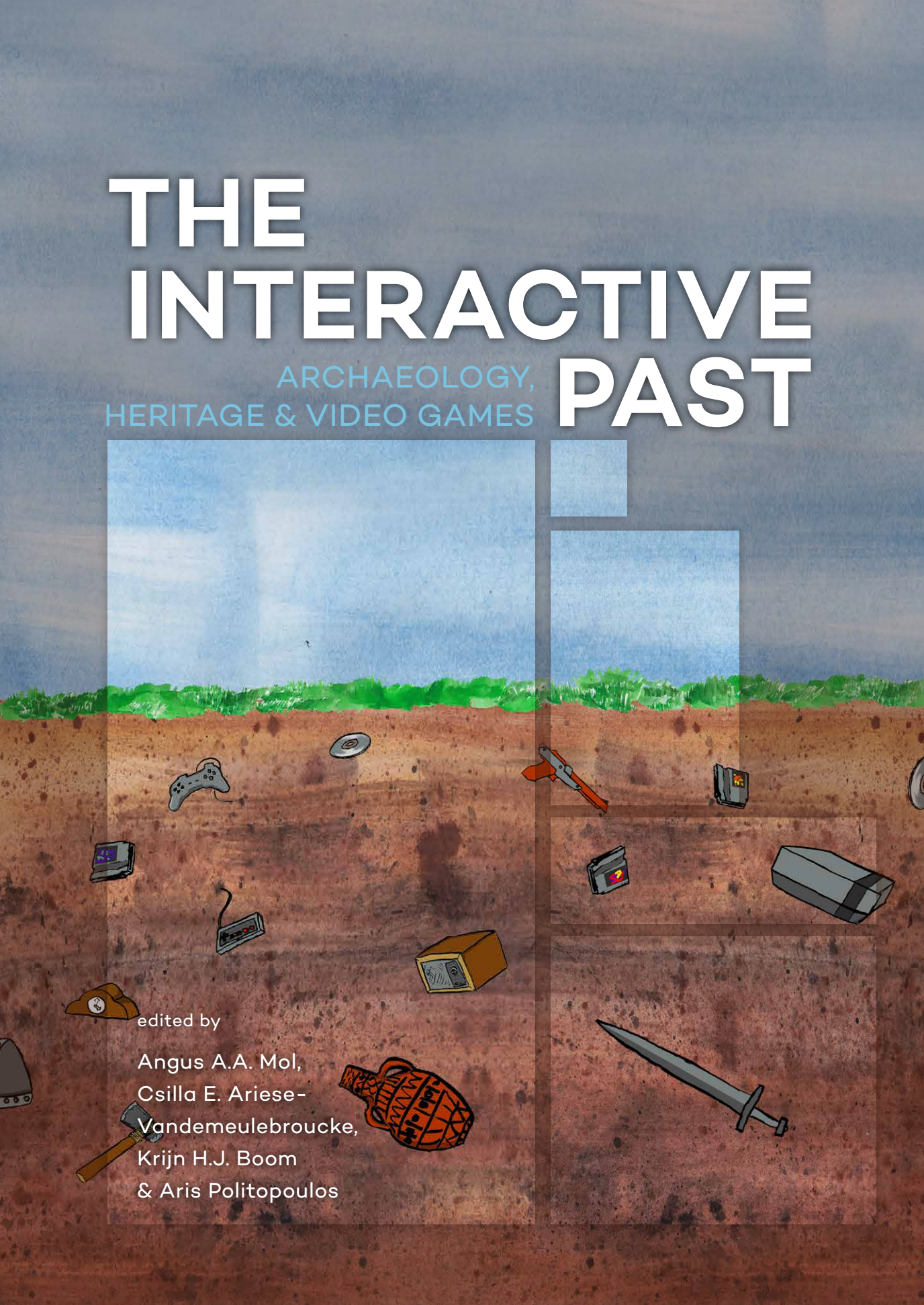
THE INTERACTIVE PAST

ARCHAEOLOGY, HERITAGE & VIDEO GAMES



edited by

Angus A.A. Mol,
Csilla E. Ariese-Vandemeulebroucke,
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Sidestone Press

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Published by Sidestone Press, Leiden
www.sidestone.com

Lay-out & cover design: Sidestone Press
Artwork cover: Alexander Ariese

ISBN 978-90-8890-436-3 (softcover)
ISBN 978-90-8890-437-0 (hardcover)
ISBN 978-90-8890-438-7 (PDF e-book)

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Tutorial

An introduction to archaeology, heritage, and video games

Angus A.A. Mol, Csilla E. Ariese-Vandemeulebroucke, Krijn H.J. Boom & Aris Politopoulos

A 16th century Dutch windmill stands guard as an army of Roman legionnaires clashes with the riders of the Mongol Golden Horde. They fight for control over Machu Picchu.

A terrorist attack damages a World Heritage Site; one month later and several thousand kilometres away, a group of people aged 8 to 60 come together and, block by block, reconstruct the monument in the space of an afternoon.

In the setting sun of a land far from his home, a Dwarf archaeologist lays bare an ancient ruin of his people. He recovers one of its artefacts and sells it to an Elf at an auction.

These scenes may sound like make-belief, but these and many other unbelievably real pasts are experienced daily by millions of people in video games and other virtual interactive media. Although interactive pasts can take a myriad of forms, in this book the focus lies with the virtually playable: video games. The games discussed run the gamut from single player experiences to Massively Multiplayer Online games, from text-based to graphical interfaces, from edutainment to mass media titles, and include mods of games, simulations, and agent based models. The chapters in this book will demonstrate how games can be tied to the past or to the study of the past, showing their relevance for the present and their potential for the future.

Whether you are an avid gamer or new to video games, a video game developer or scholar, if you are intrigued by the idea of a playful past, this book may be of interest to you. Incredibly diverse at their core, the chapters range from topics

Figure 0.1: A triptych of virtual pasts in the present (from left to right): Roman legionnaires and the Mongol Golden Horde fight over Machu Picchu in Civilization V | VALUE's collaborative Minecraft reconstruction of the Temple of Bel in Palmyra, damaged by IS in 2015 | World of Warcraft's promotional art for the in-game archaeology profession.

such as indigenous game development, to archaeological game mechanics, and the preservation of play. They are written by game developers, archaeologists, heritage specialists, educators, ethicists and archivists, spanning the globe from Australia to Alaska. To make your way through the book, begin by completing this short tutorial – a concept we are borrowing from video games – which will place the development of games and the playful study of the past in their contexts, as well as provide you with a teaser of every chapter. The book also contains a unique feature: a crowdsourced chapter which was written collaboratively by those who financially supported this publication. At the end, we will *Level Up* with a consideration of what the future of interactive pasts may hold.

History of Games (Studies)

The enduring rise of virtual, interactive media constitutes one of the major pillars of the digital revolution. The onset of electronic computing in the 1950s almost simultaneously saw the birth of simple, computer-based games that mimicked analogue board games or sports. In the 1970s, virtual, interactive media became accessible for the general public with arcade machines and home gaming consoles. Subsequent developments in hardware, from personal computers to tablets and smartphones, were immediately adopted by game developers and gamers. The ability to play online with others, made feasible by the advent of the internet in 1991, was another major development in the meteoric rise of this medium. By this time, networked, personal computers had already given rise to Multi-User-Dungeons and other text-based, shared virtual worlds. Yet, the internet and better computer hardware allowed for new online interactive experiences, including the graphical virtual worlds that would become the multi-million user online, virtual worlds we see today. To illustrate the extent of the current, growing interest in online gaming, it was responsible for 82 Petabytes of internet traffic in 2015 and this is projected to rise to 568 PB by 2020 (Statista 2016a). In the coming years, virtual and augmented reality technologies are predicted to increase the impact of interactive media in all aspects of daily life and segments of the population

(Statista 2016b). Clearly, virtual, interactive media are a major economic, social, and cultural force, and, despite lingering stereotypes, the community surrounding it is a heterogeneous group in which people of all genders and ages are represented (ESA 2016).

Naturally, computer science is the overarching field that is involved in the study and (more importantly) the creation of all facets of video games and other interactive media, with developments increasingly taking place in the creative industry rather than at universities. Video Game Studies – a mix of critical media and technology studies that take psychological, anthropological, and sociological approaches to play – have also made a significant contribution to this field, by studying and critiquing interactive media as a cultural form (Bogost 2015; Mäyrä 2008). Aside from Video Game Studies, there are more and more studies of virtual, interactive media in which the subject has grown to be a subfield of an established discipline. One prominent example of this is the psychology of video games, and in particular the open and contentious question whether they incite violent behaviour in players (e.g. Anderson *et al.* 2007; Etchells *et al.* 2016).

Why Study Interactive Pasts?

Even if video games and other forms of interactive media have rapidly become established and productive fields of study, there are still many opportunities to engage with them in innovative and exciting ways. The disciplines of archaeology and heritage studies are prime candidates: the past has occupied a central position in interactive media from as early as 1973's *Hamurabi* (David H. Ahl; first developed in 1968 by Doug Dyment as *The Sumer Game*) – a game that puts the player in the shoes of the ancient Babylonian ruler – to current, multi-million selling franchises like *Civilization* (Microprose & Firaxis 1991-2016) and *Assassin's Creed* (Ubisoft Montréal 2007-2015). Games like these tap into the thrill of discovery and exploration of a familiar setting. Even if the past cannot be experienced in actuality, interactive media present an opportunity to re-live it, which appeals on both an instinctive and emotional level.

Counter to prevailing stereotypes, the experiences we have in interactive, virtual media are not 'just a game,' or ritualized, make-belief play that is largely separated from daily life (Bogost 2012; Grimshaw 2014; Huizinga 1949). The virtual is not merely an imagined space, but rather is a variety of "places where the imaginary meets the real" (Bartle 2003: 5). As such, the virtual and the real are bound together and influence each other. Following in the footsteps of studies that successfully moved the boundaries of disciplines such as economy, psychology, medicine, law, and anthropology into the realm of the virtual (e.g. Balicer 2005; Boellstorff *et al.* 2012; Knowles & Castronova 2016; Lastowka 2010; Yee 2014), archaeology and heritage studies have followed suit. Supported by advances in computer sciences, digital humanities, and digital archaeology, archaeologists and heritage specialists have started to identify the many relations between the past and video games.

Linking the past with interactive, virtual media has not only taken place academically, but, as mentioned, is also demonstrated by the wealth of existing games that are set in, or inspired by, the past. By participating in these settings

where the "imaginary meets the real," people experience histories and heritages that are equally imaginary yet real. Virtual pasts are convincing, authentic, and malleable, yet their experience takes place largely outside of the traditional channels that produce and communicate knowledge about the past (Champion 2015). Perhaps even more so than histories in the actual world, (trans-)national, communal, and individual heritages are thus highly susceptible to how they are represented and replicated in virtual media (Champion 2014). As such, video games have the potential to impact both players' perceptions of the past, as well as players' identities in the present, possibly to a much greater extent than through other, less interactive, encounters with the past.

Considering the projected growth of the video game industry, the impact of games on science and society, as well as the rise of virtual and augmented reality technologies (Statista 2016b; Statista 2016c), it is of critical importance that: we gain a better understanding of how virtual pasts are created and mediated, we improve the communication of knowledge of the past through virtual media, and democratize both the creation and experience of interactive pasts. Additionally, studies of virtual material culture are all the more pressing as, contrary to intuition, it is quite fragile: it does not deteriorate but instead disappears at once and forever, when its supporting hardware is no longer operational or its database deleted (Delve *et al.* 2012; Glas *et al.*, this volume; Guttenbrunner *et al.* 2010).

Origins of *The Interactive Past*

For some readers, the combination of video games with archaeology and heritage may be a novelty; others may be intimately familiar with this subject. As a field, it did not emerge institutionally, but instead has been slowly but surely developing over the last two decades, primarily through a range of spontaneous, independent initiatives and passion projects charting the potential of research in and on video games (e.g. Champion 2004; Champion 2011; Champion 2015; Copplestone 2014; Gardner 2012; Graham 2014; Meyers Emery & Reinhard 2016; Mol 2014; Morgan 2009; Morgan 2016; Reinhard 2015). The studies that emerged from these initiatives, are sometimes collectively and colloquially referred to as *archaeogaming*. Researchers have published on a wide array of topics, from the physical excavation of the famous Atari *E.T.* 'worst video game ever' landfill, to a (re-)built model of the 9000-year old World Heritage Site of Çatalhöyük in the virtual world of *Second Life*, or a study of the potential of virtual heritage tourism (Champion 2011; Morgan 2009; Reinhard 2015). Even more of the research and the resulting discussions have taken place online, via games, social media, podcasts, streams, and blogs.

In January 2015, as part of this organically developing field, we founded a research project called VALUE (Videogames and Archaeology at Leiden UnivErsity). After an initial survey on the use of the past in games and perceptions of gaming among archaeological professionals and students (Mol *et al.* 2016), we developed a mission geared towards both academic and public outreach. So far, some of our notable activities have been: academic presentations and publications; conference sessions; regular live-streamed events in which archaeological and heritage themes are discussed in the context of a video game; blog posts and reviews of interactive media from archaeological and heritage perspectives; a bi-weekly news report

Figure 0.2: Watching a video presentation by the Cook Inlet Tribal Council of their game Never Alone at The Interactive Pasts Conference (photo by: Csilla Ariese-Vandemeulebroucke).

from the field; and the crowdsourced reconstruction of Palmyra's Temple of Bel in *Minecraft*. In addition, VALUE organized *The Interactive Pasts Conference* (TIPC, April 2016), the first conference to bring together researchers working on the past *in* and *of* video games, as well as students from a variety of disciplines, and professionals from the creative industry. With over 120 persons in attendance, the conference was a great success, sparking new collaborative projects, as well as this publication, the first fully crowdfunded book on archaeology and gaming.

Chapter Teasers

Ethical Approaches to Heritage and Video Games

The Interactive Past begins with a chapter by the Cook Inlet Tribal Council, an Alaskan tribal non-profit organization. They received world fame with the development and release of their award-winning game *Never Alone (Kisima Inŋitchuŋa)* in 2014. The game, which is based on a traditional Iñupiaq story, incorporates many Iñupiaq cultural elements such as language, objects, landscapes, and spiritual values, also expanding on these through in-game mini-documentaries. In an interview-format with key members of the development team, their chapter describes the creative process of making this indigenous game, from inception to reception.

The discussion of indigenous video games is carried on in the second chapter by Gabrielle Hughes, who presents part of her ongoing PhD research. She discusses the legal implications of copyright laws and indigenous traditional knowledges when these collide in video game development. Her chapter provides both positive and negative examples of video games that incorporate indigenous culture and representations, and their development with, without, or by indigenous communities. Hughes concludes with suggestions on how the traditional and the digital can legally and ethically coexist.

An ethical approach also lies at the core of the third chapter, written by B. Tyr Fothergill & Catherine Flick. Combining zooarchaeology and ethics, they investigate the complex relationships between chickens and humans. These complexities are addressed through five categories, for example the use of chickens as products or the abuse of chickens. Each of these categories combines a historical/archaeological perspective with contemporary examples from video games. The chapter draws on a wealth of video games to showcase the similarities and differences between actual and virtual human-chicken interactions.

This section concludes with a chapter written by two Dutch indie game developers, Roy van der Schilden & Bart Heijltjes. Under the flag of their company Wispfire, they discuss the creation of their game *Herald: An Interactive Period Drama*. Not used in a strict sense, the game treats actual historical sources as inspiration in order to construct a fictional 19th century setting. Combined with interactive narrative mechanics, the game guides the player to (re-)consider sensitive issues such as racism, colonialism, and privilege.

Analysing and Designing Games from an Archaeological Perspective

The second section of *The Interactive Past* kicks off with a chapter by Tara Jane Copplestone. She reflects on her previous research, her ongoing PhD research, as well as her own experiments in game making in order to understand how the video game medium might transform archaeological research. What new questions could archaeological research ask, answer, and explain, if interpretation and dissemination took place through video games rather than in the form of traditional publications?

Conversely, archaeological research *of* video games forms the focal point of the sixth chapter, written by Andrew Reinhard. In this chapter, Reinhard considers what the implications are of treating video games as archaeological sites. If archaeologists experiment with researching games in this way, how do we locate the site, what are its artefacts, and how can we deal with different versions of the same game? This out-of-the-box analogy encourages the reader to rethink what archaeology can be.

Erik Malcolm Champion takes a different approach to archaeological practice and video games. He explores what 'mechanics' in games really are and whether it would be possible to translate archaeological methods into mechanics. These archaeological mechanics could then be used to engage and educate the public about archaeological practices in an immersive and interactive way. In order to investigate this possibility, Champion critically examines 'game genres,' 'game mechanics' and 'experiential modes of play,' carefully unpacking each of these concepts.

Finally, this section closes with a chapter by Shawn Graham, who explores the similarities and differences between video games and agent based models. Taking one of his own models with digital Romans as an example, he considers what would be needed to transform it into a video game. As part of this exercise, he evaluates agent based models on the basis of video game typologies, but also flips this around to assess video games according to agent based modelling frameworks.

Playful Heritage Outreach

The final section of *The Interactive Past* is initiated by René Glas, Jesse de Vos, Jasper van Vught & Hugo Zijlstra. Their chapter discusses how games, game culture, and play can be archived and exhibited. Based on a collaborative research project, they discuss the unique value of Let's Play videos to document and exhibit both games and game*play*. Their project focused on a number of Dutch games from the 1980s and investigated how people interacted with and spoke about these games nowadays when recording their own Let's Play videos.

The tenth chapter, also concerned with playful outreach, is written by Xavier Rubio-Campillo, Jorge Caro Saiz, Guillem H. Pongiluppi, Guillem Laborda Cabo & David Ramos Garcia. As the goal of a research dissemination project, the authors developed and released the game *Evolving Planet* in 2016. Created to showcase a number of archaeological practices, such as the use of simulation in archaeology and the theory of evolution, the mobile game targeted the wider public. The chapter discusses how the game was made, why it focuses on a species of sentient aliens in the future, and what the difficulties were with incorporating evolutionary dynamics into the game.

Likewise created to bring archaeology and heritage to the public, Julianne McGraw, Stephen Reid & Jeff Sanders describe their *Crafting the Past* collaboration. This project ran in Scotland throughout 2015 and used *Minecraft* to digitally and physically connect the public to archaeological and historical sites. Sites were reconstructed in *Minecraft*, allowing the public to non-destructively excavate or explore them; in parallel, real-world activities were also organized on the actual site. *Minecraft* proved to be particularly suitable to reach (young) audiences who are otherwise not well-represented as visitors of archaeological sites or historic buildings.

Extending the notion of outreach to co-creation, the twelfth chapter is written by Jakub Majewski. He discusses the modding of games as a way for the public to playfully engage in cultural heritage. Although the chapter also considers games specifically developed for cultural heritage outreach, it notes that mods may also be suitable or even preferable, considering sustainability, costs, and reach. Majewski concludes by discussing the possibilities of scholars and modders collaborating on the creation of cultural mods.

The final chapter of this section is written collectively by some of the people who financially backed this book via Kickstarter. The chapter is an experimental game in crowdsourced writing and takes the shape of a series of questions and answers from one writer to the next. The writers have an incredibly diverse background of interests and expertise, which is reflected in the questions they have asked and

the answers they have supplied to others. It provides a cascade of voices, uniquely discussing the many facets of the interactive past.

Credits

This book would not have been possible without the effort of many people. First of all, we would like to thank:

Freek Ariese, Martine Ariese, Peter Ariese, Nel Ariese-Van Weijnsbergen, Henry Badilla (@ArgenCR), Gary G. Ball, Sebastiaan Barel, Katie Biittner, Rianneke Boom, Bart Braun, Alistair Bright, Robert Buurman, Erik Malcolm Champion, A.M. Christensen, Tara Copplestone, Chiara Della Puppa, L. Meghan Dennis, Rachel Donahue, Graeme Erskine, Mathew Fisher, Dr. Catherine Flick, Edina Földessy, Dr. B. Tyr Fothergill, Nitin Garg, René Glas, Edward Gonzalez-Tennant, Rebecca Stone Gordon, Shawn Graham, Matthias Grandis, Peter Hartman, Linzi Harvey, Sarah Herr, Gabrielle Hughes, Theresa Huntsman, Harold Johnson (Stori3D Past Productions), Scott Fitzgerald Johnson, Nefeli Kaoutski, Maria Karayannopoulou, Floris Keehnen, Éva Kun, Marko Lamminsalo, Christos Liotis, John D. Lowe, LUREAU Aurelia, Natalie McGuire, Pablo Mendes de Leon, Hayley Mickleburgh, B. Moireabh-Tetlock, Eva Mol, Anja Mol-Verkade, Jordan Oloman, M.P. Ordoñez, Petros "Garret" Pantazis, John-Alan Pascoe, Matt Peeples, Tessa Pijnaker, Esther Plomp, Andrew Reinhard, Hannah Rice (Digital Heritage Professional in Architecture & Archives), Ilaria Rosetti, Pedro Russo, Karim Safar, Fred Schuit, Florence Smith Nicholls, Steven M. Spagnolo, Rosanne Talle, Andrea Travaglia, Anna Tudos, Addick van Brakel, Nicky van de Beek, Mark Vandemeulebroucke, Bram van den Hout, Stefan van der Lecq, Pepijn van der Linden, Eveline van Weijnsbergen, and Hanneke van Welsem.

We may have thanked you once or twice already in our backer-updates, but once again: a BIG 'thumbs-up' for your generosity and support. Your support of *The Interactive Past* goes way beyond the value of your donation: it not only gave us the support to start the book, but also the incentive we needed to finish it. Secondly, we are tremendously indebted to our authors who have worked hard on writing and incorporating our feedback and suggestions. It is because of you that this book is not just a concept nor only a funded concept, but actually has amazing content and, not unimportantly, was completed in such a timely fashion! A very special thank you goes out to Vincent Vandemeulebroucke, who is not only a backer, but also a core member of VALUE. His humour and passion for gaming is the reason the rest of us can still talk like normal people instead of like a bunch of raving mad scholars who have been stuck in their ivory tower for too long. Thanks, bro!

