

ON PRESERVING GAMES AND PERSEVERANCE FOR THE FUTURE: A DEVELOPER PERSPECTIVE

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Using ethnographic research methods, I worked with the International Game Developers Association (IGDA) to conduct an exploratory study about developer perspectives on video game preservation. I conducted in-depth interviews with independent developers in the Dallas-Fort Worth region, a hub for Texas game development. These interviews explored developers' knowledge and awareness of game preservation as a topic of concern, archival culture and practices in the industry, and the IGDA's potential role in addressing issues related to preservation work. This research contributes to a growing body of literature on game preservation, urgently needed as many gaming technologies face obsolescence in the near future. I use Ellen Cushman's concept of "perseverance" to examine the difference between simply preserving video games for the future, and the perseverance of game development as a professional trade and artistic craft.

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PREFACE

I first discovered the fragile nature of video games when I was eight years old. Growing up in a Mexican-American household meant summers were for *familia*. There was little time to hang out with neighborhood kids or schoolyard friends. Instead, my family took road trips across the great state of Texas, visiting various aunts and uncles, *primos y primas*. Our final stop would be my grandparents' home in the Rio Grande Valley. There we would stay for the remainder of the summer, where my days would be spent primarily in the company of my cousin Christopher, only eight months my junior. We were remarkably similar, to the point that if we were out in public together, strangers often mistook us for twins. We shared many interests, chief among them a love for video games.

On one fateful day, during one fateful summer, my cousin and I were playing *Quest 64*, a role-playing game for the Nintendo 64 game console. Since the game was designed as a single-player experience, we took turns exploring *Quest's* fantastical world of magic and monsters. Experienced gamers that we were, my cousin and I created multiple save files to more securely protect our progress. There was always the possibility of accidentally deleting a save file, or perhaps we might want to restart the game at an earlier point, either to correct a mistake or try a different path – a process known as save scumming. But on this particular day, Robin, a younger cousin of ours, hit the reset button on the Nintendo 64 in the middle of our play session. It was not a purposeful, mischievous act; Robin was too young to understand the consequences of her actions. The reset had corrupted all our save files. Weeks of progress disappeared in an instant. Christopher was furious and chased Robin around the house for the

rest of the day. I simply laughed at the absurdity of it all. Though we eventually forgave Robin, my cousin and I never played *Quest* again.

Nearly 20 years later and few remember *Quest 64*. It was a mild success and a sequel was planned but never materialized (Unseen64 2009). But if I wanted to play *Quest 64* today, there are only two options. Either I use the original hardware and software – i.e., a Nintendo 64 console and *Quest 64* cartridge – or, I download an unofficial Nintendo 64 emulator and *Quest 64* ROM – a copied image of the original software. Both solutions have complications. The first solution requires the secondhand purchase and usage of technology that became obsolete nearly 20 years ago (the Nintendo 64 was officially discontinued in 2002). While the second solution requires circumventing current copyright laws, not to mention the specialist knowledge needed to understand how to download ROM files and run emulation software.

As children, losing our progress in *Quest* was only momentarily soul crushing. My cousin and I got over it, moved on to the next game, and *Quest 64* became a footnote in the history of video games. Yet inevitably, whenever my cousin and I start reminiscing about our childhood, *Quest 64* rears its ugly head. The memories and emotions come flooding back; of a game never beaten, a task never completed, a story never finished. We still have the memory of playing together, but without those save files, it's like it never happened. We have frequently joked about one day going back and finishing the game once and for all, but that day could be decades away, with no guarantee that *Quest 64* will still be accessible in any format.

CHAPTER 1

INTRODUCTION

1.1. Video Game Preservation

The matter of game preservation has become an increasingly relevant concern for the video game industry, as academics and archival institutions are increasingly interested in the study of digital games. Online repositories like The Internet Archive and prestigious institutions like The Museum of Modern Art (MoMA) have begun to add digital games, in playable form, to their permanent collections. Scholarly archives like the Stephen M. Cabrinety Collection in the History of Microcomputing at Stanford University Libraries (Stanford Libraries n.d.) and the Video Game Archive at Cineteca di Bologna (Cineteca di Bologna 2017) in Italy also curate collections of historical software and hardware for research purposes. Maintaining the accessibility and playability of these various collections is a daunting task. However, it's not just gaming history that requires attention, but the gaming present as well. Kyle Orland, Senior Gaming Editor at *Ars Technica*, has reported on the ways in which current distribution and digital rights management practices, for instance automatic updates and online-only games, are providing new challenges to preservation efforts (2015). Orland wasn't the first journalist to write about these challenges, nor will he be the last. This journalistic awareness indicates that concerns about game preservation have begun to creep beyond academia and into the public consciousness.

1.2. Client Background

The International Game Development Association (IGDA) is a U.S.-based 501(c)6 non-profit professional association devoted to supporting and empowering game developers

around the world in achieving fulfilling and sustainable careers (IGDA n.d.). A global network with 150 chapters and numerous Special Interest Groups, IGDA advocates for anyone and everyone involved in the game development process. Whether they're bringing developers together at industry conferences or conducting research on topics that matter to developers, IGDA's goal is to serve all game makers.

On April 9th, 2015, the IGDA Board of Directors released an official statement on the matter of game preservation, "Video games are a creative art form and a cultural artifact worthy of preservation. The International Games Developers Association wholeheartedly supports efforts by academic researchers and archivists to study and catalog such creative works and ensure their preservation for future generations" (IGDA 2015). A Game Preservation Special Interest Group was established in 2004 but has since become defunct. Somewhat ironic for a group devoted to preservation work, The Internet Archive's Wayback Machine is now the only way to access some of the old SIG's resources.

I had long held an interest in doing a project on game preservation, so when I stumbled across IGDA's press release on the importance of preservation work, I jumped at the fortuitous circumstance and contacted then Executive Director Kate Edwards. I proposed a research project that would focus on developer perspectives on game preservation. The IGDA conducts an annual Developer Satisfaction Survey, and while Kate and I initially pondered incorporating my questions into the survey in some fashion, thematically it just didn't fit. She supported that I move toward a completely independent project. After Kate stepped down as Executive Director in 2016, my new point of contact became Jen MacLean in 2017.

1.3. Purpose of Study and Research Questions

The purpose of this study was to identify key developer insights on the topic of game preservation. Identifying these perspectives and analyzing the themes that emerged resulted in recommendations about next steps that the IGDA could take in addressing issues related to game preservation. Based on my discussions with Kate and Jen, as well as a conversation I had with Dr. Henry Lowood, one of the co-founders of the Game Preservation SIG, I drafted an interview guide of 13 questions, but these 13 questions serviced three main research questions. The first research question asked how source code, assets, prototypes, and other materials created during the production process were being managed by developers. Essentially, what does the archival culture currently look like in the game development space? The second research question examined developers' awareness and knowledge of current preservation efforts going on within the industry or by academic institutions. This question also examined perceived best methods and challenges of preservation work. The final research question examined what role the IGDA could play in addressing various preservation concerns.

In terms of the theoretical dimensions of this project, my interest in game preservation was formed by an initial focus in archaeology as an undergraduate student. The thought of being the Indiana Jones of video games was an appealing one. But what would that actually look like? As I began to explore the literature on gaming preservation, I realized it was quite sparse. Indeed, the academic study of video games is still quite new, though there has been an explosion of interest in the last decade. And though I started my academic career as an archaeologist, by the time I graduated I was leaning more sharply in the direction of cultural anthropology and ethnographic research. Still, I had to deal with my split personality and

research desires as I considered the purpose of this study. The allure of video games as material culture and their history is what initially brought me to this research area, but I stayed for the people who make them. I did my best to approach this work in as grounded a fashion as possible, allowing my research participants to speak for themselves about the issues that mattered to them as game developers. Nevertheless, two theoretical concepts were at the forefront of my mind as I designed and conducted much of this research. The first was Ellen Cushman's (2011) concept of "perseverance" as an alternative to preservation. In *Developer's Dilemma: The Secret World of Videogame Creators*, Casey O'Donnell (2014b) describes a pervasive "culture of secrecy" in the video game industry, which formed my second theoretical foundation. Much later in the writing process, Lave and Wenger's (1991) concept of "communities of practice" became a third theoretical concept that became influential in my analysis.

The following chapter explores some of the existing literature on game preservation, but it also reflects the split personality that I have just described, as I attempt to provide context to both video games as objects of study and game developers as a community of study. I do this by tracing a brief history of video games as well as the development of game studies as an academic discipline; I explore why game preservation is important and the current state of game preservation work; I detail the contributions of anthropologists to game studies; and I finally end by examining some of the few developer focused studies about game preservation.

1.4. Deliverables

A final report with notable findings and recommendations was delivered to Jen MacLean at the end of the project in the form of an IGDA white paper. Previous IGDA white papers on

the topic of game preservation had been written under the banner of the now defunct Game Preservation Special Interest Group. Part of the conclusions of that research was the need to work more closely with developers (Lowood et al. 2009), something I have endeavored to advance with this project. Some of my major findings were that, despite developers acknowledging the critical importance of game preservation, following archival practices was viewed as a low priority during the development cycle. Being able to play old games and view related development materials was also seen as a means to advance their own professional growth as developers. Developers were also apprehensive about IGDA's potential role in addressing game preservation concerns, as there is currently friction between the organization and developers over a current push to unionize, with developers believing IGDA supports corporate interests over workers' rights. After discussing these findings with Jen, she stated that she would present my recommendations at the next IGDA Board Meeting.

CHAPTER 2

RESEARCH CONTEXT AND LITERATURE

2.1. A Brief History of Video Games

Before discussing the larger context and existing literature surrounding game preservation, it seems important to outline a brief history of video games as an entertainment medium. Reichmuth and Werning (2006) describe video games as “neglected media,” which they define as media exhibiting “strong popular appeal and economic relevance, contrasted by a lack of cultural prestige and scientific coverage.” They also include board games, comic books, and music videos in this “neglected” classification (Reichmuth and Werning 2006, 47). In other words, neglected media is primarily consumed (or at least perceived to be primarily consumed) by children and adolescents. Their lack of “scientific coverage” marks them as objects not worthy of serious scrutiny and study. But the history of video games is intimately intertwined with the history of computing, a subject of obvious seriousness and importance to the technological development of the 20th and 21st centuries.

If you were to ask a layperson what the first video game was, their answer would likely depend on their age. The video game crash of 1983 was a defining moment in the history of the industry, and a temporal marker not unlike BCE and CE. Younger generations might mention *Donkey Kong* (1981) or *Mario Bros* (1983), arcade classics that had a tremendous impact on the development of the modern post-crash era of video games. But older generations who grew up in the pre-crash era of gaming might identify *Pong* (1972) as the natural starting point. The first home consoles were also released in this era, the Magnavox Odyssey (1972) and Atari 2600 (1977), which brought early arcade games to family living rooms.

But it would take a particularly knowledgeable individual to pinpoint *Spacewar!* (1962) as the first computer game, written for the PDP-1, a forerunner of the modern desktop computer (Donovan 2010, 10).

