:</p>	<p>Top-Down 2D</p> <p>“PA Art Style”</p> <p>Developer “shared” art style from another Indie Game due to constraints.</p>	<p>Strategy/ Management Simulation</p>	<p>Unity</p>
<p>The Messenger By Sabotage Studio</p> <p>Published by Indie publisher Devolver Digital</p>	 <p>Retrieved from: store.steampowered.com</p>	<p>2D</p> <p>8-bit and 16- bit pixels</p> <p>“Modern Retro Done Right”</p> <p>“The game switches from its vibrant 8- bit aesthetic to an even</p>	<p>Action/Platformer/ Metroidvania</p>	<p>Unity</p>

Appendix C - Questionnaire (966 responses in total)

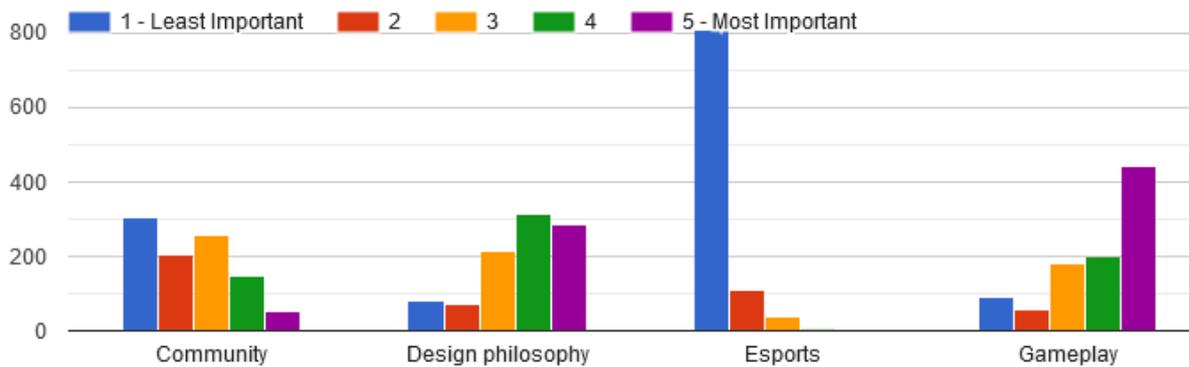
1. What is your favourite indie game?
2. Why is that your favourite indie game?
3. How would you define an indie game? (No more than 100 words)
4. How often do you play indie and AAA Games?