The Interactive Past book is a result of *The Interactive Pasts Conference (TIPC)*,which was financially supported by ARCHON Research School of Archaeology,the Leiden University Fund (LUF), Leiden University's Graduate School of Archaeology (GSA), and the Centre for Digital Heritage (CDH).Leiden University's Faculty of Archaeology was kind enough to host TIPC free of charge. You can visit <www.valueproject.nl> to find videos of the talks by this book's authors, as well as the many other presenters that made TIPC such a great success.

We would also like to thank Sidestone Press for turning our concept plus content into a published reality that is accessible in print as well as digitally for the whole world.

Finally, we thank you, dear reader. As the editors of this book, we are happy and honoured that you have found your way to it and are taking the time to explore it. We are certain that you will have many fun, challenging, and surprising encounters as you read and we hope it will also provide you with some 'XP-rewards' in terms of newfound knowledge. Please arm yourself with this book as you venture into the interactive past: *it's dangerous to go alone*.

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Part One

Ethical Approaches to Heritage and Video Games

Storytelling for the Next Generation

How a non-profit in Alaska harnessed the power of video games to share and celebrate cultures

Cook Inlet Tribal Council

Snow pummels the village. The people cannot hunt. The blizzard is unrelenting. Seeing that her village is close to starvation, one young girl sets out to discover the cause of the endless storm.

A boy taps the keys of his laptop computer.

Soon, the girl encounters trouble: a polar bear menaces her, chasing her over the snowy landscape – until help arrives in the form of a white fox.

A girl swipes her fingers across the screen of her tablet.

Together, the girl and the fox travel across the tundra, the mountains, and the sea, relying on each other for strength and safety.

A teenager presses the icon in the corner of his screen, opening a window to Iñupiaq culture – and creating a connection to his heritage. Welcome to Never Alone (Kisima Inŋitchuŋa).

Never Alone (Upper One Games 2014) is a first-of-its-kind video game based on traditional Iñupiaq stories and made in collaboration with the Iñupiaq community. The game launched the first indigenous-owned video game developer and publisher in the United States.

The story behind *Never Alone (Kisima Inŋitchuŋa)* is richer and more inclusive than your average video game. What started as a fantastical "what if" grew into a ground-breaking genre of video games, and created a new model of sustainability for Cook Inlet Tribal Council (CITC), a tribal non-profit organization in Anchorage, Alaska.

CITC was established in 1983 and serves Alaska Native and American Indian people in the Cook Inlet region of Southcentral Alaska through an array of supportive services, including education, employment and training, workforce development, family preservation, and support for those recovering from addiction and substance abuse.

Through education and employment services, CITC serves more than 2,000 students annually, and is heavily involved in Science, Technology, Engineering, and Mathematics (STEM) education. CITC provides students with culture-based STEM classes in several local schools and offers additional programmes through its fabrication laboratory (Fab Lab), a maker space where students bring ideas to life with the help of computers and numerical controlled machines.

CITC employment services transition participants from welfare to employment and help others find meaningful or better paying jobs. CITC also supports families in staying together and promotes the health and welfare of children through parenting and other life-skills training. And finally, through its recovery services initiatives, CITC provides comprehensive treatment to assist individuals within all stages of recovery from substance abuse or addiction.

A History of Social Enterprise Meets a Risky Proposition

From the beginning, CITC envisioned a future in which its people, and particularly Native youth, would have access to vast opportunities, along with the ability, confidence, and courage to advance and achieve their goals. Similarly, the organization's leadership understood that self-determination could only arise from sustained self-sufficiency.

"CITC, in its early days, really acted as an arm of the federal and state government," explained CITC President and CEO, Gloria O'Neill. Throughout most of its existence, about 90 percent of CITC's funding came from government sources. "For CITC to be used in its highest service to Alaska Native people, we needed to figure out how we could become more self-determined as an organization, and a critical piece of that was building a model of sustainability."

As a result, CITC began what has been a long journey in social enterprise, starting with providing a variety of technical services to sister organizations in CITC's nascent years. Over time, the organization expanded into participant-based small businesses that focused on job training and work readiness to allow participants to gain real-life experiences in a supportive environment.

As the organization grew, it charted a new path toward self-determination and decreased reliance on government funding by taking a less charted path. Rather than establishing another socially minded non-profit business, CITC created the for-profit corporation, CITC Enterprises, Inc. (CEI), which would focus on creating additional revenue for funding programmes and services through impact-based investments aligned with CITC's values. CEI's goal? To earn at least 50 percent of CITC's funding through self-generated sources.

"It wasn't an easy road," recalled CITC Executive Vice President and CFO Amy Fredeen. "We explored the possibility of investing in everything from storage businesses to funeral homes. But none of it was ringing true."

At the same time, CITC was closing in on celebrating 30 years of leadership and innovation. Looking to the next 30 years, the CITC Board resolved to embrace technology as a tool to preserve culture, engage youth, and advance CITC's mission.

"Remember," the Board reminded CITC leadership, "we live in a modern world. We have to pick up the tools of technology to best use them for our people."

"It was important to me," Fredeen said, "to hear the voices of our youth, and help them reconnect with their culture."

Fredeen, who is Iñupiaq, had two teenage boys at home; she saw on a daily basis the struggles they faced growing up Alaska Native. "They don't necessarily have positive images of their people to grasp onto," she explained. "I wanted to re-engage youth with how wonderful and how cool the Iñupiaq culture is."

CITC leadership met over a casual lunch and exchanged thoughts on how best to engage youth, while preserving Alaska Native culture and storytelling, and leveraging technology. In an almost offhand comment, O'Neill remarked, "we should make an Alaska survival video game."

At first, she wondered if the group's silence meant the idea was too crazy, too risky – too unfamiliar. After all, what did a non-profit provider of social services know about making video games?

Then the others began to smile. O'Neill's idea *was* crazy. It was definitely risky.

It was also brilliant.

Recalling that lunch meeting now, O'Neill has to laugh: "can you imagine, after saving for as many years as we saved, that we're like, 'we're investing in the video gaming industry'?"

If They Come, We Will Build It

"When we entered into this agreement to make a video game, my first thought was, 'how do we de-risk it?'" Fredeen admitted. "Oftentimes, people think about de-risking as something really conservative, maybe investing in a bond. But for Alaska Native people, you de-risk by bringing good partners to the table."

CITC was embarking on an adventure in an industry about which they knew nearly nothing; it was crucial that the organization find a partner who not only had the expertise to bring their vision to life, but whom they could trust and whose values aligned with theirs. Representatives of CITC began fanning out, attending gaming conferences, talking to people in the gaming industry – searching for the right partner. One name kept coming up: E-Line Media.

An entertainment and educational video game publisher with development studios in Seattle and Tempe, E-Line is the leading brand for lasting game franchises that tap into the natural curiosity and passions of gamers. The company had worked closely with leading foundations, government agencies, universities, and social entrepreneurs on impact-focused game projects – and, as a result, had built a solid foundation for its portfolio.

"Tell you what," O'Neill said when the idea of partnering with E-Line was presented to her, "if they're willing to come to Alaska, first week of January, I'm willing to truly engage with them."

Cue the blizzard.

Under one of the harshest storms Anchorage had seen in a decade, E-Line's team arrived in Alaska to talk about a potential partnership. The good news? E-Line loved the CITC mission and believed in it. The bad news? They wanted to talk CITC out of the video game idea.

"They didn't want us to risk our capital on something so uncertain," Fredeen explained.

E-Line's concern, along with its genuine respect for CITC's mission, immediately earned her trust. The roundtable where she and other CITC representatives sat with the E-Line team was a safe space that drew out of her a desire to share her Iñupiaq values. The group talked about the oral tradition of the Iñupiaq, how stories have been used through the ages to pass on value, culture, and history. As they spoke, the E-Line team began to see how this tradition of storytelling aligned with the idea of developing an immersive gaming experience. They were inspired.

The last hurdle was Board approval. O'Neill and the CITC executive team had come up with a way to fulfil the Board's vision of leveraging technology to engage youth, generate funds, and work toward self-sufficiency. But it was still a risk.

"They took it," O'Neill said. "They had the courage to say, 'this is bold.'"

The CITC Board saw the connection between video games and the oral storytelling tradition, viewing one as the modern iteration of the other. They recognized how games could reach a tech-savvy generation while also sharing Alaska Native culture and challenging the stereotypes about indigenous cultures Fredeen had seen her boys come up against. The Board also perceived the unique ability of video games to allow players to fail in a safe environment and encourage them to keep trying to find solutions to problems.

Figure 1.1: Developed through a partnership between Cook Inlet Tribal Council (CITC), E-Line Media of New York, and influential members of the Alaska Native community, Never Alone (Kisima Inŋitchuŋa) is the first video game title in a dynamic new genre of games dubbed World Games. Image courtesy of CITC.

Based on this perception of games as a venue for developing problem-solving skills and tenacity, the team behind *Never Alone* would eventually decide that their game would be an atmospheric puzzle platformer, in which a gamer moves through levels by guiding an avatar through a landscape while solving practical problems and finding creative ways to overcome challenges.

With the green-light from the Board, CITC and E-Line signed an agreement to co-create their first project – an innovative video game that could delve into the traditional lore of the Iñupiat people and draw fully upon the richness of a unique culture to create a complex and fascinating game world for a global audience. That game would be *Never Alone (Kisima Inŋitchuŋa)*.

Bringing in Alaska Native Partners

> *I will tell you a very old story. It is said that a girl lived with her family in a place far from here. One day, a powerful blizzard came. It was followed by another blizzard, and another. The girl's village was no longer able to hunt. Her people faced starvation. But the girl wondered – what could cause the weather to be like this? And so she set out to find the source of the blizzard.*

Robert Nasruk Cleveland had told the *Kunuuksaayuka* story all his life. He had received it from his Elders and had passed it on to his children before passing away. It was a simple story that held at its core many of the same values CITC embodied: resilience, interdependence, respect, accountability. The story of a young Iñupiaq girl who, with a white fox as her only companion, sets out to overcome obstacles and challenges as she searches for the cause of an endless blizzard that has threatened her village with starvation, inspired both CITC and E-Line Media.

"Since we wanted to use Robert Cleveland's story as the spine of the game, we needed to go gain the correct permission," Fredeen explained. "But Robert had passed away many years ago. So the story was held by his eldest surviving child, Minnie Grey."

Grey, the keeper of her father's story, not only granted CITC permission to use *Kunuuksaayuka* as the basis for *Never Alone*; she also taught CITC the importance of storytelling, and how each teller uses the same story for different purposes. The knowledge and guidance she imparted to the game development team was something they could receive only from an Alaska Native Elder. It also reinforced the team's desire to make Alaska Native people active partners in the effort to bring their culture and their stories into the virtual world.

"So there were 24 cultural ambassadors," described Fredeen, "and it ranged from very technical advice like how to use a bola, to very ethereal and values-based advice about why it's important to portray a character a certain way."

By establishing a new collaborative and inclusive development process that included Alaska Native storytellers, Elders, youth, writers, and artists in the effort to create a video game based on a traditional indigenous story, CITC made *Never Alone* the first of its kind. Never before had there been a game like this, developed in this way. Members of the Alaska Native community, CITC, and E-Line Media grew into a cohesive, interdependent team that worked on *Never Alone* together for more than two-and-a-half years.

Dima Veryovka

One way in which the participation of Alaska Native people would prove to play a crucial role became evident in the initial artwork developed for *Never Alone*.

"We had E-Line come up and visit again to show some drawings around the concepts of the game," Fredeen recalled. "And they were beautiful. But they kind of looked like Disney [animation]. It didn't reflect us as a people."

"We wanted to make sure the characters reflected our people, the place, the Arctic – that you felt it when you were immersed in game play," O'Neill agreed. "That the colours were right in the sky, that people understood the ice and how it moved."

E-Line heard CITC's feedback and set out to find an artist whose aesthetic would align with what the team envisioned for the game's visual style. Enter Dima Veryovka: a sculptor and designer who grew up in a family of artists in Ukraine and had created toys and characters for Disney, Mattel, and other companies before launching his career in interactive entertainment. Veryovka had long been interested in Native art and mythology, and early in his career many of his stone and bronze sculptures were heavily influenced by Inuit art.

"He immediately started taking pictures of our traditional sculptures and using them to inspire what the characters should look like," Fredeen said.

As *Never Alone*'s new art director, Veryovka travelled to Barrow, Alaska, several times, to meet with Iñupiaq artists, teachers, hunters, and students; he visited the Anchorage Museum to get an up-close look at authentic Native art, tools, and clothes. Based on the beauty he witnessed in Iñupiaq culture and craft, Veryovka created a unique visual style, developing artwork that accurately represented Alaska Native people and culture.

"All of this is not normal practice for game development in general, which is why *Never Alone* has been one of the most interesting and creative projects I have ever contributed to," Veryovka said in an interview for the official *Never Alone* blog (2014).

Creating a Connection to the Past – and Present

A bold decision was made to provide narration to the story that provides the framework for *Never Alone* not in English, but in the Iñupiaq language, with subtitles, exposing players to a beautiful language infrequently heard outside of small Alaskan communities. CITC and E-Line envisioned players immersed in the narration, which would recreate for them the powerful experience of being told a story by an Elder.

While *Never Alone* is based on a traditional story specific to the Iñupiaq culture, in choosing to use *Kunuuksaayuka* as the foundation of the game, CITC and its Native ambassadors had selected a tale capable of reflecting cultural values and ideas shared by all Alaska Native people. To further incorporate Alaska Native culture and immerse gamers in the world of *Never Alone*, the game design team filmed over 40 hours of documentary footage, then distilled it down to 26 mini-documentaries (or 'insights,' as the game refers to them), each about one to two minutes long, embedded throughout the game. Each cultural vignette introduces

Figure 1.2: Gleaning from traditional stories across a variety of Alaska Native cultures, the involvement of Alaska Native people in meaningful roles throughout the more than 2½ year development process resulted in a culturally respectful game with an authentic indigenous voice. Participants included Alaska Native Elders, traditional storytellers, artists, teachers, hunters, historians, and youth from communities across Alaska. Image courtesy of CITC.

players to an aspect of Alaska Native language, culture, history, stories, and values, enriching the gaming experience to offer much more than entertainment.

For Fredeen, the insights also augmented the purpose she hoped the game would ultimately serve for young gamers like her sons: to provide positive images of Native people. *Never Alone* would give young Natives an image they could connect to – one that countered the negative stereotypes and imagery of Alaska Native and American Indian people that too often crop up in popular culture. As the mini-documentaries began to take shape, the excitement over their potential to do good was palpable. *Never Alone*, the development team began to understand, could play a part in changing the way Alaska Native youth saw themselves and their own potential.

Worldwide Reception

On 18 November 2014, *Never Alone* was launched for a global audience.

"The reception we received worldwide was unbelievable," said O'Neill. "It was overwhelmingly positive."

Never Alone was, to CITC's astonishment, an instant hit. Initially garnering 2.2 million downloads, the game was the subject of over 750 feature articles and glowing reviews in media outlets like *Time Magazine*, *National Public Radio (NPR)*, *The Guardian*, *The New Yorker*, *Forbes*, *PC Gamer*, *IGN Entertainment*, *Scientific American*, *The A.V. Club*, *Eurogamer*, and *CBC News*.

Early PlayStation, Steam, and Xbox users consistently rated the game with 4.5 or 5 out of 5 stars; millions of players and reviewers created YouTube and Twitch videos about the game. By the end of 2014, *Never Alone* was included on more than 50 video game "best of" lists and was nominated for every major video game awards programme, including 'Best Debut' from Game Developers Choice Awards, 'Cultural Innovation' from South by Southwest, and 'Best Gameplay' from Games for Change.

"Probably the most exciting award that we won was a British BAFTA," O'Neill shared. *Never Alone* was honoured with two 2014 British Academy of Film and Television Arts (BAFTA) awards for 'Best Story' and 'Best Debut Game.' CITC sent Dima Veryovka and *Never Alone*'s Iñupiaq writer Ishmael Hope to London to receive the award.

The following year, *Never Alone* would also win Games for Change awards for 'Game of the Year' and 'Game with Most Significant Impact.'

While the accolades were gratifying, CITC viewed the game's impact as proof that the risk they'd taken had been worth it. The power of the game to reach beyond the Alaska population to affect players worldwide became quickly evident. Suddenly, gamers in England, Ireland, Spain, Norway, Korea, Japan – all across the world – were getting an immersive look at the amazing culture of the Iñupiaq people and a truer image of and connection to Alaska Native people.

"When was the last time a video game told you about a whole other culture […] and let the people who've lived there speak to you in a generations-old voice?" wondered Evan Narcisse (2014) in a review for *Kotaku*. "*Never Alone* does that all-too-rare thing."

"[*Never Alone*] teaches that the preservation of history is its own reward, and proves that video games have as much right to facilitate that process as any other art form," wrote another reviewer for *PC Gamer* (Evans-Thirlwell 2014).

The game's popularity continued to gain steam as versions were developed for Macs and PCs; soon, E-Line developed its first expansion, *Foxtales*, a new adventure for the *Never Alone* heroes, Nuna and Fox, drawn from another Iñupiaq story, *Two Coastal Brothers*. Once again, gameplay relied on players using both characters to work interdependently as they navigate through a puzzle platform that teaches the values of tenacity, collaboration, respect, and resiliency.

Closer to home, the cultural ambassadors who had contributed to the game were thrilled to see the product of their labour. The game was previewed at the 2014 Elder's and Youth Conference and the Alaska Federation of Natives Conference to much excitement and positive feedback. Nationally, the game crept into wider pop culture, as fans began to create and post original art based on their experiences with the game and developed their own cosplay Nuna and Fox costumes for gaming conferences. The game even became the subject of a question on the popular game show *Who Wants to Be a Millionaire?*

Never Alone has served as the foundation of a new video game genre – World Games – which would highlight the shared values that tie people together across cultures by presenting traditional stories through the digital medium, while remaining faithful and authentic to the people and culture to whom the stories belong.

"We were just so heartened," O'Neill recalled, "that the world was ready to use the immersive power of video games to share and extend culture – that people responded to that in such a positive way."

The Next Bold Idea

Meanwhile, back at CITC, the phone started ringing.

"We started getting phone call after phone call," Fredeen remembered. "Not only about the game, but 'how did you do this?' and 'why did you do this?' There was a hunger for this type of game, and this type of process in the media."

Never Alone possessed the power to spark a movement. Representatives from CITC were invited to co-present at conferences with E-Line to share how they had created a totally new and inclusive process to develop a game reflecting the rich storytelling tradition of Alaska Native people.

"This game has definitely honoured my culture," Fredeen described. "I really do think the way it was developed, through interdependence with the E-Line team, and the process we used for bringing voices in, really speaks to the way traditional support systems for the Iñupiaq people are reflected in day-to-day life."

"We need more of this in the gaming industry," O'Neill realized. "We need more games where people can understand one another, where we can be immersed in somebody's story, someone's culture, and get a glimpse into their way of life."

Never Alone had been a game-changer for CITC – a bold, risky idea that had paid off. It had started with a strong partnership between CITC and E-Line Media. And there was potential for this partnership to do more. After a period of collaborative strategic planning, the two organizations concluded that their shared vision would be better realized through the integration of CITC's newly formed video gaming company directly into E-line. CITC (through its for-profit corporation, CEI) became the largest shareholder in E-Line Ventures.

The move would streamline operations, combine management strength, and spread CITC's investment over a larger portfolio of games and services. One of these games was already underway. *Historia*, CITC and E-Line's second project, is a digital translation of the effective classroom civilization-building board game created by two teachers to inspire their students.

A Positive Future

The positive worldwide response to *Never Alone*, especially from Alaska Native video game players, continues to be a potent measure of success and impact far beyond financial returns. Since initially releasing the game, E-Line has launched *Never Alone* on additional platforms, including Mac OS, Linux, Nintendo Wii U, Sony PlayStation 3, and Android NVIDIA Shield; in June 2016, the company released a mobile version, *Never Alone: Ki Edition,* for iOS and Android.

Following the strong reception to *Never Alone*, E-Line has engaged in discussions with cultural partners like the Sami peoples of northern Norway, Native Hawaiians, the Roma peoples in Europe, and the indigenous Irish people as it seeks its next World Games project. Meanwhile, the company has identified additional sectors of the consumer game market in which its approach to meaningful entertainment can help establish lasting value.

The company is developing two 'Design Games,' including *Fab: The Game*, a game anchored in the future of digital fabrication and materials, in cooperation with CITC, the Fab Foundation, and the MIT Center for Bits and Atoms. In the world of Impact Games, E-Line is developing and raising funds for games that tackle critical global issues, and the company continues to develop learning programmes that include workshops, competitions and festivals, and curriculum supports.

Today, CITC is the largest shareholder in E-Line Ventures and has significant roles in the management and governance of the company. With the two companies' interests and futures now wholly aligned, CITC's journey toward self-determination through social enterprise is gaining real momentum; the organization is in the process of establishing a $50 million endowment, thanks to its long-term investment in E-Line Media. Though the decision to invest in the video gaming industry was initially a risky one, CITC's bold decision to do so has served to help diversify the revenue generated by its social enterprise companies.

More importantly, *Never Alone* and CITC's investment in video games created a powerful avenue through which to reach and engage Alaska Native youth. To supplement the game and integrate it into classroom lessons, CITC created a curriculum guide for teachers that has been shared with schools across Alaska. The game's impact has reached beyond Alaska Native youth to give other young Natives an image they can connect to that positively reflects their cultures and values.