Indeed, *Spacewar!* might well be called the first conventional video game, but Tristan Donovan traces the lineage of gaming even further back, to the very beginning of the computer revolution. The first programmable digital computer was turned on in 1946; the Electronic Numeric Integrator and Calculator (ENIAC), a 30-ton behemoth funded by the US military and designed to calculate artillery-firing tables. Early computer scientists like the pioneering Alan Turing viewed artificial intelligence as the ultimate goal of computer research, and a Chess playing computer was seen as the most viable means of approaching that goal (Donovan 2010, 4). Just a year later, Turing had written a computer Chess program, but neither the ENIAC or any of the other early computers was sophisticated enough to run it (Donovan 2010, 5). Turing would die 7 years later, never getting a chance to test his program. It wouldn't be until 1996 that IBM's Deep Blue, a chess playing computer, would win a single match against world champion Garry Kasparov, signaling a new era of artificial intelligence.

Donovan viewed the 50's as an era of "false starts" for video games (2010, 9). While Chess was the holy grail, other computer researchers focused on creating simpler games. Classic games like Nim, Tic-Tac-Toe, and Checkers were all recreated on early computers, but 'fun' was never the goal. Claude Shannon (1950), a colleague of Turing's, put it thus, "Although perhaps of no practical importance, the question of computer Chess is of theoretical interest." The Nim playing machine, appropriately named Nimrod, was part of the 1951 Festival of Britain. It was created to show off its incredible mathematical prowess, but the public, according to

press reports at the time, showed little interest in the science behind the machine, they simply wanted to play the game (Donovan 2010, 6).

Donovan's era of false starts is a forgotten period of gaming history, likely better known to historians of computer science than the gaming community, to say nothing of the general public. Shannon and his contemporaries didn't see the intrinsic practical or cultural value of the computer games they were creating, only their utilitarian value in facilitating the development of artificial intelligence. That focus would never completely disappear, as modern video game companies are constantly innovating in their creation of more sophisticated AI algorithms. But instead of games being the means to achieve artificial intelligence, artificial intelligence is now the means to achieve ever more immersive games. As the historic Brits who crowded around the Nimrod machine would say, we simply want to play the games.

To return to the concept of neglected media, Joana Barwick notes that "despite the apparent proliferation of digital games in our society, they seem to be shrouded by negativity and are a poor relation in terms of their perceived cultural value in comparison to other cultural industries" (2009, 1). Truly, it is only in recent years that games have begun to achieve a measure of greater cultural significance and recognition. This is illustrated by the growing interest of museums and universities in creating permanent gaming collections. The Museum of Modern Art established a permanent game collection in 2012, and the Smithsonian American Art Museum started their own collection the following year. Clearly, these negative perceptions have begun to shift.

2.2. Terminology and Jargon

Before continuing, it is imperative to establish the terminology that will be used henceforth. Video games is a “spongy phrase” according to Guins, “used to account for electronic screen-based games played on a home console, arcade machine, and personal computer” (2014, 5). I have chosen to follow this nomenclature and predominately use video games to refer to all manner of digital games, regardless of hardware platform. However, video games have analog cousins; board games, card games, and even sports. I may occasionally refer to games in this broader sense, especially in connection to theories of play, which cross the analog and digital divide. But for the purposes of this research, it should be understood that games, video games, digital games, and computer games are interchangeable terms.

There is a lot of jargon in game development; “the industry” is a shorthand reference to the entire game development space – AAA and indie game studios, publishers, hardware manufacturers, and online marketplaces. AAA games are made by AAA studios and are the equivalent to Hollywood blockbusters. AAA games have massive budgets and are made by prominent studios with hundreds of employees. Parent companies, most often publishers, will often own these studios in-house. The “Big Three” are Nintendo, Microsoft, and Sony – corporations with divisions in hardware development, publishing, and game development. Independent developers, like independent filmmakers, are not owned by parent companies and will often work with smaller publishing firms. Video game developers, developers, or just “devs” can refer to artists, engineers, writers, musicians and managers. I will also occasionally refer to devs as game workers, game makers, and game creators.

Terminology important to the conversation around preservation include obsolescence, porting, emulation, and ROMs. Obsolescence is the process by which hardware and software technologies become obsolete and outdated. Planned obsolescence refers to the process by which tech companies plan out a definite life cycle for their products. Porting refers to the process of adapting a game designed to run on one hardware platform to run on a different hardware platform. For example, a computer game might be “ported” to a home console or vice versa. Emulation is the process of using custom software (called emulators) to mimic old hardware platforms. Emulators do not run executables of games, but rather their ROM files – copies of a game’s read-only memory chip. Guins describes emulation as “untethering the game from its original hardware and software, so that obsolescence does not spell the end of the game” (2014, 34). While emulators and ROMs make obsolete games accessible again, their distribution constitutes piracy in the eyes of most major game companies. But as with any new technology, governments are always slow to adapt, and the use of emulators and ROMs is still a legal grey area.

2.3. Play and the Development of Game Studies

In general, the study of video games is an extension of the study of games more broadly – an intellectual lineage which can be traced even further back to the study of play. Huizinga’s *Homo Ludens: A Study of the Play-Element in Culture* (1938) is frequently cited as a formative starting point for the discipline that has since emerged. Huizinga was a cultural historian, but his treatise on play was highly philosophical – exploring play’s role in everything from poetry to war, to its existence before civilization and culture itself. After all, animals didn’t wait for mankind to teach them how to play (Huizinga 1938, 1). As for games, Huizinga presented play

as a “stepping out of real life into a temporary sphere of activity with a disposition all of its own.” The fact that play is “only pretend” does not diminish it “from proceeding with the utmost seriousness, with an absorption, a devotion that passes into rapture, and, temporarily at least, completely abolishes that troublesome ‘only’ feeling” (1938, 8). 80 years later and Huizinga’s description of play still seems astonishingly applicable to the way gamers feel playing video games. That absorption and devotion can certainly be seen in the growing world of eSports, professional athletes that make a living playing competitive video games. The study of play continued after Huizinga, but serious scholarship of video games struggled to find a foothold. Only at the turn of the millennium would the discipline begin to take shape.

Gonzalo Frasca made waves in 1999, proposing the term ludology, “to refer to the yet non-existent discipline that studies game and play activities.” From *ludus*, the Latin word for game, this new perspective understood that games were radically different from their predecessors – media like film or novels (Frasca 1999). New methods and paradigms were going to be needed, and like-minded theorists followed Frasca’s declaration, arguing that narratological approaches, like those found in media studies, literary criticism, and other humanities, were insufficient. The “debate” as it were, still rages on today, as video games are studied under a variety of academic disciplines. But in 2001, just two short years after Frasca’s declaration, *Game Studies* was established as the first academic journal entirely devoted to video games. The point being, notwithstanding relevant but scattered research over the last 80 years, it has only been within the last two decades that an academic discipline has coalesced around the study of video games. This sentiment is shared by Lowood et al., writing that “Game

studies, a field that barely existed ten years ago, now boasts of annual conferences, journals, and organizations dedicated to it” (2009, 1).

2.4. Game Preservation and Cultural Heritage

Dr. Lowood is a leading researcher in the world of game preservation, co-founding The IGDA Game Preservation Special Interest Group in 2004. That group’s activity waxed and waned over the years, but finally went defunct sometime in 2016. Lowood et al. identified three primary stakeholders; the games industry, academics, and library institutions as having the most to gain from game preservation work (2009, 7). But no single group can handle the task alone; it will require cooperation between these stakeholders; developers and researchers working hand in hand. One of the most important areas of cooperation that Lowood et al. identified was legal (2009). Digital Rights Management (DRM) are a series of copyright laws and technologies that are intended to protect intellectual property, but have the unintended effect of preventing long term preservation techniques – namely migration and emulation.

In order for digital media to survive decay and obsolescence, the information must be transferred, or migrated, from one storage format to another...copy protection schemes prevent this process and must be overridden to secure a copy of the data, and often the physical act of simply copying the data may violate contract agreements...additionally, the software and hardware platforms must be emulated, which can conflict with copyright laws. (Lowood et al. 2009, 5)

Another DRM barrier mentioned by Lowood et al. involves authentication servers.

Online games frequently require connecting to company servers to verify a legitimate purchase, but over time these servers will eventually cease running (or a company will cease existing altogether). If those authentication servers no longer run, games associated with them will no longer be able to run either (Lowood et al. 2009, 4). Fortunately, there has already been

progress in this area, as the Electronic Frontier Foundation, a non-profit devoted to defending civil liberties in digital spaces, was able to secure new exemptions to these restrictions in 2015. These exemptions involve allowing museums, libraries, and other archival institutions to bypass DRM technologies as needed – primarily for online games (McSherry et al. 2015).

But why preserve games in the first place? For Barwick et al. (2009) it is a matter of cultural heritage. While “cultural heritage” archives most often focus on the cultures of particular ethnic or indigenous groups, Barwick uses the term in a different way. The dictionary defines heritage broadly; a legacy, inheritance, or tradition passed down from a predecessor (Merriam-Webster 2019). UNESCO both widens and clarifies what cultural heritage is, both tangible and intangible, encompassing objects and artifacts, customs and rituals, and even natural landscapes (UNESCO 2017). And while we tend to think of cultural heritage as being things from the past, it would be wise to remember that the present is always in a state of becoming the past. As an example, the United Kingdom lost many early radio and television programs, perhaps most notably episodes of *Doctor Who*, due to a lack of preservation policies at the time (Barwick et al. 2009, 3). Since 1981, “the Independent Broadcasting Authority has made preservation a compulsory clause in its contracts with companies” (Barwick et al. 2009, 3). Similarly, in the United States, The Library of Congress has noted that “Fewer than 20% of feature films from the 1920s survive in complete form; for features of the 1910s, the survival rate falls to about 10%. Of films made before 1950, only about half survive” (1995).

There are also regional differences to consider, as “many games are released in different form, or at different times, depending on the region, and the technological requirements are also different. Hardware designed for the PAL region, [like the ZX Spectrum] is therefore under

greater threat of disappearance” (Gooding and Terras 2008, 27). As part of their analysis of the state of game preservation in the United Kingdom, Gooding and Terras used a random sample of 50 Atari 2600 games released in 1982, and asked five questions: “Who, if known, was the original programmer? Is the game available through existing game archives and collections? Has the game been successfully emulated? Is the game available secondhand? How rare is the game considered to be?” (2008, 27).

At the time, 60% of the games were not listed in publicly searchable archives, 34% were not available from eBay or other secondhand marketplaces, and 24% were not available from either source. (2008, 29). Since then, The Internet Archive has now archived 519 Atari 2600 games through its Console Living Room project. However, not all of these are playable, as some of its holdings are only “viewable” – collections of images and video (The Internet Archive 2013). Certainly, as more archival institutions have gotten involved in game preservation, accessibility of these type of collections has improved. But Gooding and Terras’ five questions provide a useful benchmark that should continue to be used. The questions cover scholarly collections, accessibility through emulation, private ownership of original software (of which there is a finite amount), and original authorship.