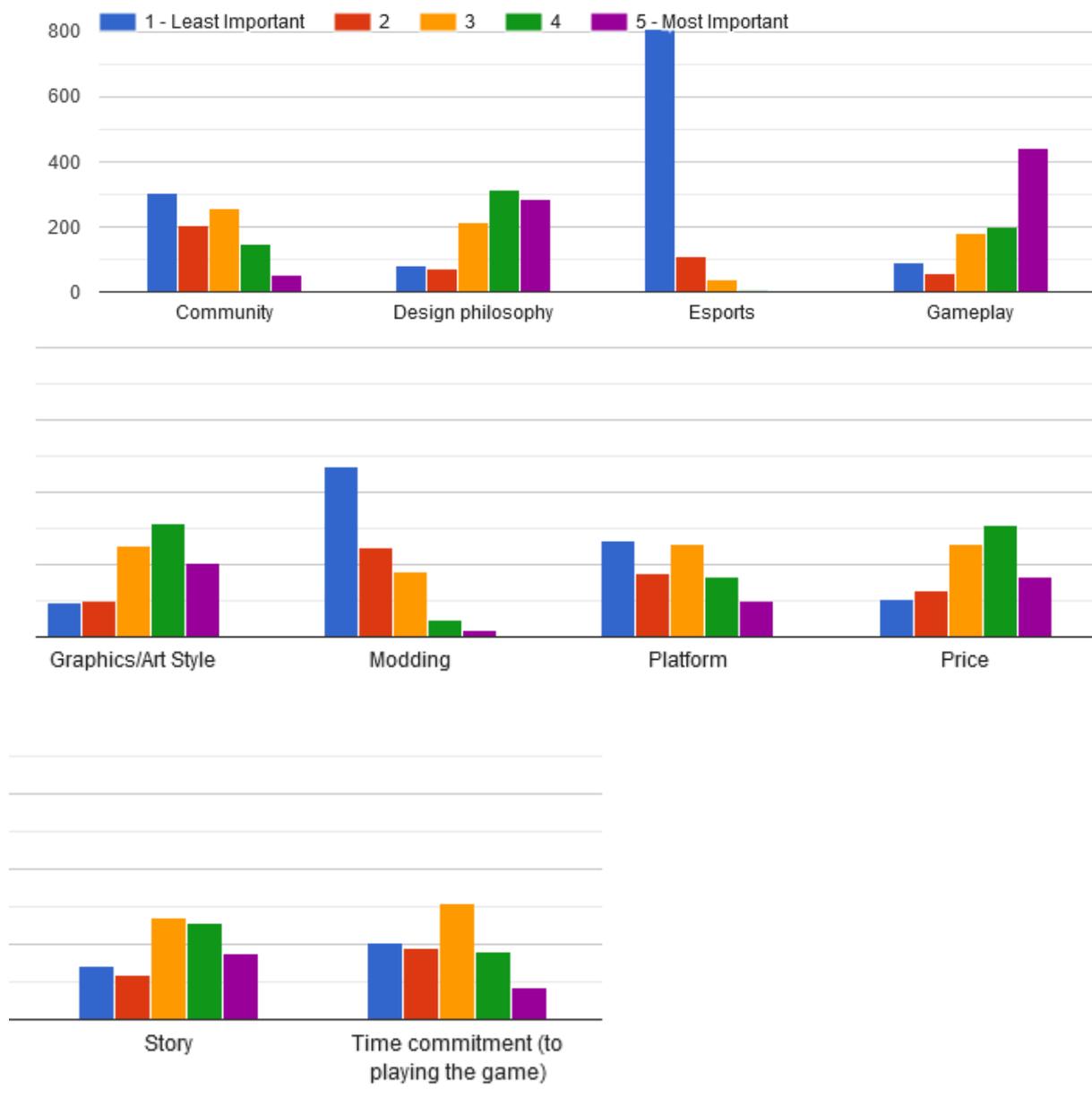
4. How often do you play indie and AAA Games?



4.2. Is there any reason you play one or both that frequently?

5. When defining what makes an indie game "indie", how would you rate the importance of the following characteristics and features?

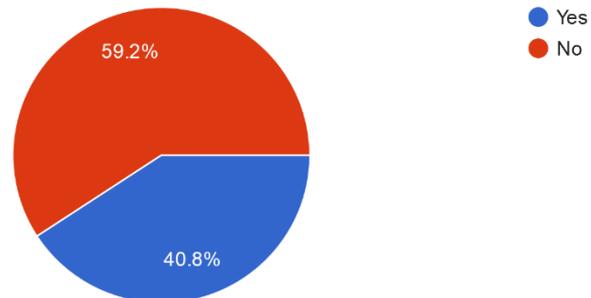




6. Are you involved in any AAA gaming communities?

6. Are you involved in any AAA gaming communities?

966 responses

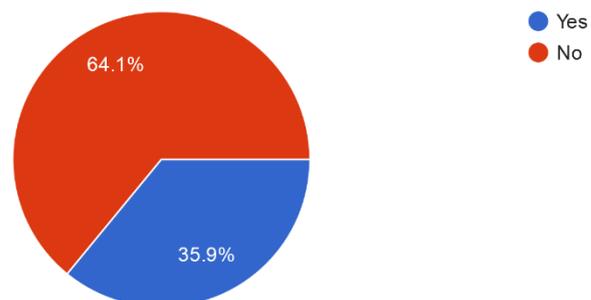


6.1. Is there any particular reason why?

7. Are you involved in any indie gaming communities?

7. Are you involved in any indie gaming communities?

966 responses



7.1. Is there any particular reason why?

8. Date of birth?

9. What country are you from?

10. What is your gender?

10. What is your gender?

966 responses