As one reviewer with *Eurogamer*, Daniel Starkey, put it:

> *"I'm American Indian, and the fact that my culture and my people are moving closer to extinction all the time isn't something I often forget* […] *I've internalized this casual belief that there's no point in trying to keep traditions alive, because in a few generations they'll be lost no matter what I do.* […] *Never Alone's very existence challenges me. Instead of eliciting self-pity, it stands in absolute defiance of everything that I've grown to be, not only telling me to be better, but showing me how"* (Starkey 2014).

When the idea of creating and investing in an Alaska Native video game first occurred to Gloria O'Neill, she and the rest of the CITC team could not have predicted a response like Starkey's. But they hoped their idea would be more than a revenue source. Today, that risk has paid off, creating a funding stream that supports CITC's mission to provide services to Alaska Native and American Indian people, while simultaneously establishing a new way of developing games that explore and share cultures using a model that is inclusive and collaborative, and can be replicated.

"We will continue to build out a portfolio of games," O'Neill said, regarding CITC's partnership with E-Line. "I think there's a huge future out there – we're not sure where this investment is going to take us. But I'm pretty excited about the ride."

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Tradigital Knowledge?

Indigenous video games, copyright, and the protection of traditional knowledge

Gabrielle Hughes

Introduction

Focusing on video games, made by, for, and with Indigenous communities, this paper examines the challenges and opportunities for the protection of Indigenous traditional knowledges in digital spaces. Existing legal literature addresses the inability of capitalist possessive individualism and the legal structures it generates – in particular, 'Western' intellectual property law – to provide adequate protection for Indigenous forms of cultural expression and traditional knowledge against misappropriation. Intellectual property (IP) describes "creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce," (WIPO 2016) and is protected by rights granted through laws such as patents, trademarks, and copyright. This paper addresses copyright specifically, under which there remain significant gaps in protection for certain 'creations of the mind' that are not eligible for copyright, leaving many forms of Indigenous traditional knowledge exposed to exploitation.

Both traditional knowledges and digital media pose a significant challenge to copyright law, but, problematically, they are often addressed as separate, if not wholly antithetical, categories. Daniel Gervais (2002) has identified these two categories as "the very old" (traditional knowledge and cultural expressions), and "the very new" (digital media). The former is associated with demands for increased protections and restricted access, the latter with demands for wider distribution and increased accessibility. This perceived division is perhaps due to an assumed incompatibility between Indigenous traditional knowledges and technological innovation. However, by situating traditional knowledge within a historical context of continual cultural (ex)change, this paper argues that change and innovation do not contradict tradition. Rather, Indigenous video games emerge from their historical context as a continued expression of traditional knowledge, articulated in this instance in digital environments. While these digital expressions of traditions

in many Indigenous video games rightly challenge inaccurate boundaries between 'old' and 'new,' they also present a unique challenge to legal and government bodies. There is a potential risk that developments in law and policy would assign to each a different legal strategy and negate the authenticity of contemporary expressions of Indigenous traditional knowledge based on the premise that the material in question is either 'old' or 'new.'

As such, the top-down creation and application of property rights law may further colonial oppression through the imposition of laws based in 'Western' logic onto Indigenous communities. Additionally, outdated assumptions about the static and essentialist nature of traditions and culture risk promulgation via these laws due to an inherent misunderstanding of the nature of the very thing those laws seeks to protect. In the absence of a clear, nuanced legal strategy to provide legal rights-based protections for Indigenous traditional knowledges, this paper argues that Indigenous video games may provide non-legal protective measures for traditional knowledges through outreach education and the promotion of Indigenous cultures by Indigenous Peoples. Additionally, they may offer a compelling contradiction to misconceptions about traditional knowledge through their communication of what this paper terms '*tradigital* knowledge,' here referring to the harmony of traditional knowledge and its digital expressions, rather than their alleged contradiction.

This paper is based on my doctoral research, which is ongoing at the time of writing and so the research presented remains open-ended. Although my doctoral research focuses predominantly on Canadian and American law and video games, this paper also addresses the international context more broadly. While covering all of the intricacies of IP law and traditional knowledges is beyond the scope of this paper, the following hopes to serve as an introduction to the ways in which Indigenous video games may challenge expectations and broaden understandings of traditional knowledge and their protection.

Introducing Indigenous Video Games

Indigenous video games offer a concise framework within which questions regarding the protection of traditional knowledge in the context of digitization can be addressed. They participate in the vast, virtual worlds of Indigenous digital media, replete with creative works, games, blogs, websites, and various resources for and by Indigenous Peoples. Unlike many mainstream games that often misappropriate and misrepresent Indigenous Peoples and their cultures, Indigenous video games are generally community-focused and collaboratively developed, either through in-depth consultation with or, more often, directly by Indigenous communities and game developers. The games discussed here create immersive virtual environments, inspired by and incorporating traditional values, teachings, and knowledges, as expressed in songs, oral tradition, traditional designs, and language, demonstrating an immense capacity for the expression and protection of *tradigital* knowledge.

These can include educational workshops for Indigenous youth, such as the *Skins: Aboriginal Storytelling and Video Game Workshops* (Lewis *et al.* 2014). These are coordinated by the co-directors of Concordia University's Aboriginal Territories in Cyberspace (AbTeC), Jason Lewis and Skawennati Fragnito, who is Mohawk from Kahnawake. AbTeC is a virtual space dedicated to the promotion

Figure 2.1: Honour Water (Pinnguaq & LaPensée 2016). Reproduced with permission of the copyright owner.

of Indigenous presence, creativity, and self-determination. Since 2008, AbTeC has run four workshops with students from the Kahnawake Survival School, located on the Kahnawake Mohawk Territory, just south of Montréal. These workshops not only provide students with game design and programming skills, but actively encourage youth to learn traditional stories from their Elders and to create their own (Ibid.). Stories are selected and translated into video games, allowing students to tell their stories through the games they have designed and produced themselves.

Indigenous video games can also be made through collaborations and commissions, between different Indigenous nations, or between Indigenous and non-Indigenous game developers. Elizabeth LaPensée is Anishinaabe and Métis, and has worked as artist, writer, researcher, and designer on several gaming projects, both independently and with communities. Her games include the choose your-own-adventure text game *We Sing for Healing* (aka. *Ninagamomin ji-nanaadawi'iwe*, Elizabeth LaPensée 2015), *Invaders* (Elizabeth LaPensée 2015) which is an Indigenous reimagining of the arcade classic *Space Invaders* (Taito 1978), *Little Earth Strong* a gameful health programme of gifting based on the traditional Seven Teachings, and the mobile app *Honour Water* (Pinnguaq 2016) in which users learn to sing traditional Anishinaabe water songs and are introduced to their teachings (see Figure 2.1).

LaPensée worked on this project with another game development studio, Pinnguaq, a for-profit start-up which began in the majority-Inuit community of Pangnirtung, Nunavut, and is now operating out of Toronto. Founded in 2012, Pinnguaq works to forge reciprocal connections between Nunavut and the world, adapting the "tools of colonization to move Inuit culture forward" (Oliver 2013). Pinnguaq is directed by non-Indigenous game developer Ryan Oliver and Inuk game developer Nyla Inukshuk, who collaborate with both Inuit and non-Inuit artists and storytellers to create content and design for Pinnguaq's projects. The start-up heads many projects, including Code Clubs to teach Inuit youth programming skills, and several Inuktitut digital language projects, including an Inuktitut translation for the award winning game *Osmos* (Hemisphere Games & Pinnguaq 2013), *Inuktitube* an app which filters videos on popular hosting websites such as YouTube to focus on Inuktitut content, and the app *Singuistics* which allows users to record songs in Inuktitut. Pinnguaq will also be releasing *Qalupalik* (Pinnguaq *forthcoming*), a first person horror and survival game for the Oculus Rift. The user will play as a young Inuk man, who will progress through several problem-solving levels in an effort to save his little brother who has been taken by the Qalupalik, the titular Inuit sea monsters that live under the arctic ice, kidnapping children who have wandered too far.

Never Alone / Kisima Inŋitchuŋa (Upper One Games 2014) is perhaps the best known Indigenous video game (see Cook Inlet Tribal Council, this volume). Released in November 2014, *Never Alone* tells the story of Nuna, a young Iñupiaq girl, and her companion, an arctic fox, as they complete several puzzle-based challenges, propelling them through the stories of the Iñupiaq. *Never Alone* was developed by Upper One Games, a for-profit start-up, and the Cook Inlet Tribal Council (CITC), a non-profit organization working with Indigenous communities in Alaska's urban centres. Gloria O'Neill, CEO of CITC and co-founder of Upper One Games, stresses that the game combats not only negative tropes for Indigenous Peoples in video games, but women as well, providing players with a courageous young heroine who moves through the legends of her people with determination and strength.

These games and gaming studios are but a few examples of Indigenous video games. There exists an immense variety, from language-learning apps like *FirstVoices* in Canada, cultural education apps like *Navajo Toddler* in the USA, to the youth-driven Yijala Yala online gaming projects, the *Love Punks* and *NEOMAD* (Big hART 2012), in Australia. While Indigenous video games differ in game content, mechanics, design, and objectives, they are generally united in a desire to oppose mainstream media depictions of Indigeneity and to create spaces for Indigenous voices in cyberspace. Representations of Indigenous cultures and information are managed and distributed in a manner that is controlled and approved by the Indigenous Peoples to whom the traditional knowledges belong. They exemplify the intersections, and often complete unity, of the traditional and contemporary, and perhaps offer a contradiction to the title of this volume: these are not video games only of the past, but of living, changing traditions in the present, passed on to equip Indigenous Peoples for the future.

Defining Traditional Knowledge

In order to understand the relationship between Indigenous video games, copyright law, and the protection of traditional knowledge, it may be best to begin with the basic legal definition of traditional knowledges from an IP standpoint. The World Intellectual Property Organization (WIPO) uses 'traditional knowledge' as a broad term encompassing all forms of traditional knowledge, traditional cultural expressions, and genetic resources (WIPO 2014a). WIPO defines traditional knowledge as including, "the intellectual and intangible cultural heritage, practices and knowledge systems of traditional communities, including indigenous and local communities," which, "embraces the content of knowledge itself as well as traditional cultural expressions" (WIPO 2014b). WIPO defines cultural expression broadly, including verbal expressions, such stories, musical expression such as songs, expressions by actions, such as dances and plays, and tangible expressions such as carvings and designs (WIPO 2014c), and importantly, adds that while their list provides an idea of the scope of traditional cultural expressions, it is left to Indigenous communities to determine for themselves what constitutes their traditional knowledges and cultural expressions (WIPO 2014a).

Why Protect Traditional Knowledge?

When presenting this research, I am often asked about the dangers of overzealous intellectual property laws stifling the creativity of artists and the free exchange of ideas: why can't we all partake in one another's cultures freely, creating an environment of open, innovative exchange? Observing an emerging possessiveness from Indigenous communities over their heritage, Kwame Anthony Appiah echoes this concern. Co-opting the term from legal scholar Lawrence Lessig (2004), Appiah describes this need from Indigenous communities to protect and "own in perpetuity" their cultural heritage as 'property rights fundamentalism.' "Navajo Inc.," he quips, "all rights reserved" (2010: 130).

A brief examination of colonial histories may help us to understand the call for additional protections for traditional knowledges. Towards the late nineteenth century, the Canadian and American governments introduced laws that formalized the colonial agenda and existing racism towards Indigenous Peoples. Bills such as the 1876 Indian Act in Canada and the 1887 Dawes Act in the USA enforced comprehensive programmes of assimilation and control of Indigenous Peoples, organized attempts to 'save' Indigenous communities from themselves by enforcing 'Western' norms through government, religion, education, and law. Traditional structures, councils, and practices, such as the Potlatch and Sun Dance were banned; entire communities were forced to relocate great distances to less valuable land, with many dying on the journey; Indigenous leaders were excluded from spheres of influence, such as government and law (Mathias & Yabsley 1991). In Canada, generations of Indigenous people were violated through practices such as the sterilization of nearly 600 Indigenous women in the 1970s (Stote 2015), the removal of over a thousand Indigenous children from their families by social workers in the sixties, known as 'the 60s Scoop' (Fournier & Crey 1997; Johnston 1983), and through the residential school system. Known as boarding schools in the USA, residential schools run by Government and Church ripped over 150,000

Indigenous children from their families from the 1870s to 1996, subjecting them to physical, emotional, and sexual abuse, and prohibiting and punishing the use of their languages and the practice of their cultures (Anderson 2012; MacDonald & Hudson 2012; TRC 2015).

These genocidal programmes developed concurrently with the nearly fanatical study, collection, and control of Indigenous cultural property and cultural practices by European settlers, explorers, and anthropologists. The above-described atrocities were in part justified by the incorrect assumption that Indigenous peoples were doomed to extinction and required Government 'assistance,' a theory conveniently suiting the European expansionist agenda (Battiste & Youngblood Henderson 2000; Hoxie 2001; Nash 2000; Stocking 1991). However incorrect, extinction theories were supported by the visible depletion of Indigenous livelihood, brought on by new diseases, forced relocations and assimilation, and the overzealous collection and control of Indigenous cultural property. Pseudo-scientific studies such as phrenology not only professed to prove the evolutionary inferiority of Indigenous Peoples (Baehre 2008), but encouraged the slaughter of Indigenous communities to provide 'specimens' for research (Deloria 1995; Hinton 2002; Horsman 1975). Fear of this 'inevitable extinction' led to the collection of cultural objects with fervour, ironically leading to a further depletion of the material evidence of Indigenous life and culture on Indigenous territory (Cole 1995). The resulting 'Vanishing Red Man' theory condoned the implementation of policies which sought to limit the agency and control the actions of Indigenous communities, thought to be in need of external intervention and study (Ferguson 1996).

This is not to paint Indigenous communities as helpless victims of colonial oppression. Far from it: despite the above-described efforts, Indigenous cultures have persevered. Rather, the above section seeks to address the asymmetric distribution of power and privilege that has historically favoured Western norms, often to the wilful detriment of Indigenous communities. In doing so, it hopes to provide an answer to the initial concern about developing legal discourse which may seem aggressively over-protective of Indigenous traditional knowledge. It is not that we 'can't share,' but that sharing must come from a place of equality, and from the desire to share appropriate information in the right contexts, as we see with Indigenous video games. The continued monopolization of Indigenous representation by non-Indigenous media upholds colonial mechanisms of control and oppression. It is therefore immensely important for Indigenous Peoples to have the means and opportunities to represent themselves on an increasingly global stage, and to participate in digital realms in the ever-expanding 'Indigenous' global industry (Wilson & Stewart 2008: 4).

Mainstream Representations of Indigeneity

This 'Vanishing Red Man' is one of many stereotypes promulgated by art and academia, contributing to the invention of the 'Imaginary Indian,' an empty canvas upon which European settlers projected their hopes and fears for the 'New World' (Crosby 2002; Francis 1992). Romanticized 'Noble Savages' and 'Indian Maidens' from the colonial period continue to dominate representations of Indigenous culture in contemporary mainstream media. These stereotypes permeate the

gaming industry, with mainstream portrayals of 'Indigeneity' ranging from the generic and shallow, to the severely racist and sexist. Depictions of 'Indian Braves,' such as *Killer Instinct*'s (Rareware 1994) Chief Thunder, a menacing tattooed man with face paint and a headdress, or *Mega Man 6*'s (Capcom 1993) Tomahawk Man, a cartoon blend of Indigenous stereotypes wearing a headdress and wielding an axe (that is, in fact, not a tomahawk), dominate Indigenous representation in gaming culture. Depictions of Indigenous women in video games tend to be similarly generic, offensive, and hyper-sexualized, with characters like *Tekken*'s (Namco 1994) Michelle Chang, *Tekken 3*'s (Namco 1997) Julia Chang, *Darkwatch*'s (High Moon Studios 2005) Tala, or *Banjo Tooie*'s (Rare 2000) Humba Wumba, sporting feathers and headbands.

Perhaps the most profoundly offensive is the treatment of a nameless Native American woman in *Custer's Revenge,* a side-scroller originally released in 1982 by Mystique for the Atari 2600 and re-released for download in 2014. The player controls General George Armstrong Custer, an American historical figure known best for this loss at the 1876 Battle of the Greasy Grass (Battle of Little Bighorn) to the Lakota, Northern Cheyenne, and Arapaho. In the game, which was heavily protested following both the original and 2014 re-release (Plunkett 2011; Wheeler 2014), Custer, erect and naked save for a hat, boots, and bandana, must dodge arrows to reach the right side of the screen, where he 'wins' by raping a naked and tied Native American woman. As Janice Acoose declares, these harmful representations have directly contributed to the continued violence that Indigenous women experience (2016). In light of the 1181 missing and murdered Indigenous women in Canada (Dean 2015; Government of Canada 2016), these representations are especially harmful and trivialize the immense pain suffered by Indigenous women and their communities.

Over time, mainstream media has maintained convenient and narrow categories into which Indigenous Peoples are slotted. These 'media myths' constitute authentic representations of Indigenous cultures for many (Prins 2002), forming 'truths' fabricated through "unequal exchanges" between colonizer/colonized and observer/observed (Clifford 1988: 10). To control knowledge is to control power; to be denied access to and control of information is to be denied power (Mills 2003). Throughout the colonial period in the Americas and elsewhere, Indigenous People were deliberately disenfranchised as assimilationist policies sought to dismantle ties to tradition, languages, and culture, as 'Western' assumptions about Indigeneity were superimposed onto and legitimized over those from Indigenous communities.

Within this context, we can see that what Appiah has flagged as "property rights fundamentalism" (2010: 130) may be better understood as an attempt to bring some balance to spheres of power and representation historically dominated by 'Western' values and objectives. It is important to keep in mind the many ways in which the deliberate disruption of Indigenous cultures and the simultaneous control of representation was part and parcel of a system that justified genocidal policies on the basis of the 'primitive' image propagated by misrepresentations of Indigeneity. Addressing this legacy of inequality must include creating social, political, and legal climates which foster and support a diversity of Indigenous values, languages, and cultures.

Copyright

As a result of past atrocities, misuses, and misrepresentations, national and international legal bodies have sought to create additional protections for traditional knowledges and cultural expressions, which are often left exposed to exploitation and misappropriation under most current national IP laws. These protections would likely be either the creation of legislation of its own kind (*sui generis*), designed specifically for traditional knowledge and cultural expressions, or the expansion of existing legislation. Many legal scholars have suggested the application or expansion of copyright law to include traditional knowledge and cultural expressions. Copyright is a bundle of legal rights offering protection for works meeting certain requirements. It grants the author(s) exclusive rights to their works and, furthermore, protects their reputation by protecting their moral rights (Harris 2013: 9). Although copyright law is the closest analogy to the set of rights many Indigenous communities are seeking for the protection of their diverse cultural expressions (Nafziger & Nicgorski 2009: 28), its prerequisites for subsistence and inherent structure make it ill-suited to the protection of many forms of traditional knowledge. As Indigenous Peoples in North America and globally (re-)asserted their rights through the 1960s and 1970s (Steinman 2012), the incompatibility of the values embodied in copyright and of Indigenous traditional knowledges came to be widely debated. These incompatibilities are discussed in brief below.

The Idea/Expression Dichotomy

The idea/expression dichotomy is a fundamental principle of copyright law, and in essence distinguishes the underlying ideas in a work (which are unprotected) from the particular form of expression, which can be protected (Bently & Sherman 2014: 212). This principle has been seen as one manifestation of the balance copyright law seeks to strike between the rights of the author and the desire to maximize exchange and growth by preventing the monopolization of ideas. However, establishing a strict boundary between an idea and its expression can be complicated, especially in the instance of some forms of traditional knowledge, such as oral tradition and traditional techniques, in which the expression of an idea in a different way may result in the loss of its essence (Janke 1998: 4). Furthermore, the idea/expression dichotomy emphasizes access to information, but the dissemination of certain ideas to inappropriate audiences may be antithetical to the potentially sensitive nature of the information contained in the 'idea' (Janke 1998: 60-61). As such, the idea/expression dichotomy's emphasis on access is unsuitable for some forms of secret and sacred knowledge (Coombe 2008: 268).

Subsistence Requirements: Subject Matter, Originality, and Fixation

Certain requirements must be met in order for copyright to subsist in a work; yet, current understandings of these requirements can be discordant with some forms of traditional knowledge and cultural expression. For a work to be protected under copyright law, it must fall within at least one of the specified four main categories of subject-matter: literary works, dramatic works, musical works, and artistic works. While the Native American Graves Protection and Repatriation Act

1990 (NAGPRA) in the USA offers some protection for the tangible elements of traditional expression, intangible traditional knowledge is left exposed unless it falls within these categories (Nafziger & Nicgorski 2009: 9) which may not cover certain forms of Indigenous cultural expression, such as traditional techniques and designs (Hudson 2006: 56). There is also an originality requirement, which is especially unsuitable for forms of knowledge passed on through generations (Howell & Ripley 2008: 236). Finally, copyright is formatted to protect knowledge or content only when it is anchored in material form. This fixation requirement is problematic for societies in which knowledge is transmitted non-materially, exposing it to misappropriation (Howell & Ripley 2008: 238; Janke 1998). Thus, although WIPO's definition of 'traditional knowledge' includes both *content* and expression (WIPO 2014b), only works rendered into eligible tangible forms are copyrightable.

Authorship and Duration

Even when subsistence requirements are met, issues may arise in relation to authorship. Although the 'author' is not generally defined and is simply understood to be the creator of the work (Harris 2013: xii), challenges arise in particular for collaborative forms of creation in which a number of different people may have contributed to the production of a work but not all 'held the pen' – that is, not all were involved directly with the work's expression. Attribution to a singular author is problematic for knowledge and cultural expressions that are communally and intergenerationally held (Hudson 2006: 57). The allotted protection period (i.e. under Canadian law, the life of the author plus fifty years) is based on a linear understanding of time (Schafer 1998: 314), and does not provide protection for intergenerational work. Protection for derivative works is limited: it offers partial protection for intergenerational works (Moran 1998), but this requires that the original author can be located, and further, will only protect each successive work for the duration set for each individual author, instead of assigning ownership to the community as a whole. Furthermore, copyright's linear temporal structure disregards the many different cultural understandings of time and progression, which may be non-linear, and may reject 'Western' understandings of past, present, and future (Brown & Nicholas 2012; Clifford 1988).