It’s not enough to think of cultural heritage as those things we have already inherited that need our continued protection, we must also consider those things we want to pass down, even when it’s not obvious that they’re in danger of disappearing in the future. Video games are ubiquitous in modern society, so it’s difficult to imagine the medium will ever truly disappear (how long have we been warned about the decline of print media). But the vanishing of the early history of radio and film programs are a portent of things to come. In Lowood et

al.'s assessment, "if we fail to address the problems of game preservation, the games currently being made will disappear within a few decades" (2009, 2).

2.5. Remaster, Remix, Remake

There are several publicly reported examples that illustrate the need for gaming preservation to become a more prominent discussion, both among developers and the public. The first of these was the release of *Silent Hill HD Collection* (2012). Intended to be a high definition remaster of *Silent Hill 2* (2001) and *Silent Hill 3* (2003), the HD Collection was widely panned on release. It wasn't that the ports were outright terrible per say, but comparisons to the original software running on the original hardware made it clear that something was *off*. As critic Richard Leadbetter put it, "*Silent Hill 2* is a rare example of an HD remaster that is actually less satisfying to play than the original PlayStation 2 version of the game" (2012).

Textures appeared to be incomplete if not outright missing in some areas, and framerate issues were noticeable. Most egregious was the missing fog effects. As horror games, one of the defining characteristics of the game was the thick fog that blanketed the virtual town of Silent Hill. But with those layers of fog missing, the town's atmosphere went from spooky to pristine, making it that much easier to notice the missing textures and ugly assets. At the time of release, critics assumed the development team behind the remaster, Hijinx Studios, simply did a poor job handling the task. But a little over a month later, a senior producer on the project revealed the truth.

We got all the source code that Konami had on file - which it turns out wasn't the final release version of the games. A lot of assets such as textures and sound had to be taken out of the compiled game, and that brings with it a host of unique issues. During debug we didn't just have to deal with the expected 'porting' bugs, but also had to squash some bugs that the original team obviously removed prior to release, but we'd never

seen before. 10 years ago, a lot of game companies assumed the games were 'done' once development finished, and that they wouldn't need to use that data ever again. Now it's clear that having all that data in an easy-to-manage format is important. Game re-mastering isn't a quick and easy process. (Agnello 2012)

Hijinx's task was like reconstructing a car based on a half-finished prototype, but then painting it the wrong color. The result was functional, but it didn't look or feel right to people who remembered the original. Another high-profile example was *Kingdom Hearts 1.5 Remix* (2013), a high definition remaster of *Kingdom Hearts Final Mix* (2002) – itself an enhanced rerelease of the original *Kingdom Hearts* (2002). The game's director, Tetsuya Nomura, confessed "The original data was missing already. It was lost so we had to research, to dig out the original game and recreate everything for HD. It was not that easy." (Campbell 2013). The data Nomura is referencing wasn't the underlying source code, that was intact, but rather every other asset for the game. To continue the automobile metaphor, imagine totaling a car, miraculously salvaging an unscathed engine, and deciding to rebuild the entire frame from scratch.

But there have also been success stories. Bluepoint Studios have gained a reputation as the king of remasters; their credits include the *God of War Collection* (2009), *The Ico and Shadow of the Colossus Collection* (2011), the *Metal Gear Solid HD Collection* (2011), *Uncharted: The Nathan Drake Collection* (2015), and *Shadow of the Colossus* (2018). In each instance, they've successfully migrated the original games to a new console generation, updating visual fidelity while maintaining the integrity of the original experience. Peter Dalton is Bluepoint's Technical Director, and explains their first task for every new project, "[we] tear it apart and figure out how it works, how it's assembled, and reverse-engineer the entire thing, and then you look at it and say, 'How do we fit this within our processes and our pipeline, and how do we

need to modify our existing processes to fit what they were trying to do?’” (Lindbergh 2018). So far so good, as the biggest names in the industry continue to trust Bluepoint Studios to handle their source code.

2.6. Anthropology and Video Games

Anthropologists began to take notice of video games around the same time that other academic disciplines did. Early digital ethnographers interested in online communities began to shift their attention to the communities in and around online games. Two seminal works in this field include Tom Boellstorff’s *Coming of Age in Second Life* (2008) and Bonnie Nardi’s *My Life As a Night Elf Priest* (2009). But these digital ethnographies are still essentially the work of traditional anthropology, the difference being their field sites were virtual.

A more distinctive merging of applied anthropology and game studies can be seen in the emerging discipline of archaeogaming, a term Andrew Reinhard coined in 2013 when he began his blog, archaeogaming.com. Put simply, archaeogaming explores the archaeology in (and of) video games. That includes examining video games as material culture in the real world, as well as examining the material culture of immaterial virtual worlds (Reinhard 2013). Imagine studying the pottery and textiles present in *World of Warcraft* – the objects might not have been made by a ceramicist or weaver, but an artist did make them. Or consider the ways virtual worlds can teach students archaeological methods in the real world.

A classically trained archaeologist, Reinhard also gained a measure of infamy when he led the team that excavated a landfill in Alamogordo, New Mexico, the rumored site of a decades old urban legend. *E.T. the Extra Terrestrial* might be a fondly remembered film, but the Atari 2600 video game of the same name was an unmitigated disaster. It has been dubbed one

of the worst video games ever made, and the urban legend that Atari buried millions of unsold copies in the Alamogordo Landfill had persisted on the internet for at least a decade. A 2014 documentary chronicled the excavation, and ultimately only 1,300 cartridges were discovered, not millions. The public interest in the story was marginal at best, a curiosity in that day's headlines, but within the gaming community it was practically a marquee event. Of the 1,3000 recovered cartridges, at least one made its way to the Smithsonian Institution, what Drew Robarge viewed as a "personification of the life cycle of video games and the downfall of Atari" (2014).

In the world of design anthropology, Underberg and Zorn have examined how ethnographic perspectives can aid in the design and production of "cultural heritage video games" (2013, 85). A prominent example of this type of game is *Never Alone: Kisima Ingitchuna* (2014), an award-winning game made in collaboration with the Iñupiat people, indigenous to Alaska. With the support of E-Line Media, the Cook Inlet Tribal Council formed Upper One Games, the first indigenous-owned game company in the United States (Freeman 2014). *Never Alone* was created in part as a way to reconnect tribal youth with their language and culture.

Over 35 elders, leaders and others from the community worked alongside a team of development specialists from several different nations, considering the best way to tell a story, integrate it with game mechanics and interactions, and correctly capture every detail of local life, from the detailing of the hem of a coat to the themes of the story. (Freeman 2014)

While Upper One Games didn't have an anthropologist on staff, they managed to do exactly what Underberg and Zorn advocate in their work, integrating ethnographic methods into the design of new media narratives like video games.

Finally, Casey O'Donnell is a classically trained anthropologist now teaching game design and game studies courses at Michigan State University. By using classic anthropological texts like Geertz's *Deep Play: Notes on the Balinese Cockfight* (1972) and Levi-Strauss's analysis of games and ritual in *The Savage Mind* (1962), O'Donnell endeavors to teach his students that play is an observable experience layered with context and culture (2014a, 408). Games are powerful precisely because they are meaning-making systems - producing, reflecting, and shifting culture in meaningful and important ways. This way of thinking shifts the game designer's responsibilities, as they must now consider the ways in which their games may profoundly impact the player and wider culture, not be separate and apart from it (2014a, 411). Geertz's concept of "deep play" inspired O'Donnell's concept of "meaningful play", a design ethos in which developers should strive to "make sense of the world and put it back on display in ways that engage people deeply and from which they can tell meaningful stories to others that encourage a newfound interest or engagement with the world around them" (2014a, 410). As O'Donnell put it, "If a single student of mine utters the phrase "It's just a game," I will have failed." (2014a, 407).

But O'Donnell isn't just teaching the next generation of game developers about classic anthropological theory, he has also conducted ethnographic research into the development process. In *Developer's Dilemma*, he gives an in-depth account of the entire development cycle (O'Donnell 2014b). While O'Donnell's work does not explicitly reference game preservation, in my view, the culture of secrecy he describes as endemic in the industry is one of the biggest factors for why preservation is so rarely discussed. For example, O'Donnell explores the prevalence of the non-disclosure agreement in the games industry, existing between

organizations and individuals, and resulting in an industry “bounded by silence” (2014b, 205). This self-censorship reflects companies’ desire to control the flow of information, protecting marketing strategies and “super-secret technologies,” but the end result is a kind of “institutional Alzheimer’s” (O’Donnell 2014b, 206-207). By operating in black boxes and striking fear in the heart of any developer who would break an NDA, the industry ensures it will continue to make the same mistakes. Without the ability to openly and freely talk about the practice of game development, the industry cannot mature. “Because common practices are not documented or circulated broadly... developers are left to reinvent the wheel” (O’Donnell 2014b, 209-210). If game makers aren’t allowed to communicate with each other, what hope is there of organizing an industry wide set of archival best practices?

2.7. Preservation, Perseverance, and Practice

Deegan and Tanner (2003) define preservation as “the continuous process of creating and maintaining the best environment possible for the storage and/or use of an artifact to prevent damage or degradation and to enable it to live as long a lifetime as possible.” This continuous process is needed because “culture is at constant risk” especially when dealing with digital information (Deegan and Tanner 2003). Deegan and Tanner are correct, preservation must be a constant process, and not simply putting something on a shelf to be forgotten. But if that is the case, preservation is – not the wrong word – but an obsolete one.

Ellen Cushman, an anthropologist who works with the Cherokee, provides a better word – perseverance. Cushman (2011) examined the ways in which the Cherokee syllabary, developed by Sequoyah, promoted the “perseverance” of their culture and peoplehood. Sequoyah was known for his refusal to speak English, so every usage of the written language he

developed became “a political act of perseverance” (Cushman 2011, 68). In questioning the Cherokee about the preservation of their language, Cushman learned that the Cherokee balk at the word. “You can’t pickle our ways” (2011, 71) said one informant. To “preserve” culture is to remove it from its context and does not reflect the “growth of the community through generational learning and exchange” (Cushman 2011, 71). Only through acts of perseverance can this growth occur. If the Cherokee did not use their language, a record could still be “preserved” in some database somewhere, but it would eventually wither and die as its speakers dwindled. Through action, the Cherokee choose to persevere through their culture, not preserve it.

I first encountered Cushman’s work as a teaching assistant for a Native American course in 2015. I was in the middle of thinking about the direction my research would take, and I was struck by how applicable the concept of perseverance seemed to be. As fortuitous as the circumstances were, it still seemed rather ghoulish to borrow a concept from Native American studies to apply to video games of all things. But if I had maintained that attitude, I would only have reified the neglected media classification that Reichmuth and Werning (2006) had defined. The Cook Inlet Tribal Council did not create *Never Alone* (2014) to preserve their culture, they created it so their stories and language would persevere, proliferating to the next generation and new audiences around the world. My question is, in what ways can developers engage in acts of perseverance (perhaps cutting up those NDAs as a start) rather than simply preserving their work?