The underlying argument for the above-listed incompatibilities is that the international acceptance and enforcement of copyright law frequently excludes or sits uncomfortably with Indigenous knowledge systems and cultural expression to the continued disadvantage of Indigenous peoples globally. However, the expansion of copyright law to include traditional knowledges risks re-colonizing Indigenous values, lifeways, and legal structures through the continued imposition and enforcement of non-Indigenous laws in Indigenous territories (Ramsley & Marchetti 2001: 139). Historically, copyright was conceived of specifically for the protection of intellectual production, developed to protect culturally specific ('Western') expressions of ideas (Howell & Ripley 2008). These principles were then codified in the 1886 Berne Convention, now the most accepted copyright treaty internationally (Ngenda 2005). Since then, copyright has developed

towards an increasingly commercial end, expanding and adjusting to provide a legal framework for international trade (Gervais 2002; WTO 1996: 929-932), ultimately supporting what are broadly understood as 'Western' conceptions of ownership, fixation, and access.[1] Furthermore, although WIPO, UNESCO, and the United Nations, through, for example, the United Nations Declaration on the Rights of Indigenous Peoples, have made admirable efforts towards international conventions and agreements that recognize the need to support Indigenous rights, international law is not self-executing within individual countries. This means that countries must enact new laws that are consistent with their terms, and so international law can only serve as a reference point for conduct in common law property law (Janke 1998).

These gaps in protection have meant that anyone, video game developers included, are legally permitted to borrow freely from Indigenous cultures, often resulting in misrepresentation and misappropriation. However, expanding existing 'ready-made' laws risk what legal scholar Herbert Burkert (2008) has called 'bad conscience law making.' These are laws passed and declarations made with the best of intentions, to right the wrongs of the past and to create a more equitable legal environment, which inadvertently reinforce the very wrongs they initially sought to amend. The unintended consequences of 'bad conscience law making' are highlighted, for example, by the Indian Arts and Crafts Act (1990). While the Act attempted to prevent the sale of fraudulently labelled 'Native American' materials, this also meant non-government registered Native Americans were also prohibited from selling and exhibiting their art as Native American. Through its failure to recognize community-determined membership and protocol, the Act reinforced structures that historically defined, controlled, and oppressed Indigenous cultures and identities (Sheffield 1997).

Any well-intentioned expansion of copyright law could also result in these unintended consequences. Community membership is immensely complex, and subsequent rights-allocation to 'owners' would be difficult if not impossible from the top down. The diversity within and between Indigenous communities, with regards to understandings of property and ownership, Indigenous government, traditional laws and protocol, and community roles, would need to be acknowledged and incorporated. Would, for example, Canada's current Indian Registry, which restricts certain rights to registered 'Status Indians,' be reinforced under such a system? Expanding or creating more law may have negative ramifications for the future of *tradigital* knowledges as well, whether through indirect support of forms of expressions deemed more 'authentic' or 'traditional,' or through restrictive ownerships rights allocated to externally-determined 'rights-holders.' Under this expanded copyright law, would the collaborations essential to creations such as *Qalupalik* and the *Skins Workshops* games be possible? Would the law consider the content, game mechanics, and design of Indigenous video games traditional knowledge?

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1 Although beyond the scope of this paper, there exist several case studies, notably exampled by Australian courts, demonstrating the effective application of non-IP law to provide protection for traditional knowledges and cultural expressions, i.e. Breach of Confidence, Fiduciary Duty, and Contract Law. Please see, *e.g. Foster and Others v Mountford and Rigby Ltd* (1976), *Milpurrurru and Others v Indofurn Pty Ltd and Others* (1994) and *Bulun Bulun v R&T Textiles Pty Ltd* (1998).

Engaging Digital Media: Risks and Opportunities

Copyright as it currently stands is incapable of protecting most forms of traditional knowledge, and its expansion risks mapping Western laws and the values upon which they are based onto Indigenous cultural structures. Without a clear legal strategy that adequately addresses the complexities of traditional knowledges and its protection, employing digital media like video games may be an effective non-legal protective strategy. This digital context and its related risks and opportunities are discussed below.

Like traditional knowledges, digital technologies pose significant challenges to copyright. New technologies facilitate rapid reproduction, distribution, and access to digital material. Digital technologies 'cut out the middle man' – that is, they facilitate high quality production at a relatively low cost, allowing creators to produce and share work directly without the need for a costly production and distribution studio. Digital files can be stored in virtual spaces, requiring very little physical space, and networking between creators and markets is direct as opposed to directed (Dutfield & Suthersanen 2008: 236; Gervais 2002: 949).

The legal response to the challenges created by digital innovations has been to increase and expand existing intellectual property laws to maintain protections for rights holders in virtual spaces. The Digital Millennium Copyright Act 1998 in the USA, the Copyright Modernization Act 2012 in Canada, and, internationally, the two WIPO 'Internet Treaties' of 1996 and 1997, have all attempted to expand and adjust copyright law for digital environments; however, IP law is notoriously difficult to enforce on the internet for several reasons. Given the international nature of the internet, IP law online would ideally be uniform worldwide (Gervais 2002); however, efforts have been met with considerable backlash. There is an increasing demand for greater access in virtual environments, forming an open online community for the exchange of ideas (Meese 2010). One result is perhaps the most substantial proponent of access online, the 'free culture movement' (Lessig 2004), encompassing the sub-movement, 'copyleft,' which manipulates copyright's laws to increase access and innovation. Multinational companies such as Google Books are also adjusting the premise upon which copyright operates, shifting from a 'permission based' to a 'benefit-share model,' in which the author's consent is assumed and any subsequent profit is shared (Fitzgerald 2011: 24).

In this light, it appears the threat of misappropriation is amplified in digital environments, where users favour open access and increased distribution of information. Innovations in technology mean that traditional knowledges such as song, design, and ceremony, can be recorded and shared widely with ease. Anyone with a smartphone could record, distribute, and access information without a community's knowledge or consent. However, while it is indeed true that the opportunities for misappropriation and widespread dissemination of traditional knowledges have increased, so too have the opportunities for Indigenous Peoples to communicate their concerns about the treatment of their cultures on virtual platforms and to make community-approved, accurate, and ethical content available to new audiences using new media in new environments. Digital activism can help inform users and prevent future misuse, as exampled by blogs such as the Native Appropriations Blog, or the Twitter hashtag, #idlenomore, that gave

the Indigenous protest against the continued mistreatment of Indigenous Peoples in Canada its name. Indeed, it was LaPensée's tweet, "Speaking out against the remake of Custer's Revenge, a #Native rape #game. #Indigenous #indiedev #stoptheviolence," (25 November 2014) that garnered the attention necessary for the rapid removal of the download link to the *Custer's Revenge* remake (Wheeler 2014). Indigenous-directed game development participates in the broad context of digital advocacy and engagement, and may help contribute to increasingly ethical, informed, and diverse digital environments.

Digital media are a demonstrably useful resource. Indigenous Peoples can harness information and communication technologies (ICTs) to cultivate Indigenous cultural awareness through the protest of offensive and harmful misappropriations and the principled and permitted production of Indigenous content. It is, therefore, important that future expansions of legislation do not lead to technophobic arguments that see technology as essentially detrimental or ill-suited to Indigenous traditions (Putnam 1995; Srinivasan 2006). While some forms of traditional knowledge, such as that which is secret and sacred, may be inappropriate for digitization, this is for Indigenous communities and community-appointed authorities, such as Elders and Chiefs, to decide. It is critical that efforts towards protecting Indigenous communities do not become patronizing in their well-meaning efforts, denying the agency and self-determination of Indigenous communities. There is a risk of imbalance: what perhaps begins as a prudent caution against the infliction of 'Western' values onto Indigenous cultures via new media (Ngenda 2005), could potentially denounce the validity of innovation in culture. Indigenous Peoples, like all peoples, grow, (ex-)change, and debate identity, tradition, and culture (Landzelius 2006: 13). Engaging new media does not result in the loss of tradition or authenticity, and insisting on resistance to new technologies means denying the legitimacy of Indigenous participation in contemporary realms (Buddle 2008). Although often conceived of as unchanging, there has never been 'essential' Indigenous culture. Traditions grow and shift alongside their communities, a complexity captured by the maxim, "our tradition is to innovate" (Townsend-Gault 1999: 117). Most recently, cultural innovations include digital media like video games, and denying the authenticity of the *tradigital* on the basis of its 'newness' fails to recognize the historical innovations of Indigenous Peoples.

Indigenous Video Games and the Protection of Traditional Knowledge

Indigenous video games offer a cogent argument for the efficacy of Indigenous-determined, non-legal protective measures for traditional knowledges, mobilized to educate users about appropriate, respectful uses and representations of Indigenous cultures. Video games have been celebrated for their ability to educate by inspiring devotion to characters and motivation to progress through the narrative (Gee 2003; Taylor 2002). With innovation in game design and increased accessibility to gaming on new platforms such as tablets and smartphones, video games have the potential to reach beyond the traditional 'gamer' consumer base to diverse populations (Juul 2010). Indigenous communities can share stories and teachings

on their terms through engaging, immersive play, connecting with users who otherwise may not be reached. In addition to outreach education, in-community education and skills sharing through workshops and game jams are an important component of many Indigenous gaming companies and collectives, such as those offered by AbTeC and Pinnguaq. Code clubs and workshops create new contexts to interact with and transfer traditional knowledge, and hold learning about stories and the process of storytelling as central to their game development process.

In a market saturated with stereotypes, Indigenous gaming companies can offer the better option. Instead of representations of the hyper-sexualized Tala or Humba Wumba, or the profoundly offensive depiction of the nameless woman from *Custer's Revenge*, we play and enact the stories of heroines like *Never Alone*'s brave Nuna, or the Skin Workshop's Ienién:te from *Ienién:te and the Peacemakers Wampum* (AbTeC 2013), who, having returned home from completing her Master's degree in archaeology, must save her community and the Peacemaker's Wampum from the League of Evil Archaeologists. In the place of the 'Indian Braves' Chief Thunderhawk and Nightwolf, we play as the young Mohawk man Skahiòn:hati, who outsmarts a Stone Giant that has been terrorizing his community (*The Adventures of Skahiòn:hati: Legend of Stone Giant*, AbTeC 2012). Rather than the botched representations of Ictinike in the *Shin Megami Tensei* series (Atlus 1987-2016), or Wendigo in *Until Dawn* (Supermassive Games 2015), we have knowledge that was digitized with intent and permission, such as the water songs digitized in *Honour Water.* Indigenous video games offer accurate and respectful representations of the histories, stories, beliefs, and knowledges of Indigenous Peoples. Quite the opposite of Appiah's accusation of "property rights fundamentalism," Indigenous gaming studios and developers are seeking ways to share appropriate forms of traditional knowledge in a self-determined manner. They demonstrate a conscientious simultaneity of traditional and digital, speaking to the realities of contemporary Indigenous life, and problematizing the flat categorization of traditions and digital media into 'old' and 'new.'

This is not to suggest Indigenous video games alone offer a complete solution to the threat of misappropriation. While 'protection' may take many forms, activism, education, and cultural promotion do not offer legally enforceable rights to traditional knowledge, and require some degree of buy-in from the greater population in order to be effective. Digitization and gamification are not always the appropriate means of communicating many forms of traditional knowledges. Furthermore, participation in digital environments requires financial and technical resources, and many Indigenous communities remain on the losing side of the 'digital divide,' the term used to describe the geographical, financial, educational, and generational gaps in access and use of ICTs. Indigenous communities in Canada, the USA, and globally remain among the most systematically disadvantaged and overlooked by government, and while it is true in Canada that many Indigenous communities are wealthy, there are many more that must fight for basic necessities, such as potable water, health care, and proper housing and food, let alone adequate ICTs and the infrastructure required for their support.

Given this context, it is imperative that digital resources are made available to Indigenous Peoples interested in addressing these issues digitally and contributing their voices to the global, virtual discourse. Developments in digital, legal, and gaming discourses indicate an increasing openness to and recognition of diversity in their respective spheres. Promising new legal research regarding intellectual property and Indigenous traditional knowledges addresses this issue specifically within the context of innovation and ICTs (see Drahos & Frankel 2012; Graber & Burri-Nenova 2008). 'Real world' non-legal communal structures which create order through mutual dependency (Ellickson 2009) could now be imported via the peer-to-peer interactivity of Web 2.0, amplifying opportunities for the formation of relationships and trust in digital spaces. The study and critique of video game culture is a flourishing field, demonstrating an evolving awareness of the shortcomings of the gaming industry, and advances in game development technologies and platforms amplify opportunities to reach new audiences and developers, facilitating diverse and ethical gaming communities (see Bissell 2010; Goldberg & Larsson 2015; Golding 2015). Indigenous video games play an essential part in this diversification, and, moreover, can contribute nuance to the understanding of traditional knowledges in law and policy formation. Not only do they offer lessons in the dynamic nature of living cultures, memories, and traditions, but they illustrate the benefits of Indigenous protocols and processes in the creation of Indigenous content.

This paper argues that Indigenous governance and self-determination are essential to the ethical and accurate expression and protection of Indigenous traditional knowledges. This is as true for Indigenous video games as it is for the law. Just as video games incorporating Indigenous representation and traditions are improved by Indigenous-determined processes, so too is the modification or formation of law and policy. Any expansions to copyright law to provide protection for traditional knowledges must be executed with the direct input of Indigenous Peoples; not as tokens or consultants, but as recognized culturally distinct experts whose involvement will better inform the formation of laws and policies impacting the governance of their traditional knowledges.

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Chickens in Video Games

Archaeology and ethics inform upon complex relationships

B. Tyr Fothergill & Catherine Flick

Introduction

This chapter applies a qualitative critical approach to human-chicken relationships in video games by drawing upon archaeological and historical evidence of these complex interactions, which are entangled in cultural conceptualizations of gender, welfare, and violence. We demonstrate the ways in which archaeological, historical, and video game chickens are all linked in terms of social relationships, and that human interactions with and portrayals of chickens reflect this linkage.

The ways in which humans depict and treat other animals, including chickens, result from cycles of perception in the context of a long-term co-evolutionary trajectory. Humans have shaped and modified non-human beings through directed breeding and other practices which constitute the continuous processes of domestication. These changes have affected the ways in which humans view domestic species, and, as a consequence, the ways in which they interact with them. Although dogs, dairy cattle, and other mammalian domesticates are obvious examples of the alterations effected by directed breeding, chickens are a case *par excellence*. Even though chicken breeding only became a popular pastime in the 19th to early 20th centuries (Marie 2008), ancient chicken bones show skeletal changes consistent with those present in some modern breeds. For example, crania with cerebral hernia (present in some crested breeds such as Polands), and proportionately short limb elements (resembling those found in Japanese Bantams) have been identified in archaeological assemblages (Brothwell 1979; Gordon *et al.* 2015). These cycles of perception have shaped the chickens of the past, the present, and their video game counterparts. Many video game chickens are short-lived and viewed as passive, throwaway creatures – much like broiler chickens. However, this is not consistently the case: the games which were investigated for this study presented a range of interactions and relationships. The archaeology and history of relationships between humans and chickens not only contextualize

these relationships in the digital realm, but show gaps in understanding, pinpoint areas of social concern, and demonstrate the potential of the digital chicken as an informative construct with the potential to reinforce positive relationships between chickens and humans outside of video games.

The production of chickens for meat and eggs is astronomical in scale: 68 million tonnes of eggs and 21.7 billion individual chickens were produced worldwide in 2013 (FAOSTAT 2016). Despite their enormous economic value and considerable global ubiquity, chickens are not perceived positively, are sources of negative metaphors and other linguistic devices, are derided as beneath notice, or feature as passive objects in typical narratives (Driscoll 1995; Goatly 2006; Stibbe 2001). Perhaps because of their ubiquity, chickens are objectified, considered homogenous, or perceived as stupid and unlovable (Driscoll 1995: 144). Chickens are surprisingly common in video games, an echo of their global prevalence. But chickens were not always ubiquitous, and the archaeological and historical evidence provides a rich and varied record of the many ways in which humans have perceived, portrayed, and treated chickens in the past. The digital realm is different, but by no means homogenous: in some video games, chickens are portrayed realistically and form relationships with members of other species (generally in the form of game-generated characters or player avatars), whilst in others they exist solely as passive objects or targets of abuse. Archaeological evidence demonstrates the complex web of social perceptions and depictions of real-world chickens (food, companion, supernatural being, violent combatant) reflected in modern day video game chickens.

The Red Junglefowl was the primary wild ancestor of the chicken, domesticated in multiple locales by approximately 8,000 years ago (earlier dates remain contentious, Peters *et al.* 2015). It appears increasingly unlikely that chickens were initially domesticated solely for food (Sykes 2012), and that their roles were instead multifaceted. Writings of the Roman Agronomists attest to their divinatory roles and sacred or medicinal aspects, to say nothing of cockfighting or the value of feathers for bedding, dung for fertilizing fields, and eggs as a culinary ingredient and symbolic object in their own right. Companionship also features: the Roman Emperor Honorius had a pet chicken named Roma (Procopius, *The Vandalic War* III.2.25-26), and modern initiatives such as HenPower (George 2015) demonstrate the clear benefits of relationships between elderly humans and chickens. Chickens have also accompanied humans in death for thousands of years, with partial chicken skeletons recovered from human burials (Stirling 2004). Chickens are frequently depicted in funerary contexts, and acted as symbols or avatars of specific deities (Fothergill & Sterry 2017), with some symbolic affiliations maintained in modern-day spiritual practices. As in video games, chickens were associated with 'women's work' and 'men's play,' linked to both bravery and cowardice, commodified, and subjected to violence. These strands of past relationships between humans and chickens are complex, interwoven, and frequently contradictory, whereas interactions between chickens and humans in video games initially appear to be simple and unidimensional, with little resemblance to past relationships.

An initial examination of chicken portrayals in video games prompted the series of questions addressed in this paper. How are the ways in which chickens are portrayed in video games linked to perceptions of chickens in the past? What does our representation of chickens in video games say about our society? How can we ethically represent chickens (and other domestic animals) in video games?

Methodology

This investigation takes a qualitative critical approach to the questions outlined above by: 1) undertaking identification of video games with portrayals of chickens and 'chicken-like' entities and analysing the roles which those beings play in the context of the game; and 2) examining findings through the lens of past human-animal relationships as revealed through archaeological and historical data. To accomplish this, we use the critical approach of Myers and Klein, which is "concerned with social issues such as freedom, power, social control, and values with respect to the development, use and impact of information technology" (2011). This approach allowed the authors to challenge the status quo and better illuminate the relationships between society, technology, and non-human animals by interrogating video game depictions of chickens from an ethical perspective. Discussions on popular video gaming forums were used to clarify the player experience of interacting with video game chickens. Five qualitative categories were used to focus the discussion: chickens and the supernatural; chickens as product(ive); anthropomorphized chickens/chickens as metaphoric devices; chickens and gender; and chickens and violence.

Chicken-related aspects were identified in 56 video games, ranging in date from the early 1980s to 2016, which were sufficiently representative of the categories outlined (see Table 3.1). Popular video game forums were searched using an unmodified version of the Google search engine in order to locate references to chickens in video games, and these results are discussed in the categories to which they pertain. An ethical analysis was used to investigate representations of chickens in video games, the connections between these portrayals and historical human perceptions (as well as those expressed in the modern era), and draw conclusions about the ethical permissibility of such representations. This approach strengthened critical reflection and made incorporation of archaeological and historical perspectives possible, whereas a quantitative approach may have lacked interpretive depth.

The Supernatural Chicken

Chickens are associated with the divine, the splendid, and the magical from the earliest stages of nascent human-chicken relationships. One of the earliest chicken depictions dates to the 14th century BC, where both hens and cocks feature in a naturalistic scene carved on an ivory *pyxis* (a lidded, cylindrical container) discovered in a Middle Assyrian tomb at Assur (Ehrenberg 2002: 53). Ehrenberg notes that Mesopotamian depictions of cocks from the first half of the first millennium BC were depicted alone on a plinth, a treatment normally reserved for divinity (Ibid.: 54-55). Ancient Judean seals from the seventh to sixth centuries BC, most famously that belonging to 'Ya'azaniah,' a high-ranking member of the royal

Game	Year	Game	Year
Animal Crossing	2001+	*Grand Theft Auto: San Andreas*	2004
Banjo-Tooie	2000	*Grand Theft Auto V*	2013
Besiege	2015	*Guacamelee!*	2013
Billy Hatcher and the Giant Egg	2003	*Guild Wars 2*	2012
Castlevania	1986+	*Harvest Moon*	1996+
Chuckie Egg	1983	*Hitman: Blood Money*	2006
Counter-Strike: Global Offensive	2012	*Legend of Dungeon*	2013
Crossy Road	2015	*Legend of Zelda*	1986+
Crysis	2007	*Lord of the Rings Online*	2007
DayZ Standalone	2014	*Minecraft*	2011
Diablo 3	2012	*Monkey Island*	1990+
Dragon Age: Origins	2009	*Monseigneur Cockburn: The Judgening of 1933* [*Doom* clone]	2009
Dust: An Elysian Tail	2012	*Mort the Chicken*	2000
The Elder Scrolls V: Skyrim	2011	*Orcs Must Die*	2011+
EverQuest 2	2004	*Pokémon*	1996+
Fable	2004	*Portal*	2007
Fable II	2008	*Puzzle Craft*	2012
Fable III	2010	*Resident Evil 4*	2005
Fable: Anniversary	2014	*Resident Evil 5*	2009
Fable: The Lost Chapters	2005	*Resident Evil 6*	2012
Far Cry 3	2012	*Rift*	2011
Far Cry 4	2014	*Slime Rancher*	2016
Farming Simulator	2012	*Sly 3: Honor Among Thieves*	2005
Final Fantasy	1987+	*Tekken 3*	1997
Forge Quest	2015	*Vanguard: Saga of Heroes*	2007
Freeway	1981	*The Witcher 2*	2011
Gauntlet Legends	1998	*The Witcher 3: Wild Hunt*	2015
Gears of War 3	2011	*World of Warcraft*	2004

Table 3.1: Video games used for this study.

court at Mizpah (Zorn 1997: 37), feature fighting cocks, sometimes portrayed in an aggressive posture interpreted as divine or majestic.