Finally, I want to briefly mention Lave and Wenger’s (1991) conception and exploration of situated learning and communities of practice. While *this* thesis is primarily concerned with

the question of game preservation and will not dive into theories of learning and knowledge networks, it is still valuable to recognize the industry as a community of practice – a group of people in the shared profession of making games. As previously mentioned, part of O’Donnell’s work examined the culture of secrecy in the industry, resulting in what I would describe as a dysfunctional community of practice. Part of my argument going forward is that acts of perseverance that further the preservation of games may aid in repairing this dysfunctional state.

2.8. Developer Studies

In addition to Casey O’Donnell’s ethnographic work with game developers, I would like to highlight two other studies that specifically included developers in discussions about game preservation. Kraus and Donahue (2012) surveyed attendants at the annual Game Developer Conference in 2009, asking questions about preservation practices among industry professionals and enthusiasts. 48 industry professionals responded while 62 enthusiasts responded; but in terms of interest, only 33% of professionals completed the survey, compared to 87% of enthusiasts (2012, 6). Only 9 professionals indicated having any kind of formal archival program at their workplace, and Kraus and Donahue note that decisions made regarding preservation practices frequently occurred on an individual level, not at managerial direction (2012, 11). As one of their respondents noted, “Other than the source code of a game that ships, we don’t care. I just had someone looking for annotated versions of our tools and we don’t have them” (Kraus and Donahue 2012, 11). In contrast, enthusiasts described a diverse range of preservation practices, including contributing to wikis, refurbishing hardware,

contributing to emulation projects, imaging disks, and translating games to other languages (Kraus and Donahue 2012, 19).

A similar study by Bachell and Barr (2014) surveyed developers in the United Kingdom, distributing surveys through developer Facebook groups, Twitter, and the Dare Protoplay 2013 Gaming Festival. Only 21 responses were collected, representing less than 1% of all developers in the region, “indicative of how difficult it can be to contact developers” (Bachell and Barr 2014, 153). Bachell and Barr’s results were similar to that of Kraus and Donahue (2012), with only 33% of respondents indicating a formal archival program at their workplace (2014, 147). Attitudes about game preservation being a low priority for developers were also similar, with one respondent noting “Developers have a responsibility to allow it, and then it has to be somebody else’s job to actually do it” (Bachell and Barr 2014, 152). Bachell and Barr’s recommendations follow Kraus and Donahue (2012) and Lowood et al. (2009), that the industry must work together with the academic community, permitting researchers and archivists to preserve their work, and follow clear guidance on appropriate records management procedures. To do this, however, “Institutions must be able to demonstrate to the industry that they are trusted repositories” (Bachell and Barr 2014, 157). As I have already begun to argue, I do not think this approach is enough. If developers are to persevere as a community of practice, I believe they need to become more active co-curators beyond simply opening their arms to archivists.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1. Research Design

This research was designed to be exploratory in nature, utilizing qualitative ethnographic methods. Originally, to capture the scope and depth desired, I envisioned a multi-sited approach. The idea was to gain access to various game development studios – ideally one large AAA studio, as well as a handful of smaller independent studios – in the Dallas Fort-Worth region. After gaining access, participant observations of the workplace, such as examining what archival practices were in place (if any), were going to play a major role in the research. During my time at the studios, I would also recruit individual developers to conduct semi-structured interviews. This design would grant me a snapshot of both workplace practices and developer views on those practices. Unfortunately, gaining studio access proved much harder than anticipated. Overtures made to large studios were rejected, even with the support of IGDA. While studios thought the research was interesting, some of the questions I was asking were perceived to be too sensitive. Presumably, they were also wary of a “researcher” just hanging around the office for hours at a time. Video game companies are fiercely protective of their secrets. My client suggested I would have better luck recruiting on an individual level, outside the studios, focusing on independent developers.

3.2. Recruitment

I ended up using convenience sampling at primarily two locations, Dallas Society of Play meetings and Video Game Coffee Club meetings. DSOP is a collective of indie developers that meet semi-monthly. Averaging around 600 members across various social media platforms,

meeting attendance was typically between 15-35 individuals, based on the 5 meetings that I attended. DSOP's goal is to provide a space for developers to share knowledge and seek feedback or support on projects. They provide a variety of resources to anyone interested in game development, and members span all skill levels. They run an active Discord channel, and meetings consist of lectures, post-mortems, and "show and plays."

The VGCC on the other hand is an informal gathering of enthusiasts and developers interested in discussing the latest news in the gaming press. They meet every Thursday and Friday morning at alternating coffee shops in Frisco and Plano. Sporting a little over 200 members on Facebook, VGCC meetings usually attract around 6-12 members, based on the 4 meetings I went to. They discuss the latest headlines, games they're playing, and projects they're working on. They also produce a podcast and run a Discord channel.

With the permission of DSOP and VGCC leaders, I recruited research participants in person throughout the year of 2018, typically by making an announcement at the beginning of meetings. My goal was to build rapport with potential participants organically, and by the end of these meetings, people were usually receptive to talking with me. 4 participants were recruited at VGCC meetings and 4 participants were recruited at DSOP meetings, for a total of 8 participants.

3.3. Semi-Structured Interviews

After I recruited individuals at a DSOP or VGCC meeting, interviews were scheduled at locations of the participants' choosing. Interviews were lengthy, the shortest lasting 30 minutes, and the rest lasting an hour to an hour and a half. All interviews were conducted in the Dallas Fort-Worth metroplex. Four interviews took place at different coffee shops around

town and another interview took place at a restaurant. The sixth interview was a group interview, as the three participants were part of a small indie development team. This interview took place at their office, with two participants in person and the third Skyping in from Pittsburgh.

3.4. Data Analysis

Over a period of six months, from January 2018 to July 2018, I attended 5 DSOP meetings and 4 VGCC meetings. In total, 365 minutes or 6 hours of audio recordings were collected from participant interviews. Using Windows Media Player and Microsoft Word, I transcribed 90 pages of data. Considering the smaller sample size, I elected to be more 'hands-on' in my analysis process, and used a traditional cut and paste style coding technique. Shifting between Word documents, I highlighted, copied, and pasted over and over again, looking for patterns and themes to emerge. This technique allowed me to become intimately familiar with the contents of interview transcripts.

3.5. Research Participants

Going forward, I primarily use the term participant to describe research participants. Five participants were given the pseudonyms Patrick, Zoe, Ian, Peter, and Mark. The final three participants were part of the group interview, resulting in a slightly different naming schema. I dubbed the group Trinity, and the individuals in the group were named Trinity A, Trinity B, and Trinity C. This system allowed me to refer to Trinity as a team as well as individuals, as well as making it easier to recognize that they were not just answering my questions, but discussing things among themselves.

Demographically, seven participants were male, and one was female. Four participants were between 20-26 years old, while the other four were between 29-40 years old. Five participants identified as white Caucasian, two as white Hispanic, and one as Mixed. Five participants were single, one was married, and one was divorced. One participant had a Master's Degree, while the other seven had Bachelor's Degrees. There was one writer, one composer, two engineers, three artists, and one community manager/web developer. All of the participants identified as either currently working in the industry or previously working in the industry. Four participants identified having less than 5 years in the industry, while the other four identified having between 5 and 15 years in the industry.

3.6. Limitations

Obviously, there are a variety of limitations to this research. To start with, my small sample size limits my ability to extrapolate out to the development community as a whole. More glaringly, my initial research design failed, as I was overly ambitious in trying to court studio access. Scrapping that design in favor of focusing on individual developers resulted in a loss of scope, but I do believe I gained a measure of ethnographic depth. For example, even when I attempted to recruit individual developers who worked for large companies, they were still very hesitant to speak with me, and frequently told me non-disclosure agreements would prevent them from answering the type of questions I wanted to ask – even with my assurances of confidentiality. The independent developers that ended up forming my, again, admittedly small research sample, were very open and comfortable speaking to me. I believe the data's richness and depth make up for its lack in scope.

CHAPTER 4

RESEARCH FINDINGS AND ANALYSIS

The following sections examine the research data and common themes that emerged from my analysis. In addition to exploring the common threads across participant interviews, I also endeavor to examine some of the more unique perspectives offered by participants.

4.1. Forbidden Knowledge

The most prevalent emergent theme in my analysis was that of professional knowledge and education. These themes were littered throughout the answers to my questions, though they were rarely made explicit by participants; rather, they were the dominant subtext of participants' responses. Indeed, when education and video games are mentioned together, it is often in reference to the way games can be used to teach traditional school subjects. Series like *Carmen Sandiego* and *Math Blaster* teach geography and math, respectively. Rarely do we think about the ways that regular video games are educational in and of themselves, a topic James Paul Gee (2003) first explored in *What Video Games Have To Teach Us About Learning and Literacy*. Gee explains how well-designed games incorporate dozens of learning principles, all the better to teach players how to play them – but these principles also enhance the content of a game (2003). Because games are so good at teaching, the characters and stories within can have a profound impact on the player, the same lesson O'Donnell (2014a) tries to impart on his developer students – that games are spaces in which meaning-making occurs.

While Patrick was consistently the most explicit in invoking the theme of education in connection to preservation, every participant discussed it to some degree. Zoe talked about the impact that games like *Jak and Daxter* had on her, inspiring her to want to be a games writer.

As Zoe found her identity as a writer, Patrick found his as a composer, discovering his love of music through games. And Trinity A, a 3D artist, discovered his love for art and aesthetics with *The Legend of Zelda: The Windwaker*. By playing games, these participants engaged in meaning-making, crafting their own identities as future game developers.

As gamers, those moments of self-discovery were invigorating, and led the participants to seek out the knowledge and education required to become developers. But paradoxically, once participants became developers, that knowledge became forbidden. While Mark had completed a fine arts degree, he talked about how his “true education” didn’t occur until he got his first development job. Everything he knew about game development, including its “dirty secrets” was learned by observing his coworkers. And Ian talked about his experience examining *Doom III’s* source code when it was released to the public – a resource he used for his own professional development. In his own words, he described the code as being “legendary,” full of coding tricks that he heard about over the years. By finally getting a chance to see it, the code was no longer “mysterious.” O’Donnell has also examined this “mythology” of game development, how the industry “wraps itself in secrecy and closes off networks of access” (2014b, 147). This is most evident in the pervasive and stringent usage of non-disclosure agreements. How can developers learn from each other if they fear revealing company secrets?

4.2. What are Video Games?

One of the first questions posed to participants asked them to define what video games are. This question, ontological in nature, reflects an ongoing discussion in both game development and academic circles. Are video games toys, works of art, hardware, software, or

all of the above? By attempting to operationalize what, exactly, video games consist of, we can more accurately draw the boundaries around what materials – digital, physical, and ephemeral – need to be preserved.