Funerary décor from a range of locations includes imagery of chickens, especially cocks. The stepped tombs of Carthaginian North Africa were topped with solitary male chickens, and Roman gravestones in numerous locations feature chickens (Fothergill & Sterry 2017). At different times, chickens were also buried with humans, in ways which are not consistent with placement of food offerings, across parts of Southeast Asia, Africa, and Europe (Higham 1989; Stirling 2004; Storey *et al.* 2012), suggesting beliefs about connections between chickens and the afterlife.

Chickens also had sacred roles in connecting to the divine through sacrifice and divination. Thousands of chicken bones have been excavated at Mithraic cult centres, the majority of these deriving from male chickens (Lentacker *et al.* 2004). Portrayals of the Roman deities Zeus and Mercury often include cocks. Sacred

chickens in the care of a *pullarius* would play a pivotal role in auspices gleaned from the ways in which they did (or did not) consume their feed (Rich 2013: 547-548). In Livy's record of omens, chickens changing biological sex (Livy, *History of Rome* 22.1.18-20) suggests that the distinctive appearance of male and female chickens was noted, and that substantial physical alteration would be involved in this change.

Socrates' purported final request was that a white cock be sacrificed to the god of medicine, Asclepius (Wells 2008). On the eve of Yom Kippur, *Kapparot* (the sacrifice of a cock) was intended to transfer human sins to the chicken as part of a Day of Atonement (*Shulchan Aruch Rama O.C.* 605:1). Religious practices in the Togo Hills of Ghana still require the sacrifice of chickens, and Talensi diviners carry sacred bags which include the foot of a chicken (Insoll 2010). The crow of the cock was a prominent feature in the Christian narrative of Peter's denial of Jesus; the same sound would announce Christ's return (Luke 22:34; Mark 13:35). A mosaic upon the altar of the Church of Dominus Flevit in Jerusalem shows a hen gathering her chicks; the scene had been used by Christ to demonstrate his feelings for the peoples of Jerusalem (Luke 13:34; Matthew 23:37). In the 9th century, Nicholas I issued a papal edict requiring churches to use the image of a cock on steeple weathervanes (Forlong 2008: 471). Later on, O Galo de Barcelos (the iconic chicken emblem of Portugal) originated from the story of a cock who crowed (despite having been roasted) because a pilgrim who was about to be hanged was innocent. Beyond religious associations, Hawley found that the fighting cock functioned as a totemic, "transcendent symbol" in cockfighting communities across the Americas (1993: 161).

Video games likewise present culturally-contingent portrayals of chickens who are rare, oracular, divine, or with supernatural qualities. In the *Fable* series (Big Blue Box Studios & Lionhead Studios 2004-2014), the god Egg-Tor is a chicken; the chicken is revered in religious iconography in *Forge Quest* (Open Realms 2015). In the *Monkey Island* series (LucasArts & Telltale Games 1990-2010), El Pollo Diablo is a demonic harbinger of doom, whereas El Pollo Grande (also described as demonic) in *World of Warcraft* (Blizzard Entertainment 2004) may personally deliver doom. Not only does the concept of a demonic chicken appear to have been used as a form of tribute by the creators of a later game (*World of Warcraft*) to an earlier game (*Monkey Island*), but El Pollo Grande is embedded in the lore of the game and referred to as "the Black Chicken of Death" by non-player characters (hereafter NPCs). Both El Pollo Diablo and El Pollo Grande are referred to as male, but the latter appears hen-like. Other video game chickens possess supernatural powers (e.g. *Billy Hatcher and the Giant Egg*, Sonic Team 2003; *Far Cry 4*, Ubisoft Montréal 2014; *Mort the Chicken*, AndNow 2000), wield magic (*Gauntlet Legends*, Atari Games 1998; *Sly 3: Honor Among Thieves*, Sucker Punch Productions 2005), or are undead monstrosities returned to the game world through foul magic (*Guild Wars 2*, ArenaNet 2012). Less aggressive chickens which are linked to wisdom or magic include the chicken in *Guacamelee!* (Drinkbox Studios 2013), who offers gameplay hints, and The Golden Chicken in *Guild Wars 2*, a shining hen who can only be found through dangerous and intrepid exploration. Whilst many games include healing eggs, eating the chicks in

the *Fable* series is a serious ethical failure. In *Fable II*, eating 'Crunchy Chicks' will decrease the moral standing of the character, and can also summon an evil weapon or temple.

It is not clear whether these divine and supernatural video game chickens are linked in any way to their ancient roles, or if their presentation is intended as purely ironic. This exemplifies the way in which video games as media affect human perceptions and interpretations of the depictions which they present.

The Product(ive) Chicken

Archaeological evidence for the economic importance of chickens, particularly with regard to their eggs and flesh, is commonplace in reports and plentiful across Europe after the first quarter of the first millennium AD. Culinary preparation and processing of chicken carcasses is attested to by butchery marks and burning present on skeletal elements, and it may be that the earliest use of chickens for their meat took place between the third and second centuries BC at Tel Maresha in Israel (Perry-Gal 2015). Large-scale, artificial egg-hatching technology was present in Egypt from at least the first millennium BC if not earlier (El-Ibiary 1946), and extensive networks of poultry farms are known from written exchanges (Fothergill & Sterry 2017). The ancient economy of Kellis in the Dahkleh oases was underpinned by chickens as a unit of exchange, and a group of dedicated specialists (*ὀρνιθίοις*, literal translation: "poultrymen") oversaw their husbandry (Fothergill & Sterry 2017). Chicken feathers were useful for bedding and mattresses, and it is probable that chicken dung was employed as an agricultural fertiliser from classical times, if not before.

Beyond the production and consumption of flesh and secondary products, some people in the past found the company of chickens to be pleasurable. Flavius Honorius Augustus, emperor of the Western Roman Empire from AD 393-423, adored his cock named Roma (Procopius, *The Vandalic War* III.2.25-26). Also, the sounds made by chickens are distinctive, and have been imbued with meaning for centuries; the distance travelled by the crow of a cock was used as a unit of measurement in ancient Irish law (Kelly 1997).

Chickens are also portrayed as commodities in various video game contexts. Primary amongst these is meat or eggs as a virtual food item, which often replenishes the health of the player character (hereafter PC) (e.g. *Castlevania*, Konami 1986; *Chuckie Egg*, A&F Software 1983; *Farming Simulator*, Giants Software 2012-2016; *Harvest Moon*, Amccus 1996; *Minecraft*, Mojang 2011; *Monkey Island*; *Mort the Chicken; Puzzle Craft*, Chillingo Ltd. 2012; *Resident Evil* series, Capcom 1996-2017; *Tekken 3*, Namco 1997; and many others). A quest in *Guild Wars 2* involves a special chicken NPC named "Dinner." In much the same way as *World of Warcraft's* El Pollo Grande echoes El Pollo Diablo from *Monkey Island*, the "Mysterious Wall Chicken" in *Dust: An Elysian Tale* (Humble Hearts 2012) echoes the complete, wall-mounted roast chickens found in the much earlier *Castlevania*. Chicken (or chicken-like bird) feathers are used for crafting in *DayZ Standalone* (Bohemia Interactive 2013), *Final Fantasy XI* and *XIV* (Square Enix 2002; 2010) and *Minecraft*.

In keeping with 'traditional' archaeological interpretations of the chicken, chickens and chicken-like creatures can be bred for food in farming simulation games (e.g. *Farming Simulator; Harvest Moon*; *Minecraft;* and *Puzzle Craft*), and egg production is fundamental in *Chuckie Egg*, where Hen House Harry is purportedly an egg farmer and in *Banjo-Tooie* (Rare 2000), where a hen named Heggy hatches eggs for players. Chickens are also raised or kept for riding, racing, and companionship in other game contexts (*The Elder Scrolls V: Skyrim*, Bethesda Game Studios 2011; the *Final Fantasy* series; *Rift*, Trion Worlds 2011; *World of Warcraft*). In *Animal Crossing* (Nintendo 2001), the PC can attempt to befriend and maintain ongoing relationships with chicken villagers, and in some games of the *Legend of Zelda* series (Nintendo *et al.* 1986-2017), the cock's crow is used as an auditory notifier to the player that night-time is turning to day.

The Anthropomorphized Chicken

There is a human tendency to metaphorically impose the value frameworks of current society onto animals (Goatly 2006). The medieval hierarchy of being and other structures of belief consider non-human animals as inferior, and their behaviour 'beneath' that of human animals. In keeping with this, chickens have been anthropomorphized in a variety of (often negative) ways in both the archaeological and video game evidence. Linguistic devices show how chickens are ascribed human characteristics both brave and cowardly, combative and pathetic. The concept of 'chicken as coward,' much like the idea of chicken-keeping as 'women's work,' may be a relatively recent invention. From the mid-19th to mid-20th century, 'chicken-hearted' was applied to a person who was cowardly, wretched, or craven (Broughton 1855; Mariano 1954). In current speech, some examples of this association include "chickening out," to be "chicken" or "chicken shit," the latter of which also draws upon human disgust toward defecatory waste. In French, the phrase "*poule mouillée*" (wet hen) is applied to a pitiable person or weakling, and in British English a "wet hen" is seen as useless, sad, or a 'wet blanket' (Pratchett 1991). Terms also relate to combat, bravery, success, sportsmanship, and aggression: "cock-sure," "cock of the walk," "cocky," "to rule the roost," "to play chicken," and "to live like fighting cocks" (to feast well) (Brewer 1898; Goatly 2006: 28). These dichotomous ascriptions are deeply gendered.

One trait which may surpass these generalities in longevity is humour. Chickens have been associated with humour since at least the time of Aristophanes, who featured them in his comedy *The Birds* (first performed in 414 BC) as an illustration for human behaviour (lines 1105-1109; Csapo 2014). The 'old' joke which asks: "Why did the chicken cross the road?" originated in the March, 1847 issue of *The Knickerbocker*, a New York magazine (1847: 283).

Video game chickens, like those in past media, also demonstrate bravery and aggression, though that may be intended ironically. *Fable III* opens with a cinematic of a doomed, courageous chicken running a violent industrial gauntlet. In *Billy Hatcher and the Giant Egg*, chickens are depicted as brave, and in *Portal* (Valve 2007), chickens were failed, pioneering experiment subjects. An elite group of assassins wear a chicken-like outfit as a demonstration of their status in *Hitman: Blood Money* (IO Interactive 2006). In *Grand Theft Auto: San Andreas* (Rockstar Games 2004), triathlon events

called "Beat the Cock!" are sponsored by the in-game restaurant Cluckin' Bell and require the player to compete with a character dressed as a chicken. Cowardly and pathetic chickens abound: chickens are portrayed as lazy (*Animal Crossing*), gutless or cheating (*Fable III*; *Far Cry 3*, Ubisoft Montréal 2012), or associated with problematic sexual behaviour (*The Witcher 2: Assassins of Kings*, CD Projekt RED 2011). In the case of the latter, the PC is rewarded with a chicken beak mask for completing a task for an NPC with a chicken fetish. Costumes with chicken-like aspects are awarded for completing events in *Final Fantasy XI* and *XIV*. Chicken costumes add to a character's 'silliness' or detract from their appearance (*Fable III*; *Fable: Anniversary*). Dressing as a chicken can also imply cowardice, weakness, incapability, or invisibility: in *Metal Gear Solid V* (Kojima Productions 2015), a chicken hat is donned by PCs who find a mission to be beyond their capability; the enemies simply ignore the player as they are not deemed a threat.

In much the same way as in historical documentary sources, the idea of "chicken" or "chickening" is presented in video games in a way which anticipates a humorous response. Rubber chickens are represented, most famously the "rubber chicken with a pulley in the middle" from *Monkey Island* and the "rubber chicken" mod for *Skyrim*. In some massively multiplayer online games (MMOs), player characters can behave or dance 'like a chicken.' In *Rift*, these dances pay homage to the television show *Arrested Development*, and reflect the portrayal of chicken behaviour as innately comedic in other media. A magical item called a "Ring of Polymorph" in *Orcs Must Die! 2* (Robot Entertainment 2012) transforms an enemy into what is perceived as the ultimate harmless and funny creature: a chicken with a grossly oversized cloaca (exit orifice). *Guild Wars 2* also features a monster called a Chaos Beast that can transform the player character into a cock (even female characters) which severely limits the abilities of the PC. In some cases, the player can only "chicken out" and run away. The *Far Cry 3* survival guide contains the following entry: "Chicken is chicken, you'd have to be from some backwater like Canada to not know what chicken is. And chicken is un-American. Us true patriots eat only 100% U.S.A. Kobe beef." Presumably, the origin of Kobe beef is part of the humour. *Freeway* (David Crane 1981) takes the 19th century joke about the chicken crossing the road literally: a primary objective is to move a chicken safely across a motorway.

Although unlikely to be intended as humorous (and out of step with the archaeological and historical evidence), many of the chickens presumed to be male in video games and ascribed male names are graphically depicted as hens. The most notable of these is the *Skyrim* chicken companion, which (shown as a hen with a plate mail helmet) is referred to as "he" in the backstory and throughout the game. Another *Skyrim* mod, the "macho chicken," changes the appearance of a human character to have a hen-like chicken head. The overtly masculine "gun-toting chicken" mod in *Grand Theft Auto V* (Rockstar North 2013) also uses a hen model.

The Gendered Chicken

As noted above, chicken-human relationships are gendered and socially contingent in both the archaeological and video game worlds. Chickens have historically been associated with the household and the domestic sphere as well as hospitality

and safety, which places them within the 'feminine' realm. According to *How the Good Wif taughte hir Doughtir*, well-behaved medieval women were not to engage in cock-throwing, a popular but masculine activity (Mason 2015). Beyond not engaging with 'male' activities, women's roles were socially circumscribed. Stewardship of small non-human animals (including chickens) was part of the 19th century "domestic ethic of kindness" which parents attempted to instil in their children (Grier 1999). Chicken-keeping is clearly linked to 'women's work' (Bourke 1993; Sayer 2013). Yet, archaeological evidence from the more distant past is equivocal. The people who raised and managed poultry at Kellis included at least some men, and documentation of poultry farms in ostraca from ancient Egypt is dominated by male names (Boyaval 1965; Fothergill & Sterry 2017). Therefore, assumptions about the role of human gender in past animal husbandry practices should be carefully considered, and projection of more recent gender stereotypes onto the past avoided. Although the emergence of the idea of poultry-keeping as women's work may date as early as the Roman period (Columella, *De Re Rustica*, VIII.2.3-6), the modern concept is likely to be far different and strands of gender are extremely difficult to disentangle from concepts such as the household and domesticity. Aspects of power and control also play a role, since men's names were historically used to record ownership and financial transactions, even in cases where women were responsible for the duties of animal husbandry. Although aspects of gendered practices and portrayals are featured in video game worlds, the complexities which underpin these are obscured by normalized stereotypes, incorporation of humour, and the limitations of the medium.

Domestic or 'safe' areas of video game environments often include chickens, perhaps a nostalgic take on historic village life. *Divinity: Original Sin* (Larain Studios 2014) has chickens which are depicted appropriately in terms of the sexual dimorphism (differing male and female appearance) of the species and the flocks of chickens are relatively accurate with regard to sex ratios in a dual-purpose husbandry strategy. Virtual villages, farms, and estates feature chickens, their keepers, and housing. *DayZ Standalone* has chicken coops, *Resident Evil* includes chicken cages, and chickens roam villages in *Crysis* (Crytek 2007-2013), *EverQuest 2* (Sony Online Entertainment 2004), *Far Cry 3*, *Forge Quest*, and *Skyrim*. Chickens in *Skyrim*, for a time (prior to a patch to fix the 'bug'), acted as witnesses to criminal behaviour and 'reported' illegal dealings to the town guards. If a player wished to commit a crime, they had to avoid being seen by chickens. Reinforcing the idea that chickens belong in a certain environment, some games have quests to befriend, save, or 'round up' chickens and return them to domestic space. Part of the *World of Warcraft* quest called CLUCK!, which rewards the PC with a chicken pet, requires the player to interact positively with a chicken using real-time gestures and obtain a special type of chicken feed. Awkwardly, the text provided by the game refers to the chicken as "pregnant," which reflects a skewed understanding of basic avian reproductive biology (the vast majority of embryonic development happens after an egg is laid). *Guild Wars 2* players can increase their renown by rescuing chickens (see Figure 3.1), and similar quests are available in *Fable*, *Guacamelee!, Mort the Chicken*, *Vanguard: Saga of Heroes* (Sony Online Entertainment 2007), and the *Legend of Zelda* series.

Figure 3.1: The authors participating in a chicken rescue quest in Guild Wars 2.

Beyond the realm of the household and the 'domestic,' which is routinely framed as feminine, depictions of the chicken and its connection with masculinity have been perpetuated throughout history. The nature of masculinity in the ancient world was varied, often fluid, and temporally and culturally contingent. However, masculinity, warfare, and sport are inextricably entangled concepts which leave clear traces in the archaeological and historical literature (Rich 2013; Strutt 1801; Sul 2000). With regard to chicken-human relationships, violence is a strong thematic connection. Cocks were symbols of military bravery and linked to elite and divine characterizations of masculinity, but they were also fought for morale-boosting entertainment (cockfighting) and tormented as a form of public diversion (cock-throwing), sometimes as part of religious practice (see next section).

Masculinity remains deeply intricate and performative; rigid views of masculinity can have deleterious impacts upon men (Connell & Messerschmidt 2005). Many games embrace the toxic masculinities which mirror those of 'traditional' male human-chicken relationships (e.g. cockfighting, cock-throwing, and dominance over domestic animals, but not raising or caring for chickens). Traits including aggression, dominance over the environment and other beings, and machismo are frequent in video games (despite sometimes being tempered with humour). In fact, the humour draws upon modern perceptions of 'being chicken' and may bolster the negative reinforcement of such traits in male players.

Video games also continue to employ the chicken for violent entertainment (and abuse), and many of these are linked to behaviours perceived as masculine. Chickens take the place of the human male protagonist, often presumed to be played by a human male. In *Mort the Chicken*, the game world suffers an incursion and Mort must use his superpowers to stave off the invasion and rescue kidnapped chicks. The *Grand Theft Auto V* "gun-toting chicken" mod replaces the human male protagonist with a hen, which is still capable of committing various crimes (e.g. stealing cars, shooting people, other acts of violence) within the stereotypically masculine context of the game (Matus Labs 2015). The "macho man" mod for *Skyrim* allows the player to transform their avatar into a male human-chicken

hybrid with Macho Man Randy Savage voice-over that reinforces the connection between masculinity and muscularly macho. These games and mods are intended to be humorous, with a creature perceived as harmless and benign placed in the role of violent, manly, stereotypical hero. A player can also experience the violence of the cockpit in the *Doom* clone *Monseigneur Cockburn: The Judgening of 1933* (Mike Boxleiter, Josh Larson & Greg Wohlwend 2009) by playing a fighting cock. Although some of these examples allow players a humorous way of distancing themselves from hegemonic forms of masculinity by employing an atypical hero, they have clear parallels with violent, popular chicken-related entertainments of the past.

The Abused Chicken

Material evidence for physical violence against chickens is rare in the archaeological record. Even studies of past disease and injury add little clarity since few fighting cocks would have survived the event. Historical sources illuminate the details of two practices now considered abusive which both have video game parallels: cockfighting and cock-throwing.

The Athenian general Themistocles (524-460 BC) is generally credited with popularizing cockfighting in the context of enhancing military morale; it then swept across the Greek and wider Western world. It is likely that the practice originated in Southeast Asia and various groups helped to disseminate it. By the first half of the 5th century BC, red-figured Attic ceramics feature fighting cocks, and they were subjects of Roman art and mosaics. The scene of a pair of cocks fighting is used by St. Augustine to illustrate the problem of evil in his first book, *De Ordine*. As mentioned above, cockfighting as an activity has been viewed as inherently masculine, though there are some exceptions (Fothergill 2016). Cockfighting was not considered abusive until the early modern period. It has links to the military, nobility, and royalty. The Privy Council room at Whitehall was created from the remains of Henry VIII's cockpit, destroyed by fire in 1697 (Strutt 1801). Cockfighting became popular in Britain and Ireland, but as people from most levels of society began to take part, its association with the elite waned and it was banned in 1895 (Fothergill 2016). In their investigations of the modern cockfighting community in the United States, Darden & Worden found that the practice drew legitimacy from association with elite men in American history, *e.g.* George Washington (1996: 216; Hawley 1993: 165), who did attend at least one cockfight but probably was not an active "cocker" (Ryan 2014). Until at least the 1960s, cockfights were used to inspire some young male athletes in the Midwest of the United States (Hawley 1993: 162), and cockfighting in the modern era is part of "ritual reaffirmation of male bonding" (Ibid.: 167).

Cock-throwing (also called 'cock-stele,' 'cock-threshing,' and 'cock-running'), is of later origins, a much-loved pastime across England from at least the early 15th century (Simpson & Roud 2000). A live male chicken would be confined or restrained by tying it to a stake or forcing it into a ceramic vessel, for humans to bombard it with sticks or stones until it died. If a brutal throw resulted in a broken limb, the cock would be re-tied or propped up so that the 'game' could be finished (Strutt 1801). Throwing at cocks was a Shrovetide activity, a chance to

partake in blood sport in the days leading up to Lent (Simpson & Roud 2000). In Bristol in 1660, apprentices revolted and rioted against Quaker officials who prohibited it (Sul 2000). Although cock-throwing continued until the 19th century (if not later in some areas; Fothergill 2016; Shoemaker 2007), it was perceived as unwholesome and unacceptable by some parties by at least 1751, when William Hogarth featured it in the first of his *Four Stages of Cruelty* paintings. Modern sport has inherited a symbolic global logo legacy from the association of violence with chickens: Tottenham Hotspur, le Coq Sportif, and the Sydney Roosters are linked to more benign masculine activities.

These acts, now classed as abuse, have parallels in video games. One of the most frequent types of interactions between PCs in video games and digital chickens is violence. Although chickens may attack the player (*Chuckie Egg*; *Monseigneur Cockburn*; *Resident Evil 5*; *Legend of Zelda* series) or otherwise harm them (*Skyrim* exploding hen mod), violent or threatening acts by the player are often required to trigger these. Despite the archaeological and historical evidence that chickens are active agents who independently engage in violent acts, players do not expect a chicken to return their attack (perhaps due to the recent association of chickens with cowardice). Video game chickens which do strike back are rare and encourage players to attack chickens out of curiosity, or because the death of a chicken is perceived as innately humorous. On one forum, a player wrote: "chickens are funny. Abusing chickens is funnier" (Soghog 2012).

In some cases, the player can become a violent chicken through video games (*Monseigneur Cockburn*; *Mort the Chicken*; mods for *Grand Theft Auto V* and *Skyrim*). Chickens exist as passive objects which receive injury or worse. A 'chicken kicking' competition in the *Fable* series awards the player for their prowess (with a chicken costume, amongst other things). *Guacamelee!* features a chicken-punching mini-game where chickens are punched into a series of bins, and *Besiege* (Spiderling Studios 2015) has chickens as a 'crushable' object type, which explode in a disturbingly whimsical puff of bloody mist. In some games, chickens exist solely to be slain (*Counterstrike: Global Offensive*, Hidden Path Entertainment 2012; *Crysis*; *Far Cry 4*; *Grand Theft Auto V*) and no reward is provided for doing so. The death of the chicken is apparently reward enough. Although some chickens do fight back, and some are challenging (often monstrous) enemies, violence directed toward chickens is the default relationship between chickens and the player.

Fighting chickens and chicken-like animals can be trained to do battle for the player in the *Final Fantasy* series, *Legend of Dungeon* (Robot Loves Kitty 2013), *Pokémon* (Ambrella *et al.* 1996-2016) and *World of Warcraft*, evoking faint echoes of historical cockfighting.

Conclusions: The Future Chicken

The complex relationships between humans and chickens which are evident from archaeological and historical evidence have been recreated and perpetuated in video games. Some aspects have been lost in the transfer from analogue, including an awareness of essential biological facts. This lack of understanding may lead to depictions which normalize negative ideas about chickens. In some cases, video games present attitudes which are outdated and now considered inhumane.

Furthermore, negative conceptualizations of masculinity can be reinforced through the depictions of aggression, dominance, and machismo present in the chicken-human relationships portrayed in video games. The addition of humour serves to present those traits as more desirable to the male player.

The descriptions and imagery used in video games to communicate the idea of 'chicken' present both minor issues (such as the cloacas in *Orcs Must Die*, Robot Entertainment 2011), and notable discrepancies. Flocks of chickens in safe areas of games often consist of only males or females (natural hatching ratios tend to be balanced), male protagonists and bosses more closely resemble hens than cocks, mods like the *Grand Theft Auto V* "gun-toting chicken" and the *Skyrim* "macho man" and "brave chicken pet" appear hen-like. Quest text in *World of Warcraft* extends this confusion to avian reproduction. These examples may reflect a lack of contact between humans and the other animals with whom we share the physical and digital worlds, and could perpetuate a lack of understanding of human-chicken relationships both past and present.

Video games are gendered play spaces, and 'boy culture' has shifted from the outdoors into the virtual (Cassell & Jenkins 2000); male play experiences are deepened by control of a "central protagonist" (Kirkland 2009), which tend to be macho males. Depictions of male characters in video games reinforce intensely masculine ideas about what it is to be male. One study found that male video game characters were represented in a far more aggressive way than females (Dill & Thill 2007), and these can influence young men's perceptions of traits deemed to be acceptable parts of masculinity (Scharrer 2005). A more nuanced understanding and usage of the term 'masculinity' which embraces behaviour beyond more commonplace, toxic portrayals of masculinity is needed (Connell & Messerschmidt 2005). Recently, *The Force Awakens* portrayed male Resistance characters in just such a way: as imperfect but positive reflections of diverse masculinities (Bennion 2016).

Negative portrayals of chickens and a near-universal recognition of their species as 'crushable,' even compared to other video game species, reflects a philosophical position placing them below humans and other mammals in terms of moral value: "the right to life applies much more to gorillas and dolphins than to chickens and sharks" (Cobb 1991: 36). The 2016 *Harambe* meme, following the killing of the Cincinnati Zoo's silverback gorilla, exemplifies this (Don 2016) – nobody makes similar memes about the daily killings of chickens. The view of chickens as having any right to life at all may even be considered generous, as killing non-human animals "is not generally a violation of morality or law" (Jepson 2008: 143). The portrayal of chickens as resources or passive objects seems more neutral, but it is still problematic: "since inanimate resources cannot suffer, the discursive construction of animals as resources contributes to an ideology that disregards suffering" (Stibbe 2001: 155). This affects the digital realm: *e.g.* although violence in games does not correlate with violence outside of them, negative portrayals can still reinforce perceptions and relationships outside of video games (Hochschartner 2013). Negative relationships with non-human animals are a problem outside of video games, regardless of impact on humans; people who have "committed horrific acts of violence against other living beings" (Solot 1997: 262) need attention because of what they have done, not because of their potential for future violence.

By the welfare standards of much of the Western world, it is unacceptable to apply violent force to chickens. Even broiler chickens are not expected to be kicked or injured, which explains the furore over the release of a video documenting routine kicking and stomping of chickens by employees of a Kentucky Fried Chicken supplier (BBC News 2004). This illustrates a gap in the acceptability of violence against chickens within and outside of video games. The fact that chicken-kicking is portrayed as a fun competition or that chicken punching is necessary to complete part of a video game demonstrates how much closer the attitudes in video games are to those of 17th century Bristolian apprentices. More enlightened relationships seem distant by comparison. However, some games present chickens as agents in their own right (*Legend of Zelda*), in a more 'realistic' context (e.g. as part of simulated farming environments in *Farming Simulator* and *Minecraft*), or as beings whose human companions are upset when they are killed (*Divinity: Original Sin*).

Responsible depictions of chickens in video games would help to create more ethical perceptions and relationships between chickens and humans outside of video games, and developers could positively portray chickens and their relationships with humans. For farming simulator games (*Farming Simulator*; *Harvest Moon*; *Puzzle Craft*) and games where chickens are presented as food, sustainable practices with high welfare standards could be presented as the normative expectation, *e.g.* quality feed, free range pasturing, and preventing stress to the chickens. Games could also raise awareness of unethical practices such as high-density or battery farming, unhygienic environments, and stressful situations (Anomaly 2014; Singer 1975), and reducing meat consumption or adherence to welfare regulations could be encouraged. Chickens should not be portrayed as objects of abuse. Outside of video games, animal abuse is complex and should not be presented simplistically. Although violent video games do not predict violence outside of video games (Markey *et al.* 2014), cruelty to animals should not be glorified or even normalized in games. Beyond PETA's campaigns against glorification of cruelty (Leibovitz 2012; Tach 2013), uncritical portrayals of violence against animals can lead to the normalization of violence against animals, and the increasing sociocultural importance of video games should justify changes in the way animals are portrayed (Hochschartner 2013). Additionally, it is clear that some gamers find that killing and maiming animals in games is unpleasant (e.g. Plorry 2014), which demonstrates the value of removing them as objects of abuse. Finally, it is vital to critically assess the negative, toxic presentation of masculinity in many video games, and disassociate violence against chickens and other non-human animals from masculinity altogether. The chicken-as-joke tactic to reinforce aspects of hegemonic masculinity should be eliminated.

Video game chickens could be interesting, multi-faceted beings portrayed in ways which reflect and promote positive components of masculinity, compassionate attitudes, and relationships outside of video games, thus helping to normalize less toxic interactions between humans and non-human animals.

Acknowledgments

We are grateful to the organizers and attendees of *ETHICOMP* 2015 and *The Interactive Pasts Conference* 2016 for opportunities to develop this concept and helpful feedback. We are grateful to Professor Graham Shipley for a very useful clarification on a Greek linguistic matter. We would also like to thank Martin Sterry, Olanrewaju Odukale, Tim Savage, and Natalie Simmonds for assistance with key components of research and St Martin's Coffee House, Leicester, for their excellent collaborative working environment. This work was supported by the AHRC-funded Cultural and Scientific Perspectives of Human-Chicken Interactions project (AH/L006979/1).

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Herald

How Wispfire used history to create fiction

Roy van der Schilden & Bart Heijltjes

Why We Tell Stories

In principle, a story is nothing more than a series of events, but storytellers can hardly tell their tales by stating mere facts. Who can vividly describe love with just a reference to the medical statistics or biochemical processes? That is the reason why we often describe love's impact on the senses with flowery language. It is very hard to truly convey the experience of emotions by merely writing down the dry facts. The same goes for historical narratives: a recollection of events and dates is not necessarily a good story: you will need to tell it with a deep understanding of human emotion. To capture the essence of a moment is to convey the underlying tension between different emotions that people have towards a subject. Conflict, the basis for almost all stories, comes from different emotional reactions to the same situation. Even though emotions are all vastly different experiences for each and every one of us, the conflicts that arise from different emotions clashing are what make good stories feel familiar and relatable. This knowledge is what underlines our practice as storytellers. This is how we create empathy.

Wispfire is an independent game studio from Utrecht, the Netherlands, that was founded in 2013 by four designers with a background in interactive performance. As a team specialized in storytelling, we produce engaging, interactive experiences with a message, using a vibrant hand-painted art style. Wispfire's strength is that we use our knowledge of dramaturgy to make games which resonate with a broad audience. Our games are progressive, culturally diverse experiences that feel distinctly different in tone from most other story-driven games on the market today. This chapter discusses the creative process that resulted in our vision for the story and world of *Herald: An Interactive Period Drama* (Wispfire 2017; see Figure 4.1).

Figure 4.1: Devan retells the story of his journey aboard the Herald to the mysterious Rani.

Herald: An Interactive Period Drama

Herald is a choice-driven adventure game about 19th century colonialism, and our first major title as a video game company. The game tells the story of a young man named Devan Rensburg who was born in a colony of a global superpower at the height of the colonial era, sometime in the middle of the 19th century. Adopted and raised in the wealthy Western capital of this so-called 'Protectorate,' Devan develops an interest in finding out where he comes from. He boards a clipper ship, the eponymous *HLV Herald*, to book passage to his country of birth. Over the course of the three month voyage, Devan is cast in the middle of a multi-ethnic cross-section of Protectorate society and has to navigate his way through burgeoning tensions – between characters from different ethnicities, classes, and genders – which will not only determine the fate of the ship, but also that of the empire itself.

Culture Clashes

Our initial idea for *Herald* surfaced in 2013, when the latest round of culture wars was only just beginning. The GamerGate[1] debacle had yet to start and no one knew what a 'SJW' was (Social Justice Warrior; often intended as an insult). Black lives may have mattered, but no one had heard of the protest movement of

1 GamerGate was an internet hate campaign originally directed against female developer Zoë Quinn, but which quickly exploded as a reactionary 'anti-establishment,' anti-political-correctness movement in games media. In progressive circles it is sometimes seen as a precursor to the Trump movement (Lees 2016).

that name[2] and the 2016 US Election was still a long way away. Although there had been some indications that race and minority rights were again becoming a topic of relevance – and this awareness did play a part in our decision to make this particular game – we could not have predicted just how massively the topic would blow up into mainstream political consciousness during the production of *Herald*.

One augur for things to come was perhaps the 'Black Pete is Racism'[3] campaign breaking into mainstream media in the winter of 2013. The character of 'Black Pete' is part of the Netherlands' traditional St. Nicholas' day celebrations. While Pete's modern form is intended to be a jolly and likeable fantasy character, his origins in 19th century children's illustrations have left him looking like the contemporary stereotypical depiction of a 'black' person. While criticism of his depiction, coupled to his role as servant of the saint in the mythology, is not new, 2013 saw an unprecedented level of protests and activism against the character, including lawsuits to attempt to have him removed from the celebrations under anti-discrimination legislation. This in turn caused a massive response from predominantly white Dutch people who saw this as encroachment on their cultural property and traditions.

The lack of comprehension from both sides in the Black Pete debate about the other's point of view is staggering. Many activists find it incredible that people who claim not to be racist do not see the obvious problems, while, on the other hand, people in favour of Black Pete are equally confounded that anyone finds anything offensive about this tradition they grew up with. While some argue that the context and intent for the character is substantially different from historical equivalents such as 'blackface,' many people seem to lack any understanding of the historical context to the current debate (Frank 2013).

For brevity's sake, we cannot go in to the fascinating and somewhat nebulous origins of St. Nicholas – a Catholic saint in a country that defined itself by its Protestantism – and Black Pete, nor to what extent this intertwines with our country's history as a slaving nation. But the fervour with which the debate gripped the Netherlands right across all strata of society, and the way in which it provoked (one would assume) sane white Dutch people into showing the most vile racist sentiments was shocking, especially when these outbursts were matched with a professed hatred of racism.[4] When a 'group selfie' of players from the Dutch national football team was posted online in November 2014, there were so many comments calling the players 'Black Pete,' among other racialized insults, that the picture was taken down (Newmark 2014).

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2 According to Wikipedia, the hashtag was first used when George Zimmerman was acquitted of shooting and killing Trayvon Martin in 2013, but the first protests under the Black Lives Matter banner were in August 2014, which would make it exactly coeval to GamerGate. *Herald* began development in the spring of 2014.

3 For more information on the campaign and its media impact in 2013, see Millington (2013) and Tharoor (2014).

4 Ethnologist John Helsloot wrote an excellent article on the difficulty many Dutch people have connecting the Black Pete character to their colonial past, describing it as "a cultural disability, grounded in power relations, to talk about phenomena and to see things as 'they really are'" (2012).

Apparently this auxiliary character in a children's holiday is so important to us, that any suggestion that his appearance might be offensive to people strikes at the very heart of our identity! While the debate raged on (as it still does today), we felt it was important to investigate the underlying causes behind this rift in society, this cultural divide that in our (white) experience, so suddenly broke into public consciousness.

With *Herald* we wanted to tell a story about these kinds of cultural clashes, conflicts that are a direct result of our colonial history. We believed that such a story could potentially tell us something about the way we look at our own cultural heritage. Even though the 19th century has come and gone, society has been deeply shaped by this period in history. We figured it was a particularly suitable setting for a drama about cultural conflict that could give insight into the way we look at colonial narratives today. A story about the morals and values of people living in a world impacted by a cultural divide: 19th century colonialism.

Seeking Inspiration

The first problem that we encountered when trying to tackle the subject of 19th century colonialism, was the question: what story do we want to tell about this turbulent era? This was a hard question to answer, because most of our team members had different views on the subject. So the first lines we wrote for *Herald* were heavily inspired by existing works of fiction that had already fascinated us before we ever thought about *Herald*. Most of these novels tried to tackle the subject and history of colonialism, and one such inspiration was *Max Havelaar* (Multatuli [1860] 1979), a famous 19th century novel that influenced modern thinking about colonialism in the Netherlands. The book, written in 1860 by Eduard Douwes Dekker under the pseudonym 'Multatuli,' speaks of the mismanagement of the Dutch coffee plantations in Indonesia, but the world it portrays is somewhat limited by the perspective of a Westerner observing the East Indies (*cf.* Said 2003). This bothered us, and we realized that in Europe most common works about colonialism are very centred on a Western view of the subject. Our next objective was clear: we needed to find examples of stories outside of our own cultural sphere.

We tried very hard to find genuine examples of perspectives that were not Western, but soon realized that most of these non-Western perspectives were unintelligible for us. One of the most profound obstacles in writing a story about non-Western cultures, is that the storytelling traditions of other cultures are vastly different from the ones employed in most Western cultures. If you are not part of a specific culture, there is a steep learning curve to understand its stories. The structures, tools, and mechanisms employed, often are not understood by a Western audience, which can cause a sense of alienation that can potentially harm the message of your story. We can see an example of this in Japanese animation, which requires some experience from the viewer to understand its vastly different use of semiotics to convey emotion. The same goes for many stories of African origins, which have been handed down through oral traditions, in languages that Westerners do not speak.

Luckily, the cross-cultural exchange of people has already led to a few stories from other cultures making their way into the Western mainstream. One such story, by the well-known post-colonial writer and scholar Chinua Achebe, is the novel *Things Fall Apart* (2013). The book chronicles the colonization of the fictional town of Umuofia in Nigeria, and the life of an Igbo tribe leader named Okonkwo experiencing this colonization. At the beginning of the story, Achebe throws you headfirst into the daily life of the Igbo tribe, which is, for a Westerner, quite brutal and purposefully presented as 'savage.' The passage is used to alienate the reader, and it does this on purpose. The writer knows that a Western audience will not understand the impact of colonization on the way of life of the Igbo people, if he does not show you how vastly different their culture was before the British came to Nigeria and colonized it.

What that book does really well, is breaking down this alienation step by step, by making the characters feel more and more human along the way. Achebe gives them emotions that we can relate to, so even if we do not agree with their actions completely, we can still understand the train of thought that led them there. With *Herald* we decided that we had to do it the other way around. Our story does not start at the colonized culture: our story starts with the culture of the colonizers. So, we concluded that we had to build up to alienation by increasingly breaking down the moral high-ground of the culture that the colonizers try to uphold. We figured that if we introduced our own fictional empire as a shining beacon of hope for the world, and slowly take away the rose-tinted glasses of the player as he or she progresses through the story, it would eventually dawn on the player that it is all a façade. A magnificent display of grandeur, held up to fool you and keep you content with the situation as is.

We now knew that *Herald*'s story should attempt to unearth the power structures that are at work to keep the player oblivious of the wrongdoings of the establishment. Knowing what we wanted to achieve with *Herald*, it became very clear why it was so important for the game to tell a story of human emotion. We wanted players to feel the sting of dealing with the consequences of colonialism on a day-to-day basis. But to take the player on this journey, we needed a strong personal motivation for the main character. He needed to be a vessel to wrap the message of the story in. In order to find this character, we decided to interview several people who might have had similar experiences.

One of the people we spoke to was a dear friend of ours. We knew that he had fled Iraq during the war in 2003, because he had feared that there was no way for him to survive in a war-torn country, especially as a gay man. Under the secular reign of Saddam Hussein, gay men and women were relatively safe, but after the American invasion there was a surge in Islamist sentiment. Being gay might still technically be legal in Iraq, yet stories of excessive violence against homosexuals are ubiquitous.

When he told us his personal story of escape, and his subsequent stay in the Netherlands, it was striking to note how badly he felt stuck in between two cultures. While most Dutch Muslims labelled him 'gay,' most other Dutch nationals labelled him 'foreigner.' As a result, he felt that he did not have the option to be accepted completely by either group. He was effectively ostracized and pushed to the margins of both communities. This feeling prevailed with many of our interviewees, and

it showed what makes the topic so relevant right now: our Western multicultural societies still deal with the fear of exclusion and the necessity to adapt to a culture to truly fit in. The people we interviewed had first-hand experience dealing with this. They all felt that they did not have all the options they were supposed to have, stuck in between the opposing morals and values of different cultures.

Rewriting History

Our characters could only be as varied as the depth of our own knowledge about them, so it became very important for us to conduct in depth research into the lives of historical 19th century people. We needed all the sources of inspiration we could find to create genuine characters with powerful personal struggles that could drive *Herald*'s message home.

During this time of extensive research, Roy van der Schilden, our lead writer, became interested in the Sepoy Mutiny, which is also known as 'India's First War of Independence' (Ramesh 2007). The Sepoy Mutiny was a violent clash in the year 1857 between vastly different cultures at the height of the British rule in India. The aimless violence that ensued from the mutiny turned into a rebellion against British rule that seemed to be futile from the beginning, but its failure was not entirely without consequence. Even though the rebellion was largely disorganized and easily defeated, the British afterwards realized that they were not all-powerful and their empire not too big to fail. The setting proved to be well-suited to accommodate the struggles of our characters, but we were left wondering how this inspiration could be woven into a modern-day message that was not convoluted by a complex political situation. So we decided to write our own history for *Herald*.

We figured that if we made *Herald* about a specific country with a specific culture, it would be easy for many players to brush the subject matter off as something which does not apply to them. Thus, in the process of developing the story and world of *Herald*, we decided to alter the geopolitical situation of the 19th century to simplify its very complex politics. The empire was not to be English or Dutch; the glorious fictional empire called the 'Protectorate' spanned the entirety of Europe and then some. It would ultimately befall the same fate as the British Empire, and be faced with a revolt that would change its views on its policies forever.

The events of *Herald* take place in 1857, the same year as the Sepoy Mutiny, though its major political power is not presented as an actual historical empire. Of course, in a period sometimes referred to as the 'Pax Britannica,' the Protectorate bears the most resemblance to the British Empire. Yet, in order to link the subject matter to our modern-day values, the Protectorate is presented as a Republic that professes to democratic and economic ideals rooted in revolutionary France, the Dutch Republic, or the United States of America.