4.2.1. Interactivity, Agency, and Play: AKA the User Experience

Among all eight participants, “interactivity” was cited as the key component in video games. But other concepts like agency and play were frequently mentioned alongside interactivity, as supportive elements. For instance, Patrick and Mark both mentioned player agency as being important; it’s not enough for a game to simply be interactive, your decisions must have consequences. For Mark, “your choice has to be a part of it. If not sort of uncovering the narrative then in the actual like, literally where the pieces fall [referring to *Tetris*].” Patrick agreed, but confessed those principles can be challenged, “The player is a player because they can interact with the media somehow and have some level of agency...I guess it can get really weird because [developers] push those boundaries, can you call something a game if the point of the game is maybe to not give somebody any agency?”

Peter and Ian mentioned the element of “play” as being another important component. Ian took a rigid systems approach, stating that “a video game is an electronic game that can be won...a system of play that has a desired outcome whereby players can win.” This systemic approach emphasized that games have rules, both formal and informal, that may also need to be preserved with the game itself. One example of this can be seen in fighting games as a genre. Fighting games often include various modes with established rule sets, but depending on the venue, those rules can change. Playing a fighting game at an officially sanctioned tournament will involve the most formalized rule sets and codes of conduct, whereas playing a

fighting game at a friend's home may invoke informal house rules. Trinity A also considered this rules aspect, "Most video games at this point will self-identify their own rules and boundaries, but if that isn't specifically detailed in the game...if they exist outside the executable, they need to be preserved in order for the understanding of the functionality."

Peter's notion of "play" was less systematic and more ephemeral; a playful quality that was difficult for him to articulate. He first stated that video games are "in the broadest sense any form of interactive entertainment." But he further narrowed that definition, "it's interactive entertainment with some aspect of play connected to it." That slight distinction led to an interesting back and forth between us.

Peter: I think you could say an interactive menu board is not entertaining per se, right, but you could have aspects of gaming involved in that. So, to what degree that crosses the line...

Interviewer: Yeah, that reminds me of some sushi places I've been to-

Peter: Yeah, right.

Interviewer: Where you have, you order [sushi] and rack up points and you get a little toy.

Peter: So, then I would say that is a game. I would say the sushi places where, the more that you buy – as weird as the concept of gamification is – if there's any form of back and forth to some degree...Because some people would say walking simulators aren't games per se, [that] they're more interactive storytelling. But I would consider them games, because you still have some aspect of play involved.

While a clearer articulation escaped Peter at that time, in looking back at our discussion, it seems clear that he was attempting to describe a player's willingness 'to play' as being an important element in bringing a game itself into being. In the sushi restaurant example, a customer may not care about the interactive aspect of ordering more food for the purpose of winning a prize. In that instance, it cannot be said the customer is playing the game. But a more

playful individual may be more attentive to the interactive menu; tracking their order count as to be mindful of how close they are to the goal. These menus often display colorful visuals as you order more sushi, even telling minimalist stories. In one experience I've had, ordered sushi was represented as kaiju-esque monsters, and by eating and ordering more, a hero character appeared on the menu screen to fight them. By paying attention to these animations and pacing my sushi intake, I was very much playing the game.

Trinity A initially took an explicit software approach, noting that games are fundamentally executables. "You have to be able to run it and play it...there's a piece of software there, to have that game existing...from a preservation aspect, you have to be able to run it." However, the conversation quickly expanded to interactivity and the importance of the user experience.

When it comes to interactive media, I think the method of interaction is also fundamental to the preservation of the thing. So whatever format the interaction uses, like a Kinect based system or a standard controller input – you can get as granular as you want – but broadly speaking, it's not preserved if it's not consumable.

In other words, a game is not a static 'thing', it is the dynamic experience of consuming that 'thing.' Interactivity, agency, and play are all facets of the experience of playing a game. Trinity A/B/C drilled down on this point in their discussion, concluding that preserving the user experience was fundamental to preserving video games. The path they took to reach this conclusion was rather unexpected though; a rigorous and occasionally raucous hypothetical argument about books.

Trinity B asked whether the Kindle edition of a Choose Your Own Adventure novel could be classified as a video game. After some initial groans of disbelief that he would even ask the question, Trinity C countered that the nature of interactivity is what makes something

interactive media. If the Kindle interface did something that couldn't be replicated on paper, "that starts to make it interactive media." While it was decided that digitally flipping through pages was not enough to classify the Kindle edition of a CYOA book as a video game or interactive media, there were disagreements in other areas. [And while Trinity A/B/C never established what the digital CYOA book is, I presume digital book would be an acceptable classification.]

Trinity A felt that the digital CYOA was an acceptable method of preserving the original CYOA book as a piece of media, as it "still preserves the non-linearity of the data and the way you access it." Trinity C felt this was a fair argument, but pushed back in other ways, bringing the discussion back to video games.

I think the physical part is consequential because of how it impacts the way the user or reader approaches that story and the way their memory functions...so like if you lose the page, there's an element there of the user experience. You can keep your finger on a page and move back and forth. I think that games are – like any media – like any media really is half in the mind of the user and how they encounter it. So, I agree with you that you're preserving the data, and this is important for games, but the question is, how do you preserve the whole thing including how the user approaches and interacts with it.

Here, Trinity C articulates a more design centered approach to the playful quality that Peter mentioned previously. The game is "half in the mind of the user" as Trinity C says, the element of the user experience – their method of interaction with a game, the decisions they make in exerting their agency in a game, and the playful mindsets available before even approaching a game. Any discussion about what video games are, if we agree that they are fundamentally interactive, must also include the individual doing the interaction. The player is integral to the continued existence of games, so if we are to ask how to preserve video games, we must also ask how to preserve the players of those games.

4.2.2. Art and Lineage

In addition to the themes surrounding interactivity, there was common agreement among all eight participants that video games are works of art. Zoe focused on the fictional quality of games: “it’s an interactive medium that allows people to jump out of their reality into interesting worlds,” likening video games to being an evolution of literature. Trinity B stressed the need to be as inclusive as possible in defining video games, in order to preserve more experimental works.

There are a lot of arbitrary lines that get drawn between games and interactive media, but I think for the most part, if you have a more inclusive definition...if you're trying to catch everything, interactive media is a lot better. And I think it tends to catch the corners in the avant-garde, and it's probably going to be more likely to catch things that maybe right now don't feel important, but might be really important to a genre of video games down the road as an inspiring piece of work that started it.

Trinity B’s concern is that if conservationists were to leave out works that may not be considered games in the traditional sense right now, it might be difficult to construct a genealogical lineage of video game development further down the road. This question of artistic lineage was also important to Mark.

I’m interested in lineage. I’m interested in why this weird game exists. And unfortunately, with video games, we’re dealing with a medium that is media stacked upon itself. It’s art and music and story and narrative and coding and engineering – all of this stuff. Because you can’t ignore the controller. You can’t ignore the hardware aspect of this. The N64 controller, as weird as it is, is incredibly influential in terms of modern video game controllers.

Patrick was firm in his belief that “absolutely games are art,” and that they “should be treated as such.” But he recognized that not everyone does, and that it can take time for that level of recognition to set in to a society. Fortunately, the mass acceptance of video games as art is quickly approach. Even the U.S. government recognizes this distinction, as the National

Endowment of the Arts began accepting grant applications for video games in 2011. Patrick also made a novel analogy, noting that “this stuff [video games] kind of evolved out of opera, or I guess out of film, which came out of opera.”

4.3. Video Game Preservation

The next set of questions explored the general awareness of participants about the preservation of video games as an intellectual topic. Answers came in a variety of forms, exploring when participants initially began to think about the topic (or if they had ever thought about it before being interviewed), to their knowledge of individuals or organizations working towards the preservation of video games. This led to discussions about the degree to which gaming preservation is a legitimate and/or urgent concern, as well as the reasons why these efforts are necessary.

I was moderately surprised by how aware participants were that game preservation was a legitimate issue, but this awareness was vague; a looming threat that had yet to cause significant damage. Other than the Video Game History Museum in Frisco, TX, a local attraction known to every participant, only two participants were able to identify other organizations working on game preservation. The consensus, even among these participants, was that “the internet” would handle it; the emulation community, YouTubers, private collectors, all passionate enthusiasts that would take care of gaming’s history. Most participants did not view preservation work as the purview of game developers themselves. But over the course of these interviews, I began to see this thinking shift, as participants realized the myriad ways in which developers could make preservation easier – or rather, the myriad ways the industry was making preservation harder. Shutting down servers, delisting games on online marketplaces,

DRM practices; ironically, advances in technology are making games harder to preserve, not easier.

4.3.1. Awareness of the Problem

Ian took a broad approach, stating that the goal of preservationists should be to preserve everything digital, “and video games are a subset of everything that is digital.” But he recognized the unique challenges that video games faced, like the ever-quickenning pace of computational obsolescence. “When was the last time you saw an Apple II? Those machines are gone. They no longer exist. And to the extent that the documentation exists that we can make emulators for them, is the extent that [those] games can be preserved for the future.” But despite being sufficiently aware of the topic in a general sense, Ian admitted he didn’t have any knowledge about individual or organizational efforts to combat this issue. “I have very little awareness of them.” Likewise, Patrick also expressed a general awareness but admitted he hadn’t done any research into the topic, “I would imagine I’m super ignorant about the deeper issues there.”

As part of my recruitment efforts, I gave a short presentation on game preservation at one of the Dallas Society of Play meetings, which was the first time Zoe had really thought critically about game preservation. “I didn’t realize developers hadn’t been preserving – that source code was being lost. I mean, I heard of some instances, but I thought it was a unique [rare] thing.” This newfound knowledge spurred conversation in her own social network.

At the Video Game Open Coffee Club, we started talking about it then. Talking about some of the preservation – particularly the Flash games, all the content you see on Newgrounds, now that Flash is no longer the powerhouse it used to be. And how they’re doing HD games now, if they don’t have the source code then they kind of just have to BS it, or make it entirely from scratch to get it out again.

Mark was the most aware of all the participants, as he was able to name Frank Cifaldi as a leading figure in the game preservation space. A prominent archivist, Cifaldi founded the Video Game History Foundation, which is in the process of building an online repository of artifacts related to the history of video games and video game culture (Video Game History Foundation 2017). “He’s got a huge collection himself – but the group overall is focusing more on the ephemera of it. So, like old advertisements and videos that you get in the mail and E3 and CES stuff, because that stuff really doesn’t get saved.” Mark was also the most experienced of the research participants, a 15-year veteran of the industry. His interest in the topic felt fueled by his first-hand experience, both as a gamer and developer. In the previous section, Mark was also the participant most interested in the creative lineage of games. In my estimation, Mark was the most conscious of the looming issues surrounding preservation because he was old enough to witness history already being lost. Throughout the interview, he routinely expressed that modern gaming culture had already lost “some of the magic” of his childhood.

Peter was reasonably knowledgeable about the issue, and like Zoe, mentioned it was becoming a more frequent topic of conversation at the Video Game Coffee Club. Like Mark, he was also able to cite a specific organization, Archive.org, as doing work in the area of game preservation. “Maybe 6 months to a year ago, Archive.org started - they put all the Atari games onto their website. So, you can go on and play any Atari game that came out basically through Archive.org.” The archival work by The Internet Archive has been led by the efforts of Jason Scott, and actually went online in 2013, as part of their Console Living Room project.

Unfortunately, browser emulation is tricky, and most of the available games don’t have sound enabled. In other words, the experience of playing these old games is incomplete. It is,

however, an important start, and an ambitious and far reaching project. One day, decades from now, perhaps every video game will be readily accessible through the internet. But for now, that future is a long way off. While Peter was aware of these efforts (even if he had some of the details wrong) and considered the topic a legitimate concern, he admitted he hadn't considered a more developer focused approach until speaking with me.

In your focus, I hadn't fully thought about how to preserve the source material in general, so if you ever want a remix or remaster or anything like that, how do you go about that? That's something I've never thought about. I've thought about, like when the developers are gone...or when the consoles no longer work. And there's a very passionate emulation community and things like that, but a lot of game studios look down on that because they say "you're stealing our work for free and giving it out for free, and people are playing it instead of buying it." But it is a form of preservation.

At first it seems counter-intuitive that Peter had considered one situation and not the other, but I believe it illustrates the degree to which video games as a consumer product are so often removed from the actual process of making them. Peter hadn't really considered what developers could do during development to ensure future ports or rereleases were easier to produce. Those discussions have not historically been a part of the normal development process. When a game is done and ships out, the team moves on to the next project. Even with the recent trend of remasters and remakes, those projects are rarely handled by the original team of developers, so any archived materials would still need to be sought out and delivered to the new team. Peter has always assumed that after development studios closed or hardware obsolescence had set in, the emulation community would step-in, as they have been doing for decades.

4.3.2. Is It Our Job?

Peter's lack of urgency on behalf of developers was also reflected in Trinity A/B/C's discussion. Trinity A was generally aware of the issue but expanded on Peter's invocation of the emulation community. Trinity A felt the internet – as a decentralized collective entity – was doing most of the work.

The internet is probably doing the best job, just kind of by existing and having like, you know files uploaded to it. It's doing the best job at a collective preservation effort, through things like the ability to download ROMs and then use emulators and stuff. It's not a perfect solution and it's not standardized or particularly good, but I think that's the most consistent version we have so far.

Trinity A also considered the role that prominent YouTube Channels or Twitch streamers play in raising awareness, "I kind of became aware of it as a thing worth thinking about through YouTubers...learning the history of like, console and game development more broadly when I was younger...Angry Video Game Nerd, that series introduced me to a lot of older hardware and games that I wasn't aware of." The work of amateur historians on YouTube remains some of the best researched and easily accessible sources we have for oral histories of games, but Trinity B noted those videos could vanish in a flash "with one fell swoop from Google." These channels are at the mercy of YouTube's continued existence as a platform and their ever-shifting algorithms.

Even with this reasonably knowledgeable awareness, Trinity A/B/C agreed that they weren't aware of any organized efforts by prominent organizations, and in their estimation, it was not an urgent concern for developers: "I think it's something that more broadly speaking, developers are kind of loosely and generally aware of, but I don't think it's very important for most any dev, on like, development perspective honestly." In short, it was the team's belief that

most developers understand and are aware of the problem, but don't view it as part of the development process. The internet, after all, was handling it. But disagreement arose when Trinity A/B/C started to talk about their own work.

Trinity B: We tend to also favor not online games, so our stuff is easier to preserve. I'm sure we'll make that not the case at some point, but hopefully by then we'll have the wits about us to make it easier to preserve our multiplayer game thing.

Trinity A: Is that our job?

Trinity B: Yeah. I think game developers in a lot of ways are the only people – especially talking about online games – they really are. The people that own those IPs are the only ones that can give that software, the server-side software, to be able to preserve...but yeah, I think that there are gatekeepers to it being preserved.

Trinity A asked the million-dollar question. Is it their job? I don't think game developers need to become archivists overnight, but certainly the attitude that 'someone else will handle it' is not a productive one. If everyone thinks someone else will handle it, eventually no one will. Trinity C also responded to this dismissive attitude.

But I think Good Old Games.com, GOG, they're actively re-engineering and porting old games to work on modern Windows OS. And to Trinity A's point, yes there are various efforts on the internet, a nebulous effort that ends up preserving games, but that then becomes the source of the conversation. Because the question becomes, what would a concerted perpetual effort – the solution that currently exists highlights the problem, which is that, to preserve old games you have to have a company to reengineer them – what's it going to look like by Windows 20? Who's going to do that?

In the end, Trinity A relented, and the team recognized that developers have largely dropped the ball on doing this kind of work.

4.3.3. Preserving Art and Culture

Why is preservation important in the first place? Participants that made strong arguments toward games as art valued the cultural heritage aspect of video games. Peter

invoked the most well-known character of all: “From a games as art perspective, there’s a lot of games out there – like Mario right, *Super Mario* has had such a cultural impact on the entire world.” But Patrick took this idea the farthest, expanding on his previous notion that games evolved out of film and opera. He referenced composer Richard Wagner’s concept of Gesamtkunstwerk – the ultimate art form – as being the reason we should be concerned with preserving games.

[Opera], it was this art form that took all the art forms that existed and squeezed it all into like one amalgam of everything. You've got like choreography, singing, writing, acting, like all this stuff, you know, colorful set design, aesthetic and stuff, all this in one thing. And eventually that kind of became film right, and now you've got video games, which are all that plus the interaction that you get as a player playing...I feel like we are hitting that point where people are really starting to embrace that games are art.

Patrick hoped this artistic embrace would lead to video games being taught in school, framed as part of the humanities. “Just like we teach World History, just like we teach Art History, just like we teach English Literature...I think it’s critical to know where we came from so we can learn from it and not forget important developments that were made.” Zoe also took a heritage approach, making comparisons to the loss of film history. “There are films that were very influential that [no longer] exist, and now if you want to point people back to these influential video games that started it all, they’re not very accessible.”

Trinity A/B/C also made artistic and cultural arguments, but they went beyond heritage and focused on broader anthropological implications. Trinity B felt that video games weren’t just an “important part of American culture” but also a significant development in the way “people communicate important ideas.” And Trinity C was explicit in invoking the role archaeology can play.

Archaeology lets you compile things about a civilization or a city to understand how it must have been at one point. So, thinking about games with that lens allows you to say – *World of Warcraft* as an idea or *League of Legends* as an idea is the executable – but it’s also all these documentations of how people interacted in it. So, you have people who have done studies in *World of Warcraft*, you have people’s personal diaries, you have gameplay footage. You have all these things that I would compile with the executable to say, ‘This was *World of Warcraft* in 2018.’

For Trinity C, video games could serve as snapshots in time, reflecting the era they were developed in and the people who played them.

4.4. Methods and Challenges of Preservation

The following sections examine the myriad suggestions for how best to preserve video games, as well as some of the challenges that come with these methods. Chosen methods often revealed certain values that participants prioritized about games. A focus on emulation was about ensuring the continued accessibility of games above all else, while a focus on museums revealed the priority placed on education.

4.4.1. Emulation

The consensus among all eight participants was that emulation is currently the most efficient and practical solution for preserving video games, especially in the face of hardware obsolescence. But that same obsolescence is exactly why emulation cannot be the sole solution, as it removes the game from a core part of its historical experience, a process Trinity C has had to negotiate.

I’ve been emulating N64 and PS2 games on an LCD in high def, and if you’ve ever done that, you know they look like terrible shitty jaggy messes. But on these old CRTs they all look really good. So even if you’re emulating it and running it at the right framerate, something major like the display is something you can use to preserve the experience.

This historical experience speaks to the question of authenticity. Is it enough to preserve just the executable software, or does it need to be played on the correct console, with the correct controller, on the correct screen? Mark agreed that emulators were convenient, but questioned how important an authentic experience really was.

I know one of the things people say about the NES Classic and Super NES Classic is that Nintendo emulated them so well that they slowdown in the same place...it stutters or the sprites flicker, whereas a lot of emulators can overcome that, because they're not limited...it speaks to authenticity. But in the end, is that authenticity important to a modern palette?

In the end, Mark thinks contemporary audiences would find these authentic errors as annoying and use it as evidence that old games aren't worth playing. If emulators (and by extension remasters and remakes) can rewrite history and fix what was previously broken, than that might not be a bad thing. If the end result attracts a new audience, then the game's accessibility has been preserved. To that end, Trinity A felt emulators best accomplished the goal of preserving game's ability to be played: "What is important about interactive media is the interaction, therefore you have to preserve the ability and availability of interaction...or else it's just data on a disk sitting in a freezer. It's not actually a game if you can't ever use it."

4.4.2. Code

GitHub and other cloud-based storage solutions were mentioned by Peter as a great resource for backing up various forms of data – repositories of source code, assets, and metadata. "I mean, a lot of developers now are using things like GitHub...not only source code preservation I guess, but also for working collaboratively...So to some degree, as long as that can be backed up and those files can be preserved, there is potential there." But he also recognized the delicate nature of relying on an all-digital future.

The whole idea of saving everything in the cloud...even though we have things like Dropbox and Google Drive and Amazon Web Services and all these storage places – one, if you stop paying them, they stop holding your stuff. But two, if they have issues down the road or something happens – nobody has local storage anymore for a lot of these types of systems. And now game companies can have solid state drives they put everything on and hope that in 10 years they can still access it with whatever system we're using at the time.

Peter also identified the high cost of data storage as a challenge, and wondered if a Wikipedia model would be a viable means of supporting preservation efforts. “To what degree does philanthropy need to focus on game preservation?”

Ian was the only participant to suggest open sourcing as a viable method of preservation, praising id Software's practice of releasing their code after a certain number of years have passed. “I've looked at some of their code and it's amazing. So, *Doom I* and *II* and *Quake* and *Wolfenstein*...the open source community has in some cases taken those engines and modified them to produce new games.” The opportunity to examine *Doom III's* code in particular was a source of professional development for Ian; he noted that it was still incredibly relevant, despite being nearly 15 years old.

I was also surprised that they released it in such a clean fashion. You can read through the source code and understand it. I spotted a couple things that I had heard about, legendary little improvements that I had heard about in a lecture or something, “There it is!” I'm seeing the actual mechanism in real life as it was used. There are things like how to calculate a square root quickly, and square root is important to calculate quickly because that's how you can calculate distance, and distance is important. Everything in the game needs to know that, so square root gets called a lot. I heard about it, and then got to see it in action. It was easy to find, they released it in such a clean fashion, it was easy to find and not mysterious.

Though the culture of secrecy is strong in the industry, I had expected other participants to champion open-sourcing as a viable means of preservation, given my participants were mostly indie devs.