Keen observers will also note some visual elements that seem out of place in the 19th century. The *HLV Herald* itself, although it has the bow, deck houses, and layout of a clipper ship of the kind that were at the cutting edge of sailing technology around this time period, also bears some of the hallmarks of a much older kind of ship. Its wooden balustrades, the raised poop deck, and decorated windows are not so much reminiscent of the iron and plated gold of the industrial revolution era, but rather of the wood-carved splendour of the 17th and 18th century

East Indiamen. Similarly, while the officers and sailors on board the *HLV Herald* wear uniforms which would not have looked too far out of place on a mid-19th century trading ship, Lady Tabatha wears the kind of ruff that would have been two centuries out of fashion.

The mixed imagery is intentional, of course, and meant to take the story out of a specific historical context. Our intent is not to present exactly what happened at a certain moment in the past, but rather to tell a universal story about people trying to live in a socially restrictive environment. Colonialism, and the many branches of thought that accompanied it, was not an event that happened at some point in the past in a specific country, but rather a mind-set that took hold of Europe and the territories it had subjugated for centuries and which can still be felt today.

Keep in mind that this does not make the universe of *Herald* a fantasy universe. We actually want the player to feel that *Herald*, as an experience, represents authentic dilemmas, historical as well as current. While the story is fictional, we do want it to feel as a history that could have happened. The intent is to create a universe that feels familiar, that bears almost one-to-one relationships with our own, and relates to the very real experiences and histories that underlie our own world; yet is anonymized to reduce questions of individual guilt and blame, to instead refocus attention on the systemic consequences, and the colonial heritage that we all share. We made sure that *Herald* was not about the factual events of the 19th century, but all about the people living in a world impacted by colonialism. In doing so, we effectively narrowed down our subject to 'the lives of people living under colonialism' or more specifically 'the lives of people living in a socially regressive environment, such as the colonial 19th century.'

Unearthing Power Structures

Our goal with *Herald*, both for ourselves and for the player, was to use the subject matter of historical colonialism as a road of inquiry into one's own views of the power structures that we are a part of. Artistically, we hope to increase the player's capacity for understanding the context, by invoking an emotional frame of reference, rather than a factual, historical one. It is a game not so much about colonialism itself, but about its consequences for the behaviour and self-identification of colonizer and colonized. By holding a mirror to the historical qualities of the colonial relationship, we seek insight in its modern descendant: the post-colonial reality of the contemporary Western world.

Devan Rensburg, our main character, became a man of mixed heritage who travelled back to his country of birth in search of his roots. The concept came from the innate struggle with identity that people of mixed heritage often deal with. *Herald* is a choice-driven narrative controlled by the player, and as such it is up to you how Devan will deal with most dilemmas resulting from the colonial politics of his world. While Devan himself has some clear goals and motivations in life, he is meant as a conduit for the player to explore the spectrum of choices that a man in his position has at any given moment. When designing Devan, it was important for us that he had his own background, but that almost everything he does aboard the *Herald* is up to the player, thus part of his personality is intentionally left open for interpretation (see Figure 4.2).

Figure 4.2: The player facing one of Devan's choices in Herald.

All our characters ultimately fall somewhere within a spectrum with the Protectorate on one side and the colonized on the other. Devan himself also falls somewhere in between, and because he represents attributes of both sides, the player can place Devan where he chooses. Of course, picking a side always has consequences, and it will eventually determine Devan's disposition towards others on board of the *Herald*, and vice versa. Devan's social status as a person of mixed heritage gives him the tools to understand the conflicts better, but also creates most obstacles which prevent him from solving all the problems. It is a sense of powerlessness that prevails throughout the entire storyline. Its most important message being that the player never has all the options one can think of, because unlike in most other games, he simply is not that powerful while walking in Devan's shoes.

Framing the Story

The final piece of our creative puzzle only revealed itself to us quite late in the process of creating *Herald*'s concept. When we knew what story we wanted to tell, we had yet to decide how the player would experience it. Going back to the start of our own creative journey, we already figured out that perspective is very important when telling a historical narrative. We wanted the player to be able to step back and judge his own actions, because without this self-reflection we feared that players would not stop to think once in a while about what choices they had made during Devan's journey. For this reason, *Herald* became a frame story. A story within a story, in which Devan tells his tale to another character in the game after everything has already happened. The character, that you help Devan tell the story to, is the Rani. Based on the Indian Rebel Queen, Lakshmi Bai, the Rani is Devan's and the player's personal test of morals. Her motivations remain a mystery during most of the game, but she questions Devan about his actions and becomes a gauge to how well the player has played Devan's cards (see Figure 4.3).

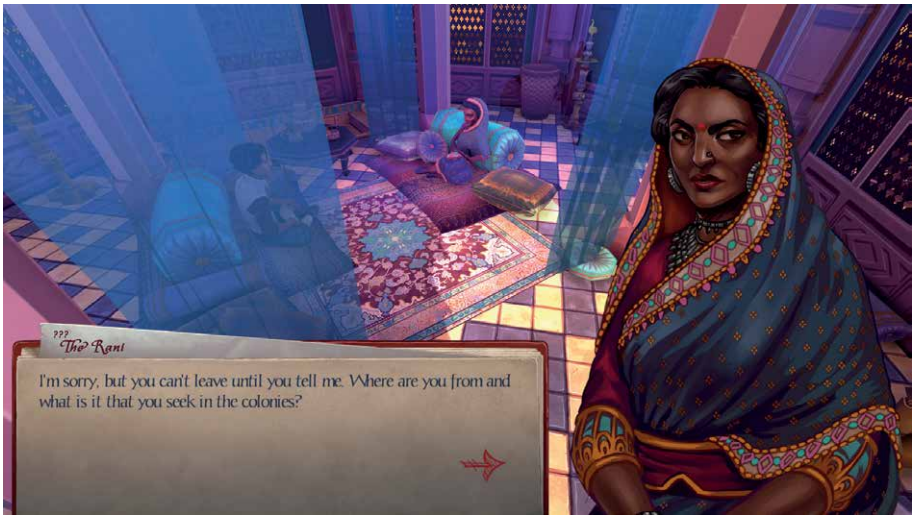

Figure 4.3: The mysterious Rani questions Devan about the story of his journey aboard the Herald.

By design, *Herald*'s frame story lets players experience Devan's journey second-hand in the form of flashbacks that they help him create. This arguably results in a hidden meta-narrative about the truthfulness of a retelling by an unreliable narrator. As the story keeps switching between Devan's past and present you do not really know whether Devan is always telling the truth. It reminds us once again that retellings of history are all subject to the views of the narrator. Which, in *Herald*'s case, is you: the player.

The Takeaway

When we started on *Herald*, none of us completely knew what the final product would become. As designers and storytellers we rarely come across an idea that survives to the finish line unscathed. Tiny things are edited, altered, and changed until most of what you started with is gone. But at the heart of *Herald*'s design is an overarching theme that prevailed throughout its entire development. 'The imbalance of power structures,' the theme that underlines all stories that are told in *Herald*, survived. Through exploring it, we learned that we wanted to tell a story that was less about colonialism as a historical event, and more about colonialism as an iniquitous power structure whose legacy still pervades modern society. With the knowledge that we obtained from making this game, we gained a better understanding of the world around us. And the goal of telling this story through the medium of video games is that our insights shine through when you play *Herald*, while hopefully inspiring you to reassess some of the pre-conceived notions that you held before.

For more information about Herald: An Interactive Period Drama, visit <http://heraldgame.com>.

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Ludography

Herald: An Interactive Period Drama. 2017. Wispfire. Wispfire. [PC, MAC and Linux]

Part Two

Analysing and Designing Games from an Archaeological Perspective

Designing and Developing a Playful Past in Video Games

Tara Jane Copplestone

Introduction

I first became interested in how video games might be used in archaeology whilst conducting interviews with the creators, consumers, and commentators of video games that featured archaeology and cultural heritage. During these interviews, I discovered a trend which fascinated me: many of the people involved in designing and developing video games described the past very differently to archaeologists and heritage professionals (Copplestone 2014: 50-62). This divide in describing the past could be broadly summarized as such: game developers tended to describe the past as systems, interactions, agency, and multilinear narratives; whilst archaeologists and heritage professionals tended to describe the past as physical things, linear narratives, and the known outcomes of a process (Copplestone 2014). As the interviews with the game developers progressed, another interesting trend emerged: the developers believed that the narratives traditionally produced by archaeologists – for example, through books, journal articles, or monographs – were not able to be translated into the video game format directly. At the same time, many of the archaeologists and heritage professionals believed that video games were a problematic media form for the past (Ibid.). At first I assumed this divide was due to substantial differences in the data and narratives created for academic or entertainment purposes, but as the interviews progressed it soon became evident that something bigger and much more fundamental was at play.

This chapter will follow the story of my research as it unfolded – from my formative work observing, working, and conducting interviews at video game studios, through to creating my own games whilst working on an archaeological site and beyond. The core aims of this chapter are to explore how and why creating and communicating through video games might provide powerful new ways to think about, do, and present the past. To achieve this, I will draw on a combination of interview data that I gathered in the field, auto-ethnographic material that I produced through my own creative experiments, and academic publications drawn from the archaeological, media, and game studies fields. This data will be used to

answer the following key questions: how and why do video games allow us to think about, create, and communicate the past differently to other media forms? Could designing and developing games be a useful part of our archaeological toolkit and practice? And if so, what impact might that have on archaeological method and theory?

The Medium, the Message, and the Past

One particular moment from my formative research at game studios continues to stick in my memory: I was sitting down with a group of narrative designers and engine developers, interviewing them about how they used academic data or narratives within their practice (Copplestone 2014). One designer pointed to a book which had parts of pages ripped out, rearranged and scribbled over with tree-diagrams whilst the two developers raised their eyebrows and heartily laughed at me. The narrative designers went on to explain that the material academics tend to produce in books or journal articles tells *a* story about the past which is directly *told* to the reader. By contrast, they continued, they were writing *many possible* stories about the past where the player is taking an active role in *choosing* how this unfolds. Once the laughter (at my expense) had died down, the developers explained that they perceived heritage and archaeology practitioners as tending to write single instances or outcomes of what happened which the reader directly consumes, whilst they were creating *how* the world works so that their player could explore *why* that was the case. To this end, they concluded that books were great at structuring one kind of narrative, whilst the games they were working on were great at structuring other kinds – it was not that one was better or worse, just better suited to different things. They continued to expand on this, saying that whilst the two different media forms could inform and intersect with each other, the processes and parameters for creating and consuming them were significantly different, thereby direct translation between them was troublesome (Copplestone 2014).

In another instance, I was talking to a developer who had employed an archaeologist as a consultant on one of their games, yet had found the experience incredibly confusing: "we would ask what we thought was a simple question and get an essay for an answer, or an answer that simply would not work in a game. I guess the problem was the we didn't speak 'history' and she didn't speak 'game,' so we kind of just talked past each other" (Anonymous, Senior Producer, Interview Group 12, *quoted in* Copplestone 2014). The results of these interviews hinted that something very different was going on between archaeological and game development practices. The creators of these video games were struggling to shoehorn traditional ideas of the past into their creative practice, yet simultaneously they seemed to be able to think about and create the past in ways which were often quite different to our traditional and academic approaches. Through these interviews and interactions I was starting to narrow in on an important idea: books, journal articles, and video games do not structure data or narratives in the same way, and as such the process of creating through them requires distinctly different approaches to the past.

As I concluded this game studio based research and moved back to conducting my more 'normal' archaeological work, I found myself critically assessing how I was collecting, storing, analysing, and communicating the past through the media forms I was leveraging throughout my academic archaeological practice – from the edge of the trowel all the way through to final publication. What I found was that even though many of the tools I was leveraging were digital and interactive I was using them to capture and communicate static elements and linear narratives or to speed up a process. In one respect I was physically coding and scripting like the game developers were, yet the way I was thinking and creating still seemed to be substantially different to the developers I had observed in the studios. I was using these elements as a tool to produce a result that *described* the archaeological processes, as opposed to *being* the system or process itself. It began to make sense that it is not only the media form, but my creative practice and understanding of it that were influencing how I could think and work with ideas of the past.

Several other commentators on archaeological processes and media forms – such as Watterson (2014), Perry (2015), and Holtorf (1999) – have critically engaged with how the creative practices of the archaeological discipline have a hand in shaping our perceptions, narratives, and outcomes. This body of research likewise indicates that the media forms we tend to use, and the creative frameworks we employ in their use, have a hand in structuring how we can generate knowledge, and thus subsequently, how we can understand the past. The process which I often found myself in was one of remediation – using digital media forms, such as games, as a box which I used to put the same kinds of narrative and understandings that I was developing in analogue forms, such as books.

Whilst remediating, or using digital forms for speeding up the process, is not necessarily problematic (and in fact many of these processing, data gathering, and communication methods are fundamental to understanding certain aspects of archaeology), it does indicate an interesting dichotomy between the experienced archaeological world and how we tend to formalize it through our records. Time, space, agency, interactions, systems, and multiple narratives are part of our daily practice and are often the focus of our research – yet, more often than not, we formalize our interpretations and findings though 2D images, maps, and text, at times forgoing the specific affordances of the media we are working in to do so (Watterson 2014).

As my field research progressed I became aware of how recursive the relationship was between the physical archaeological record, the way I could think about it, and how I was capturing it through various media forms (Copplestone *forthcoming*). I was used to archaeological narratives and data being captured and communicated in a specific way, and whilst I was aware, and even eager to capture interactive, multivocal, or multilinear aspects, I found myself shoehorning these into the media forms and methods which I was familiar with. It struck me that if my archaeological thought was being shaped by the media I used, the same might be true for game developers.

As it turns out, this phenomenon – of media forms structuring and impacting how we can think, do, and communicate – is well described and debated within the wider media studies field. Each media form has specific structures embedded

within it which create or limit the *possibility space* for how we can carry out and communicate ideas and actions (Murray 1997). This ability of a given media form, to define or control "the scale and form of human association and action," led McLuhan to state that: "the medium is the message" (1964: 8-9). This is to say, that the data and narratives that we produce about the past are not 'pure,' but rather hold a recursive and dependant relationship with the media forms we choose to use (McLuhan 2009). To this end, McLuhan (1964; 2009) put forward that critically studying the media forms that we use was of the highest importance for understanding the information that is held within them. The way in which a media form achieves this differential possibility space and structuring of information is through its affordances: the internal (structural) or external (applied) properties which allow or constrain the information under consideration (Gibson 2014).

If the media forms which we use to carry out our communications have a significant role in how we can structure our worldview, it follows on that they will also have a significant impact on how we tend to seek out and evaluate narratives and data within our respective fields. Thereby, the internal affordances of a media form, through constant use, can become the external affordances for a discipline (Munslow 2007). More simply put, this could be said as the age old adage of like breeds like. I was initially trained to do archaeology through pen and paper context sheets, illustrations, 2D maps, and monograph reports. The internal affordances of these media forms involved in my practice have had a significant impact on how I think archaeological data and narratives *should* look or feel. As such, the way which I think, and the outputs that I create, will tend to fall in line with this worldview – regardless of the scope of affordances of the media I am using or the thing which I am studying. For example, one of my archaeological interviewees described that at some point in her fieldwork career, computers and tablets replaced pen and paper in the trench, yet how and what she was writing and doing remained largely the same (Anonymous, Field Archaeologist, *quoted in* Copplestone *forthcoming*). Despite the new affordances of the digital form, their use in the field was still tying back into the media forms which we have been using in archaeology since its inception.

In many ways this critical media framework explains why video games allow those who are used to creating through them to structure narratives and ideas about the past through these affordances themselves. It also helps to explain, given their familiarity and perspective, how and why these practitioners feel that linear texts are an uneasy fit within the video game form and, following on from this, why they believe that significant remixing and remediation is required for these elements to function in line with the structures of the video game media form. Finally, it may help to explain, at least in part, why many of the archaeological and heritage interviewees thought the video game medium was troublesome with regards to how we traditionally have set about creating and consuming the past, given that it represents a significant shift away from many of the traditional structures embedded in pen and paper archaeology (Copplestone 2014).

Video Games as Media for the Past

Now that we have a framework that explains why video games might operate differently to other traditional forms of media used in constructing and communicating the past, we will turn our attention to examining how this might be occurring in further detail. At the most basic level a video game can be seen as comprising of code, text, audio, and art. A player interacts with these elements through a feedback device, making active agency choices to progress the narrative or achieve the necessary elements and outcomes required for completion – or to partake in the system for the pleasure of participation itself. These elements create five distinct spaces which can be observed within a video game: rule-based (the mathematical rule set), mediated (the game's presentation on screen), fictional (the player's imagination), play (player-game interaction), and social (player-player interaction) (Nitsche 2008). These game spaces, constructed through the affordances of the video game medium, may create a novel space for archaeological knowledge making and communication.

The combination of conventional and unique ways in which video games are crafted and used was put into legislation in the US Supreme Court ruling of *Brown v. Entertainment Merchants Association* which stated that: "like the protected books, plays and movies that preceded them, video games communicate ideas – and even social messages – through many familiar literary devices (such as characters, dialogue, plot and music) and through features distinctive to the medium (such as the player's interaction with the virtual world)" (2011: 2). This idea – of video games making arguments through interactive systems – has been termed by Bogost as "procedural rhetoric" (2010: 3).

Creating procedurally entails that what is constructed "generate[s] some kind of representation, rather than authoring the representation itself. Procedural systems generate behaviours based on rule based models; they are machines capable of producing many outcomes" (Ibid.: 2-3). This mode of creation seems, at first glance, to be similar to my experiences with many of the computational and digitally centred practices used within the archaeological discipline, for example, probability modelling or agent based models. However, the difference between these entities can be found in how they are constructed and used. Crawford (1987) describes this through a scale of process intensity. The lower end of the scale describes the use of digital media to focus on the data that an algorithm will produce (such as predictive modelling of archaeological sites), whilst the higher end of the scale describes a primary interest in the entities which make up the rules (an interest in the system for the sake of the system, so to speak). To this end, video games operate at the highest end of the process intensity spectrum, using the players' interactions to unpick *how* the rules of the game space work, why they work, and what that means – the system itself has meaningful expression embedded in it.

Given the underpinning code, primacy of player interaction, and authoring of rhetoric through procedures, it can be observed that video game creation offers us the potential to play around with how we structure narratives about the past. Narrative structure in its purest sense refers to the way in which a given narrative is constructed, for example, in a linear or multilinear fashion (Barthes 1978). To

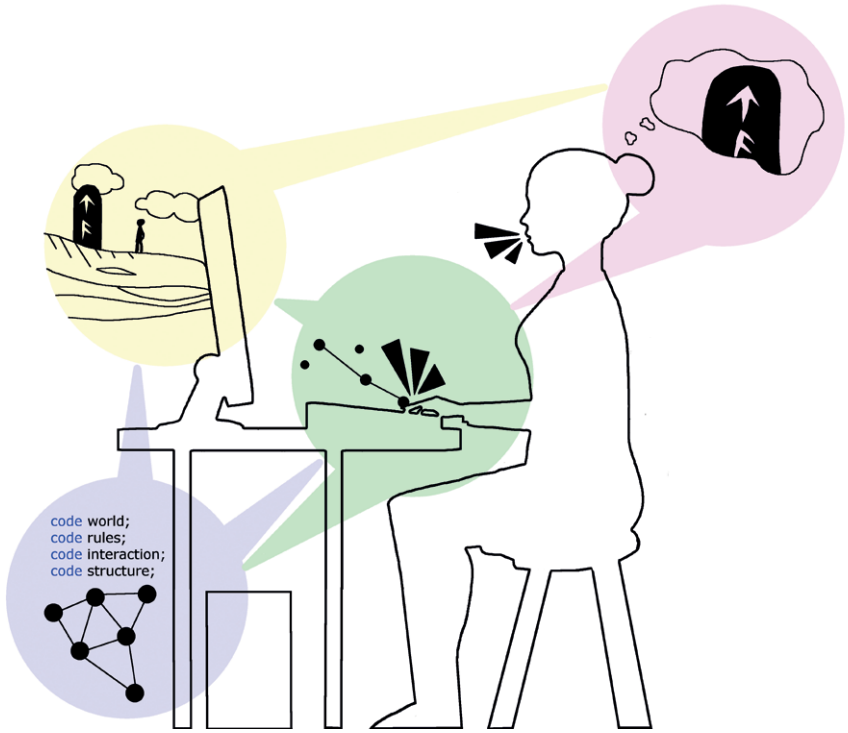

Figure 5.1: Game Spaces: the interaction between system, interaction, outcome, and experience.

this end, whilst journal articles or a book, like this one, tend to structure the communication of information through linear nodes, a video game can provide multilinear strands or even emergent narratives from the systems that underpin the game-world. Figure 5.1 explores how these narrative structures interact with the procedural rhetoric and the physical, imagined, and ephemeral game spaces.

The procedures which underpin the video game form facilitate the authoring of arguments in different ways, ways which perhaps hold significant value for the archaeological discipline. Many modern theoretical paradigms have expounded ideas of multivocality, reflexivity, agency, and interaction, yet the media forms we have been using and the tools we have created for capturing and communicating the past have often required remediation and reduction into forms whose internal affordances do not necessarily natively support these outcomes. Video games with their distinct focus on procedures and active player participation offer a way of authoring and communicating arguments differently, and consequently perhaps offer a space for thinking about the past differently as well.