4.4.3. Museums

Half of the participants mentioned visiting the National Videogame Museum in Frisco, TX, a local attraction in the Dallas-Forth Worth metroplex. These participants viewed museums as being potential avenues for preservation efforts but questioned the long-term viability of maintaining original hardware and software collections. They ultimately fell back on the idea that museums and other archival institutions would likely need to rely on emulation technologies to some extent.

Patrick mentioned his own extensive collection of original hardware. “I keep two CRT televisions in my house for that reason...I've got an NES, Atari 2600, N64, GameCube. I've got a Sega Genesis and a Dreamcast and all that stuff.” But Patrick’s collection isn’t just driven by nostalgia, his chosen method of preservation revealed his emphasis on education and learning from the past.

They've got video game museums where you can go look at this stuff. I think that's important. I think it's important to hold onto that stuff...if you don't have access to that hardware, then something like the Nintendo classic consoles that they're putting out, or emulators and ROMs are a good way of teaching. I don't think it would be a bad idea for Nintendo to at least give – or any game company – maybe they give permission to schools to use emulators and ROMs at least for educational purposes...I think that benefits the companies right, like the art that they spent years and decades making gets taught to future generations. I feel like that's a win-win.

Patrick’s view was that museums and schools could use hardware collections and emulation technologies not just to educate about advances in technology, but also the art form of video games.

Like Patrick, Mark also believed museums have a role to play in preservation. To reiterate, Mark recognized that emulation would be efficient, “I think just saving the game is easier and more cost effective,” but nevertheless imagined a future of video game museums, “I

would love to – when I’m 80 or 90 – go to the Video Game Museum and see...all these weird things that have disappeared.” Mark thinks preservationists could look at current museums of television or film for inspiration, splitting potential wings into technical and cultural, “Much like museums for television, like there’s a technical side - like this is the first cathode ray tube and this is an LCD and this a projector. And then this is the *I Love Lucy* wing, you know, with like outfits and stuff like that.”

4.4.4. Online

Dealing with online games was of particular concern for most participants. Peter noted that most modern online games no longer have local modes, making them entirely reliant on the continued existence of servers. “How do you preserve those types of things... once you start getting into games with persistent universes, once those servers shut down, how does anyone go play again?” Another conundrum involves online marketplaces for video games, as Trinity B noted the way digital distribution has impacted preservation efforts. When game consoles reach obsolescence, their online marketplaces also become inaccessible.

We also have marketplaces getting shut down with games that you can no longer buy or download, because they’re not being ported and they never had physical editions. So now there are games that literally – there’s no way to access unless you already [downloaded] it. So, like the *PT* demo and the whole Wii marketplace getting shut down.

Trinity B also considered the role that patches and downloadable content play, as games can now be updated in significant ways long after their initial release. “The launch version of *Dark Souls* is just as important as the current patched version...you can’t get the original PC version of *Dark Souls* anymore.”

While the online space was mostly seen as a barrier to effective preservation, Zoe brought up the potential that Let's Plays and other streaming formats could play in archiving both a visual record of video games, as well as the sub-cultures within the wider gaming community. Archiving these videos would be an efficient and relatively inexpensive way of preserving video games.

4.5. Archival Practices: A Haphazard Approach

As mentioned previously, I was unable to gain any major studio access, so I was not able to view archival practices first-hand as originally intended. Instead, I must rely on the accounts of my participants. Development materials were not handled poorly by participants, but there was little to no consideration of how the care of those materials could impact preservation efforts down the road. By and large, archival practices were only important insofar as they facilitated the development cycle of a game. But after a game was completed, documentation became less important, as new projects took precedence.

The Trinity team were the most considerate when it came to documenting their workflow, but even they didn't have a formal system in place, with prototypes and other materials scattered across multiple hard drives and servers in the possession of various team members. In fact, it was only after discussing the topic with me that Trinity was motivated to consolidate those files. Participants described a variety of personal and professional archival practices – some of which developed after experiencing a loss of data. Patrick's story was the most devastating, detailing a significant loss of composed music due to a crashed hard drive during college. "I lost a ton of music that I had composed...and that's work I'll never get back. So, from that moment on I've become kind of obsessive about archiving everything." Patrick

states that for every piece he writes, he probably has a hundred different versions scattered across cloud storage and external hard drives. And while Patrick had recently quit his coding job to focus full time on game development, he noted that his old job relied heavily on GitHub, and how he has since modified his archival practices:

So, my methods of backing up my scripts and coding and stuff were very different. It was just, go find the actual documents, the C++ documents or C sharp documents, whatever they were, and just save multiple copies on my external hard drives and stuff. Which is...it's probably an antiquated way of doing it. But yeah, after my last job learning how to make repositories and stuff, it evolved into a very different way of doing it.

Ian noted his workplace only archived to the extent that code and assets were committed to the repository every night, but beyond that, documentation was limited. "Even if you're technically proficient...even if you follow the documentation, the documentation is meant to be a guide that someone who knows the path can use to get down the path quickly. It's not meant to [recreate] the path." In other words, only individuals already familiar with the project would be able to make sense of the documentation.

Mark's previous company used a magnetic tape system, but noted that a separate IT professional oversaw everything, effectively outsourcing their archival system:

We had a script that would run and pull everything...I don't remember what it's called, but it was a locking-unlocking system...so we had local versions of all the software and a server-side that copied backups to everything. So, we would check out a file, make a change, and check it back in when we were done. That way if there was an error or a bug that broke the game, they could roll it back to a previous version.

Mark also noted that his boss was distrustful of cloud-based storage, so everything was archived on site only. He felt their system was adequate, but without cloud back-ups, he conceded that their tape system was vulnerable. If anything went wrong with the system,

everything could or would be lost. Mark went on to describe a minor instance of this happening.

I don't think we ever lost any games, but we had a large wiki on a local server with scripting comments and programs, syntax required for the whole thing...and the power went out, the battery died, and that wiki was gone. It was months if not years of collected information about the engine and how it worked...We were actively trying to prevent that from happening, but stuff happens. And it just vanished. That was a bummer.

Trinity B noted that the team archived extensively, including prototypes, but there was no formal system in place. "We've got all the backup images and stuff, any of that dev flow history...images on my machine, on his machine, on Google Drive....We've done a bit to keep some in development versions so we have them around." By releasing their games on multiple platforms, DRM free, they also felt they had maximized accessibility, thus making their games easier to preserve. Trinity A also took it as a point of pride that their games were aesthetically designed to age well.

The game [we] developed has a style meant to age well. The resolution you render the game at doesn't matter, because it doesn't rely on lossy texture preservation. So, for example, in *Assassin's Creed* or whatever modern game, you zoom in close enough and you start to see the pixelation. That resolution is lost. Designing a game that doesn't rely on that kind of stuff, that is effectively screen resolution agnostic, is a game that is better at aging, regardless of display hardware. So that's an active thing I do, I want to make aesthetics that age well.

All of these examples illustrate that there is no guiding principle when it comes to archiving development work; no single set of best practices. It's a haphazard approach, often entirely dependent on individual initiative. With that said, on the coding front, GitHub has become a powerhouse since its inception just a decade ago, becoming the go-to platform for hosting code repositories. And its recent acquisition by Microsoft in June of 2018 is a likely sign that it will become an even more entrenched platform in Silicon Valley and beyond.

4.6. IGDA

At the request of some participants, identities will be completely obscured in this section, as they wished to remain anonymous in their criticism of the IGDA. All eight participants were familiar with the IGDA as an organization, but only two were current members in good standing. A third was a former member but had recently left for a variety of reasons. The remaining participants noted that, in the past, they had all attended events sponsored by their local IGDA chapter, but had never been dues-paying members.

At least one participant felt that the Dallas Society of Play was a more practical alternative to the IGDA. “I've participated in a few of their [IGDA] events. I do think they're on a good path forward, but personally I have found that the Dallas Society of Play represents the industry in the local area – when it comes to the indie developers – more than the IGDA.” Another participant was quite firm that he had no interest in the IGDA, as they did not impact any of their work. “If they're not giving me money or manpower, I don't care about them.” And the participant that had recently left was disappointed in the inactivity of the local chapter. “I didn't really like how inactive the chapter had become. You couldn't do a whole lot without having to jump through a lot of hoops, so that's why I stepped away from it.” Although never explicitly stated, it was my impression that most of the non-members would consider membership if the local chapter was more active. Everyone appreciated the events they put on, but they simply weren't frequent enough.

4.6.1. Whom Do You Serve?

When asked about what role IGDA could play in addressing game preservation, there was some initial confusion and skepticism among five of the participants. After clarifying that I

was not suggesting IGDA take on the role of an archival organization, they were more keen to make recommendations, but those recommendations often came with a healthy dose of criticism. Foremost among these criticisms was the question of whom the IGDA really represented.

The tricky thing is that it's an industry organization, and the problem with the industry is that – who does that really represent? Is it the company or the workers? What would be good for devs – in the union conversation specifically, there's a weird tension. It was around the net neutrality time, but you saw a lot of industry orgs come out on the side of telecoms and repeat that pattern with unionization. So, there are bunch of conversations to be had about the role of industry representation and which part of the industry they really represent.

The question of representation continued, especially in regard to indie developers.

Another participant expressed how they didn't feel represented by IGDA leadership.

Most indie developers don't feel like the IGDA represents them particularly well. So, you're talking about the face of developers – organizing a cohesive effort among developers to help preserve games? But I think most developers don't feel like they're a part of that. Membership rates are incredibly low among indie developers.

It is important to remind readers that these interviews took place in 2018, the same year that Game Workers Unite, a grassroots labor organization pushing for the industry to unionize, rapidly formed and made waves at the annual Game Developer Conference (Frank 2018). The gaming press has regarded the events of GDC 2018 as a turning point in pro-union sentiment, and while it remains to be seen if that momentum will continue and effect change in 2019 and beyond, I think it is fair to say that, at least among my sample of research participants, developers currently view the IGDA with a considerable degree of apprehension. Participants were unclear about the position IGDA would take on matters relating to gaming preservation, and whether those positions would include developer input or yield to corporate interests.

4.6.2. Advocacy

Beyond that fog of distrust though, there was a consensus among participants that the most reasonable and workable solution was for the IGDA to more visibly advocate gaming preservation as a topic of concern. “It’s a discoverability problem. It’s still something that is academic or a little nerdy, so the IGDA as a banner organization could help popularize the discussion.” This push could come in many forms; supporting the creation of a new Special Interest Group, making preservation an official initiative, encouraging more public talks at conventions like the GDC, or even issuing direct guidance.

At least one participant thought the IGDA could make game preservation an official initiative for the year, as the IGDA does for other topics like ending crunch or increasing diversity in the workforce. But they confessed there needed to be workable solutions to present before making preservation an initiative.

As for more direct action, a few participants thought doing more research and issuing guidance to companies was the best path forward. “Research like yours is one step in the right direction... having devs get involved, taking leadership in that conversation, coming up with guidance, that would be the most you could do right now.” Something as simple as “a useful list of links” was seen as being incredibly beneficial, with participants noting that “we just don’t have the know-how on who’s doing this or how to contribute to it.” Again, a lack of knowledge and education. Even participants critical of IGDA thought guidance would go a long way. “Even if people don’t like belonging to the IGDA, they look to them and pay attention to what they say. Even if it’s just to complain about it.”

Finally, another participant focused his solution on the economics of game development, suggesting the IGDA could lobby for tax breaks or other incentives for companies that took appropriate measures to preserve games. Tax incentives exist for other organizations that do cultural heritage work, so why not video game companies.

I think the proper move is to incentivize the company through money to preserve games for future generations. And I think the right way to do that is to give them a tax break. Because a tax break on the company does not directly take money out of the taxpayers' pocket. The government's role is to do things that a normal person and or even a group of persons should not have the power to do. So something that concerns all of us, not just some of us, is what the government's proper role is. So I think a tax break for companies to preserve video games for all us, for posterity, is the proper move to make there. And as soon as you provide that tax incentive, the companies that care will make moves to preserve their games, and the companies that don't care will be left by the wayside...but that's better than nothing.

4.6.3. Deliverables and Recommendations

After presenting my findings to Jen MacLean at the IGDA, I made two recommendations. First and foremost, as recommended by nearly every participant, there is a need for game preservation work to become a more prioritized discussion among developers. As supported by previous studies (Kraus and Donahue 2012; Bachell and Barr 2014) and my own research, while developers are aware that it's a topic of concern, game preservation is simply not a significant consideration during the development process. At best, the prevailing attitude is indifference – a naïve assumption that someone else is taking care of the problem. And to a certain extent, that is true. But those efforts are struggling without the full support of the industry and are reliant on the support of volunteers among enthusiast efforts, and reliable and substantial funding among institutional efforts. Neither volunteers nor funding are guaranteed to last forever. Those efforts ebb and flow, as can be seen in the dissolution of the IGDA Game

Preservation SIG and the various projects its members started but never finished. Case studies like how Konami lost the final source code for *Silent Hill 2*, or how Ian, and presumably many other developers like him, used *Doom III's* source code as an educational resource, can illustrate the effect that different attitudes toward preservation can have on the industry. The IGDA can and should play a role in advancing these conversations, endeavoring to change indifferent attitudes about game preservation among developers, and encouraging them to become active curators of their own history.

My second recommendation involved how to go about changing these attitudes among developers. Thus far, archival efforts have largely been concerned with the games themselves and little attention has been paid to developers as the creators of those works. As expressed by my research participants, preserving video games was not just about their continued playability or historical/cultural impact, it was about preserving examples of their craft as textual resources. Dozens if not hundreds of books have been written about the history of the industry as a business, as a technology, and as cultural phenomenon. But very few, if any, books have been written about the history of video game developers as a community of practice. By reframing preservation work inward on developers, perhaps they will begin to comprehend this glaring omission in their own history. There are of course textbooks on game development, like *The Art of Game Design* (Schell 2008), which includes 30 chapters and 100 “lenses” for aspiring game designers to sift through. But these texts lack the intimate and granular details of how games are actually made and who made them. Those kinds of oral histories are sorely lacking in the industry, though one studio stands out as being exemplary in this space.

Double Fine Productions, led by Tim Schafer, has produced numerous documentaries about the development of their own games. Double Fine Adventure! is a 20-part series that chronicles the development of *Broken Age* (2014) and includes approximately 12 hours of interviews and behind the scenes footage throughout the entire development process. And their Devs Play series involves developers being interviewed while they play the games they had a hand in creating, serving as a kind of Director's Commentary. All these videos and more are accessible through Double Fine's YouTube channel. This body of work is certainly of interest to archivists, but it is invaluable to current and future developers who might be looking for examples of good work practice.

After hearing these recommendations, Jen agreed that the Game Preservation SIG should be reconstituted, and future conversations will involve what the new SIG should be named and what its priorities will be. She also invited me to become a member of the renewed Game Preservation SIG.

4.7. Developer Perseverance

Although Cushman's concept of perseverance was always at the forefront of my mind during interviews, I made a point to never directly bring it up. I always framed my questions as being about preservation work, as I was curious if any participants would, of their own will, reframe the questions and find the answer in acts of perseverance. Remember, acts of perseverance are those that reflect the "growth of the community through generational learning and exchange" (Cushman 2011, 71). As mentioned at the top of this chapter and preceding sections, the subtext of much of these discussions involved themes of education and learning – how preserving video games would allow the people who play them to learn from

them. In essence, the ability to play old games is a crucial component of the industry as a community of practice. But only a few participants took that extra step of turning their subtext into text – directly hitting upon the notion that, perhaps we need to save games so that developers like themselves can continue to learn from their predecessors – games are the medium by which their community engages in generational learning and knowledge exchange. How can the industry as a community of practice grow and persevere if they shroud their own work in mystery – even from their peers and colleagues? It is one thing for village elders to protect their secrets from outsiders, but they should not protect their secrets from one other.

The “institutional Alzheimer’s” that O’Donnell (2014b, 206-207) described in *Developer’s Dilemma* was reflected in Patrick’s exasperation at industry trends, “I would like to see more appreciation for the older stuff. There is usually this focus – and it’s in every field right – there’s always the focus on what’s going on right now, the new and exciting. And what happened even six months ago is easily forgotten.” And Mark directly invoked a mentorship approach, stressing that veterans have a lot to teach, but feel hindered by business concerns and the secrecy of the industry. In Mark’s view, the IGDA could facilitate this exchange of information by leveraging local members to be more active in the community, partnering with colleges for example.

You want to help siphon information and resources to where they need to go...So encouraging talks, I know years and years ago, an artist from *Grim Fandango* gave a speech at Collin Colleges. And he just sort of walked us through the process, which was unknown to me. It was just that little bit of extra knowledge that helped me think about things in a different way.

Returning to Patrick’s exasperation at the industry’s tendency to forget what came before, he suggested hosting “retro game nights” as part of his recommendations to the IGDA. At first this seems an astoundingly simplistic if not outright juvenile solution to a complex problem, but the

way Patrick framed the event, with a childlike innocence, revealed a hidden depth. “Like a retro game night or something like that right? Just to keep spreading the knowledge...I think it's important to bring that stuff back and teach people. I think it would be cool if some of these events were to have history lessons, I guess.” Again, there is a concern about the knowledge contained with games, Patrick’s retro game night wouldn’t be celebratory fun and games, it would include an oral history of the game’s development. At this point, I attempted to nudge him in a more ‘professional development’ direction, suggesting what he really meant was some kind of workshop or lecture series. He didn’t hate this idea, but it was too formal, and he modified it into something far more intimate, a “book club” for games.

Like the equivalent of a book club would be neat. Because there’s still stuff to learn from that. They didn't get it all right, but they got a lot right. I think some sort of book club, but game club could be kind of cool. Like okay this month, we're going to play the first couple *Castlevania* games, and next month we're going to play the first couple *Zelda* games. Whatever. Or *Turok*. God bless. “I. Am. Turok.” There's a game that needs some love.

As a reminder, this was Patrick’s suggestion for the IGDA, not just an activity to do among friends. Patrick is advocating for a study group for game developers, a space where colleagues can meet and discuss the classic and iconic works of art in their field. If developers are prohibited from talking about their current work, surely, they can get together and talk about what came before. As a community of practice, being able to “play the past” and share in the experience of discovering the work of past practitioners of game development could prove to be a wonderful means of professional development.

In closing, I would like to end with a metaphor that Mark used towards the end of my interview with him, something that I think encapsulates the discussion around secrecy, perseverance and communities of practice.

So, I've come around to this idea of our works being lighthouses in the darkness. [For example,] I've got this weird idea for a platformer RPG hybrid, but I didn't quite figure it out. But I made this weird thing in the darkness, and somebody who goes out in the darkness after me might stumble across my lighthouse. And they'll go, "Oh, this is where they went wrong. But we can do this now, we have the hardware, this is actually a really good idea." And then they create that thing, and everything pushes forward. We want to encourage that – "Here's my expertise, you've got a good idea, let me help you out."

Mark's metaphor encompasses the current state of the industry; developers stumbling around in the darkness of secrecy. Their work, the games themselves, are beacons in that darkness. But as Patrick lamented earlier, gamers and developers alike are most frequently attracted to the most recently built and brightest lighthouse. They crowd around its base, desperate for its light. But wouldn't it be something if those lighthouses actually illuminated the entirety of that dark expanse, if they could look back and see the path forged, every lighthouse, no matter how distant, visible and in reach. Developers shouldn't preserve things in the dark, they should persevere in the light.

CHAPTER 5

REFLECTION: LISTEN AND LEARN

This has been an incredibly long journey for me. I still remember when I first started thinking about combining my academic interest in anthropology with my personal love of video games. It was the Spring of 2012, my final semester of undergraduate work at the University of Texas at San Antonio, and I was taking my last Anthropology elective, Applied Anthropology.

“Eureka!” I thought. “I can *apply* anthropology to anything I want? Why didn’t anyone tell me this sooner?” That course brought in a different guest speaker each week, anthropologists working outside traditional academic spaces. But the one that stuck with me was Brian Schwegler, a business anthropologist working for USAA financial services. While I had no interest in working for an insurance and banking corporation, I was struck by Dr. Schwegler’s description of anthropologists. “Put aside all the anthropological theory and methodology for a moment,” he said, “We’re professional listeners. No one listens like an anthropologist.” To listen is, “to hear something with thoughtful attention,” to be “alert” and give “consideration” (Merriam-Webster, 2019). Studying human culture might be our bread and butter, but the knife we use to spread that butter is our sharp ears. We use ethnography and its methodological toolkit to tell the stories of the people we study, but a good storyteller must listen to their audience first.

I have done my best to carry that torch forward, always alert and listening to the people around me. As I mentioned at the top of this thesis, I experienced a friction in designing this project, a split personality that was preoccupied with my love of video games as cultural objects, but I listened to the people around me; professors and colleagues who constantly

pushed me to refocus on the people making those objects. Certainly, I still paid a great deal of attention as to how we might preserve video games for the future, and the reasons why we should do so. But I hope that my project illustrates that the voice of developers has been missing in these conversations. It is missing, as I have discovered in the course of this research, because they have strangled themselves, wrapped up in non-disclosure agreements and veils of secrecy. That missing voice could also be too tired to speak at all, strained under decades of unrelenting labor conditions that finally resulted in Game Workers Unite forming last year. NDAs, time, money, and energy are all reasonable explanations for why developers are not archiving their work as much as they should, but as more and more archival institutions get involved with game preservation, I've come to believe that the problem may not be as urgent as I originally thought at the outset of this project. Between the emulation community, archival institutions, and the industry's growing appetite for remasters and remakes (scratch money off that list), video games will be preserved for future generations to enjoy. In the far-flung future, I have little doubt that *Super Mario Bros* could one day be taught in schools alongside Shakespeare's *Hamlet*. The question I have now is whether the industry as a community of practice will persevere long enough to see that day.

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