Designing and Developing the Past

Poet Cesare Pavese has said that "to know the world one must construct it" – a sentiment which I took with me as I tried my own hand at designing and developing video games. Throughout this period of time I 'jammed' in a variety of different programming languages, on a variety of different platforms, with different styles

and purposes, whilst at different phases of the archaeological process (Copplestone *forthcoming*). These jamming sessions took place in a condensed amount of time, where the aim was to think through the games and critically assess the process, rather than necessarily to produce highly polished outcomes. I also ran a number of game jams with archaeologists, game designers, heritage professionals, artists, and narrative designers to investigate how their practices might change and challenge the normative methods for collecting and constructing data and narratives about the past (Copplestone & Perry 2016). Throughout this process, I recorded the creative sessions, conducted interviews with the participants, and kept a developer diary to pick apart how creating through this form might work for the archaeological discipline, and what shifts in theoretical and methodological practice might occur as a result of crafting through it.

Early on in the development process it became obvious how difficult thinking in terms of player interaction can be when you are not used to working in this way. During the first development session, a collaborator from the video game industry would continuously delete everything that I had planned and written whilst muttering "create the system to show the player, don't tell them" (Luke Botham, Game Designer, from development diary 3, *quoted in* Copplestone *forthcoming*). The first few games that were made were, frankly speaking, disasters. I was not used to thinking about the past or my archaeological practice in this way. I was discovering, for myself, how difficult it is to mediate a system from the static records which are in surplus supply. Slowly but surely, the more games I designed and developed the greater my comprehension of the past *as agency* and *as a system* came to be. Creating through the video game medium thus put a critical spotlight on how and why decisions were happening in the archaeological process and, through codifying them, created a space in which others could corroborate or challenge this system (Copplestone *forthcoming*). Reflexivity and critical consideration of archaeological elements came to be cornerstones of my time developing video games.

Working with game designers and developers also provided a possibility space for us to explore how and why each other's disciplines worked in particular ways. As mentioned previously, one of the key issues in communications between academics involved in the past and video game creators is that the basis for understanding each other was laid on precarious foundations (Copplestone 2014). By creating together, we found ourselves constantly pushing up against the boundaries of our disciplines. Through critical consideration of these boundaries, we were able to challenge our conceptions of the past and work towards a position of more cohesive understanding. This way of working made explicit how media, method, and theory interacted and what our position as creators or academics was within this system. To this end, creating collaboratively was not so much about reaching a middle ground between our disciplines, but using the differing approaches to critically reflect on our own understandings.

Another key finding from these creative sessions was that different programming languages, engines, styles, genres, and narrative structures produced distinctly different possibility spaces to those which we traditionally engage with. For example, Inform7 crafts stories through natural language coding whilst Unity

games can be made with an object-oriented language called C#. Whilst at a deep level all programming languages achieve more or less the same thing (directing how the computer should handle input to create output), at the level of creation these languages have specific ways of structuring information systems. Thus, creating a game through a particular language requires thinking through how that coding language operates. As I worked with this code it became apparent that many of the digital tools I had previously leveraged in my pursuit of the past had these coding structures beneath them, yet I had rarely engaged with what they are doing or how they are doing it – I had never thought through the code or the system, only engaged with it as a tool to create an outcome.

To this end, working through coding in the video game medium made me critically aware of *how* archaeology is being structured and operated at a deeper level. Engaging with the past 'under the hood' in this way highlighted how many of the current 'best practice' guides to paradata or visualization procedures (e.g. Denard 2009) omit structural or framework-based documentation that is fundamental to how video games and archaeology can interact. The process of generating the coded mechanics and world frameworks for interaction fall decidedly outside of the current canon of visual representation or virtual reality frameworks which tend to focus on what tools are used to produce results, rather than how the tools themselves impact what *can* be made and *why*. Much of the discussion within the archaeological and heritage disciplines has centred around the standardization of practice and the resulting data and narratives, yet, based on my experiences, I would argue that creating and using video games seems to require a significantly different set of ethical and procedural best-practice operations that focus on the deep structures and how these influence the higher level interactions and indeed, more broadly, our archaeological thought.

Shifting gear now; one of the game jams that I ran during an excavation season included creating games as we were carrying out our archaeological excavations (see Figure 5.2). Whilst the actual outcome of the game was not hugely successful, the process of designing a video game in the field refocused attention to areas and processes in the archaeological excavations and interpretations which were not initially at the forefront of our minds. The act of engaging with this process led one of the participants to state that "it made me think in an entirely different way" (Anonymous, development recording 48, *quoted in* Copplestone *forthcoming*). By creating at the edge of the trowel – as excavations were occurring, rather than after the fact – we were able to construct, capture, and test these systems as the evidence was emerging. Thus it created a reflexive relationship between the archaeological record itself and the way in which we were interpreting and formalizing it through the media forms we were using. This finding nicely qualifies what Bogost has expounded, that creating and playing "video games is a kind of literacy. Not the literacy that helps us read books or write term papers, but the kind of literacy that helps us make or critique the systems we live in" (2010: 121). Creating video games means engaging with archaeology not only as an art, a craft, and a science, but as design as well. It means being critical about how we construct knowledge and conduct interpretive practices through media and narrative structures. When we *create* and *play* video games we explore the possibility space its rules afford

Figure 5.2: Game Jam at Çatalhöyük: exploring how creating the past through video games offers novel approaches (photo by: Dena Tasse-Winter).

by creating or manipulating the symbolic systems that the media form provides, rather than directly writing them (Ibid.). Creating through games can be a different platform for thought, engagement, and understanding.

Another key finding from my game design practice was how crafting through different narrative structures afforded different outcomes and perspectives on the past. For example, *Buried* (2014) – a game I made in collaboration with Luke Botham – is a multilinear, options based narrative game that explores multiplicity in the archaeological record as relating to burial. The game is based around a branching multilinear narrative and as such, has a total of 17 unique structured endings, 50 computational variables and 20 additional user set parameters which alter how the narrative is structured and portrayed for any given iteration. The game is made up of 157,172 words in total, but due to the multilinear structure and digitally generative aspect of the text any given playthrough will result in anywhere between 1,000 and 10,000 words being displayed to the player. The pathway and text is determined by how the player decides to navigate the narrative, how detailed they wish to get, what elements they choose to focus on, and how much they contribute to generating or changing variables within the wider multilinear structure. Whilst it would be possible to *tell* the outcome of any one of these narrative lines on its own, the use of a multilinear structure shifts the focus to how and why these things happen, making the decision points, player agency, and multiplicity of impact the point of the narrative as well as its mode of deployment. The experience of creating *Buried* meant thinking through decision points, relationships, and the consequences of outcomes, rather than just the outcomes themselves.

By contrast, *Fragments* (2016) – a 3D puzzle game – was created with an emergent narrative system as a way to examine how different pieces of fragmentary evidence could be combined, examined, and explained archaeologically, individually as well as in relationship to each other, and how these views can shift depending on what evidence is found, selected, or focused upon. This is to say that the game is designed in such a way as to record the inputs and interactions of the player and generate a dynamic story based upon how this is occurring. These narratives, alongside how they come to be formed, are recorded within the system, building up a network of interpretations for the assemblage over time which can be explored together or in isolation. The narrative which emerges from play is confined by the game-system, but is dependent on the process and agency of the player. In this instance, the narrative structure, which is specific to the video game media form, reflected the processes which we often carry out within our lived archaeological practices but rarely make it into how we write up the findings. To this end, the process, relationships, multivocality, and entangling of entities becomes the point of the game, delivered through the active agency of play. The act of creating this game entailed thinking through world operations, or how things work and what they mean, and creating code which facilitated this. The outcome itself has some potential (even in its highly prototype phase) for collecting data in a different way, a way which is focused on the systems, interactions, and explicit multivocality of the past.

The experience of creating *Fragments* highlighted the potential of procedural rhetoric to challenge or shape archaeological theory and method. Post-processual approaches have sought to involve ideas of multilinearity, reflexivity, and agency, yet many of the media forms traditionally used have not natively facilitated these entities, requiring remediation to explain rather than action them. Likewise, many of the processual approaches have sought to use systems based approaches to explain and evaluate the past, yet many of these systems have been critiqued for being closed, deterministic, and rigid. Creating, processing, and communicating through the video game media form means taking a distinctly systems based approach whilst, due to the necessity of player agency, allows for multivocality, multilinearity, and reflexivity at the point of play. Creating video games likewise adds a design and creative aspect to computing, allowing the creator to take a reflexive role. To this end, the video game media form may present a potential space for novel theoretical and methodological approaches, approaches which leverage both agency and systems as a way to explore and communicate the past outside of traditional limitations.

Moving Forward

My experiments in creating games have in part affirmed what Perry has argued, that "to truly understand a type of practice – to truly see – we have to DO; we have to both look and act; we have to observe and participate because one is conditional on the other" (2015). Whilst the research conducted at the game studios demonstrated a difference in perception embedded in the media form, the act of creating through it demonstrated that designing and developing games can be a valuable way for critically engaging with the past through a different

lens. These findings indicated that the media form may have significant potential to allow theoretical and methodological discussions about the past into a new possibility space. As such, video games have the potential to not just be viewed as a tool or an entertainment medium to be tacked on after all the research has been done, but as a part of the process itself, a part that facilitates different ways to think about and process the archaeological past from the trowels' edge through to final publication.

There are, however, some issues in game development and design as a method or theory for examining the past. Creating games – physically realizing them as products – requires a familiarity with coding, art, audio, and design principles. Whilst it is possible to create games using templates and reskinning them, such a practice runs into the issues of a tool-oriented approach. In other words, although creating in this way has certain merits, it does little to unpick or critique the deep systems and operations that are explored through design and development itself.

Game development takes time to learn and implement, and my own experiences indicate that physically sitting and creating the game itself at the edge of the trowel has more than a few hurdles (computers, power, dirt, and time being difficult entities in remote excavations; Copplestone 2016). Perhaps more accessible is designing the games (as opposed to physically making them) – thinking through the systems, narrative structures, and interactions that will shape the game as we work in the trench, process the finds in the lab, and develop our communication strategies. However, it should be noted that a familiarity and willingness to experiment with coding, audio, and art help to inform this process immensely, while the experience of making in the field offers particular pathways for thought (Copplestone 2016).

Whilst physically creating is an important part of testing the boundaries, I also recognize that coding, art, audio design, and interaction design are specialized skills that require significant investment to learn. To this end, perhaps the argument that is to be made here is not so much that learning how to code or create video games is necessary to engaging with the past in this way, but rather that being critically reflexive of the media forms we use – how they operate and shape our perspectives – creates a potential space that affords us this opportunity. This is not to diminish the value in learning these skills, or the integral role they play in understanding the video game medium or the potential design space which these structures afford.

In line with this finding, my final diary entry from working on design and development practices in the field reads: "I believe that making games could provide reflexive periods that disrupt the normative approaches to practice, production, and presentation. By thinking through different constraints the normative elements are made evident, and new methods are brought to the fore" (diary excerpt #139, Copplestone *forthcoming*). This diary excerpt captures my experience in how video games might be able to act as a critical aspect of our discourse rather than just an outcome in their own right. The act of creating through the video game media form provides a potential space which can, if effectively leveraged, disrupt the normative practices and creates a space in which the participants get to think in a different way, producing outcomes and ideas that otherwise would be an uneasy fit with traditional mediums. The value is thus not necessarily in the outcomes alone, but in the process that goes into designing and making them.

Conclusions

Video games include textual, visual, auditory, and procedural elements. Some games will make explicit statements or experiences in a similar way to those that can be found in preceding media forms, but above this, they can use the procedurality of the digital medium to make claims about the world which are examined through play. This marks a significant shift. Video games have, like any media form, the ability to make claims about the archaeological world, but the use of procedural rhetoric "affords a new and promising way to make claims about *how things work*" (Bogost 2010: 125) that can "expose and explain the hidden ways of thinking that often drive social, political, or cultural behaviour" (Ibid.: 128) in a way which makes exploring and playing with ideology the *point* of the rhetoric, rather than a product of it.

Archaeology will almost certainly continue to require the well-established content formats and codified structures which have developed for the journal article, grey-literature report, and monograph – as well as photography, posters, speech, site drawings, artistic impressions, and more – as primary forms of archaeological communication. But we also need to seriously consider how these forms facilitate or limit our ability to engage with archaeology, and in turn, consider the unique provisions which the video game form offers as a way to challenge these structures. This allows us to create novel ways to think, not only about the archaeological data itself, but about the way our media form structures impact and influence how we perceive and communicate it (Hodder 2000).

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Video Games as Archaeological Sites

Treating digital entertainment as built environments

Andrew Reinhard

Introduction

A video game is a built environment, something made by people for other people to use – and in some cases 'inhabit' if the game is really, really good. A video game is also an archaeological site. This chapter seeks to explore this idea in detail, treating it as less of an analogy and more as a way of applying archaeological methods and interpretation to digital interactive media/entertainment. In 2007, when I first began to think about games archaeologically as a *World of Warcraft* (Blizzard Entertainment 2004) player who happened to be an archaeologist, I was distracted by the art and architecture that the developers had put in the game. There were sites in the game: runes and ruins, ready-made material culture, and ancient artefacts to find. It was not until after I stopped playing *WoW* in 2012 that I began to perceive the game, all of its content, and its community of players as being ripe for 'real' archaeological study. I began to think about video games as being actual archaeological sites.

When I started the *Archaeogaming.com* blog and *@archaeogaming* Twitter account in 2013, I had little idea of the depth of what archaeogaming quickly would become. For some video game archaeologists, their interests lie in how archaeology and archaeologists are portrayed in games by developers. For others, video game ethics for interacting with other players, as well as with in-game cultures, is of primary importance. For me, I became largely curious about the duality of video games: they are both artefacts and sites. It's perhaps clear to see how a video game can be an artefact; one needs only to recall the 2014 excavation of the so-called Atari Burial Ground in Alamogordo, New Mexico, where 1,300 Atari cartridges from the early 1980s were removed from a landfill containing an assemblage of over 800,000 games (Reinhard 2015). Understanding video games as sites is a bit more complicated. My preliminary thoughts on the subject are presented here for the first time.

The Archaeological Record and Sites

In order to better understand how video games can be interpreted as archaeological sites, we need to first learn what defines a site in the real world. In the real world (aka 'meatspace') an archaeological site is a place in which evidence of past activity is preserved, which may be investigated using the methods of archaeology, and which represents part of the archaeological record (the body of physical evidence about the past).

When dealing with sites, one first has to understand the more general concept of the archaeological record, which can generally be defined as "the entirety of past cultural materials that have survived into the present day, but which are no longer actively engaged in a living behavioural system" (LaMotta 2012: 70). The archaeological record is formed over time and can change based on human (or another agents') interaction with the material in the record.[1]

Vince LaMotta outlines four basic ways in which the archaeological record can become inscribed by traces of a particular activity: 1) conjoined elements of an activity are abandoned; 2) conjoined elements could be removed from one place and entered into the archaeological record someplace else; 3) waste, by-products, and breakage; 4) modifications (Ibid.: 75-79). Several conjoined elements compose an archaeological assemblage, which can either comprise all or part of a site. The archaeological record is written when the site is abandoned, moved from one place to the next, destroyed, or changed in some way, caused by any number of internal and external factors. The causal factors are mechanical/natural changes wrought upon materials that ultimately provide us with recoverable residues (i.e. artefacts), leaving archaeologists with these artefacts to explain why people once acted to create different material realities (Barrett 2012: 146). The things we make are made for a reason, and are also changed for a reason (although those reasons can be difficult to identify; we cannot know for sure what was in the minds of makers and users).

LaMotta's definition of the archaeological record is a limited one, however, because it does not account for the fluidity of time or of potential identification and uses of archaeological sites by contemporary archaeologists. Cornelius Holtorf's more liberal interpretation acknowledges that the meanings of archaeological sites and artefacts always change and cannot be fixed to a particular locus in time or space. Archaeological sites mean very different things to different people, and these meanings are equally important (Holtorf 2005). These meanings also include those emerging from the sociocultural and political baggage of the archaeologist conducting research, or of the many voices (multivocality) of the site's occupants past and present, something Ian Hodder defines as "reflexive methodology" (2005).

This anti-prescriptivist approach allows us to treat the recent past and even the present as archaeological: that the past and present constantly commingle, voiced by thousands of people from the past and present. The library I use now was built 20 years ago, and while its primary function has remained unchanged

1 There are several ways of thinking about what makes a site a site, and archaeological theory continues to evolve. For the purposes of this chapter and this modern material, I have chosen to follow LaMotta's definitions, which appear in the 2012 edition of *Archaeological Theory Today*, edited by Ian Hodder. This book, as well as Matthew Johnson's *Archaeological Theory: An Introduction* (2010), are excellent overviews of archaeological theory.

(to provide free access to people to use its resources), the resources have changed – internet access, borrowing digital media, an entire section dedicated to manga. The space is older, but is also revitalized. The same can be said of video games as they are patched and modified (modded) over time to meet the needs of both old and new audiences. Archaeologists should be able to recognize and describe the modes of existence of various objects and account for the numerous connections that flow out of these streams of experience, investigating the making of objects in contemporary societies (Yaneva 2013: 131).

Video Games as Archaeological Sites

When we deal with the digital, the conceptual approaches and concerns involved are the same as when dealing with real-world sites. Everything tends towards a state of entropy, which is why the archaeological record is both incomplete and difficult to define. While natural/mechanical processes constantly work to erase/change the archaeological past, similar processes occur within digital media, which are by their nature degenerative, forgetful, and erasable (Chun 2011: 192). Digital media are stored (or have storage), not unlike the Earth (planet-sized storage). Archaeological data are locked in structures and in assemblages both underground and above ground, just as digital data are stored. In both cases, data are gradually lost, the methods of storage imperfect. But there is also memory (an intangible archaeology), something to be interpreted when the real or virtual site is explored. Storage is finite; memory is boundless (Ibid.: 195). There is no difference between the archaeology of the digital and the non-digital. The concepts of formation processes of the archaeological record and the methodological approaches to them are the same. Sites, like artefacts, have a history of use that continues from their origin into the present day. Sites are never not used, although they may exist in stasis until (re-)discovery.

The above definitions of what makes up an archaeological site – which is part of the archaeological record and is affected by formation processes – apply to video games. I propose the following points in an attempt to further define and defend the concept of video games as archaeological sites:

1. A video game is a discrete entity where its place can be defined as the space in which the game is installed (not necessarily its installation media). The past activity is the coding that created the game. Its elements can be directly observed and manipulated, part of the record of the game.

2. Video game installation media (e.g. a tape, cartridge, or disk) are not only artefacts, but also archaeological sites. Just as with real-world sites, installation media are bounded within the confines of the physical space containing smaller entities that comprise the media, adding a level of cohesiveness to all of the digital parts that make up the overarching game. These directories, files, structures/hierarchies are all themselves discrete entities, but combine to create a unified whole, just as a site is defined by its boundaries and the sum of its parts. The game media were created by one or more people for others to inhabit, creating a culture around those players who choose to inhabit the space of the game (e.g. the community of players in the original *MUD* in 1978). The

Figure 6.1: A portable archaeological site (photo by: Andrew Reinhard).

game media become part of the archaeological record upon production and leave behind evidence in the form of material remains, as well as a documented history of occupation by both developers and players.

3. The game-as-played, which is accessed via installed digital media, is also an archaeological site. The game-as-played is its own world in which one or more players interact, and which contains its own digital artefacts, either created via errors in code, or created as artificial constructs to be perceived by players as actual representations of real-world things that can be manipulated in game-space. Past activity includes, at the extra-game level, updates, patches, bug-fixes, mods, and expansions. At the in-game level, past activity includes the actions of one or more avatars and their effects on the game-space, whether it be moving in-game items from one place to another, or the destruction or construction of something semi-permanent in the virtual world.

Archaeologists can explore these game-sites on the surface (analysing the game media), from within (via file systems and structures), and through play (by interacting with the game-space as created by the developers). The games preserve evidence of past activity, from production to use to disposal, from installation to use to deletion, from beginning to gameplay to the final boss. The amount and nature of preserved evidence varies from game to game, as it does with real-world sites. Sometimes what remains is data-rich, and other times one is left with only a trace of fleeting occupation.

Locating the Virtual Site

With virtual spaces, there are a number of ways to document the locations of archaeological sites on both levels: the in-game and the extra-game. In-game, some games contain their own location systems (e.g. *Tomb Raider: Definitive Edition*, Crystal Dynamics 2014) where players can record X-Y coordinates on a Cartesian grid. With games featuring maps, depending on the hardware used to play the game, one can take a screenshot and then apply a regular grid over the top of it as a layer using image software (e.g. Photoshop). Other map-less games, still allow for the assignment of in-game locations via textual descriptors (e.g. level name and a description of the player's surroundings), which lacks pinpoint exactness, reading more like an explorer's journal entry. The usefulness of these qualitative notes becomes less clear when dealing with games comprised of vast regions to explore. But if Heinrich Schliemann could find the ancient city of Troy by way of reading the *Iliad*, then perhaps there is hope that an intrepid player could do the same based on observation, reading literature provided in-game and online, and a little luck.

Considering the loci of the physical sites of the games themselves (the extra-game), this could be an IP address of a game server, server farm, or local client hardware. These boxes or arrays occupy physical space, and could be considered as 'meta sites:' the plastic-and-metal wrappers containing the game-site. Games might also be located by knowing the whereabouts of the development computer(s), or possibly the master media onto which the game's design was saved. With these game-sites comes a stratigraphy of build numbers and versions, sometimes stacking on top of each other, other times replacing the code that came before, not unlike the levels of the ancient city of Troy, or the use of *spolia* to create new monuments and cities from the old.[2]

Games as Artefacts

The physical game-artefact as it existed in the past – and still does, but to a lesser extent with direct downloads taking over the market (Chalk 2014) – was created by at least one person, with the help of machines. This resulted in a distributed thing, that contains within its production a history of creation, possible inscription, and has a find spot (or more than one find spot as its biography grows). The artefact of the game provides the heart of the game-space, as well as metadata, its developer-created information, a mobile inscription, and a container of text-and-image. The cartridge or disk is a vessel with the wine, the stone upon which the writing was carved containing the deeper meaning born of words and syntax. It is the physical manifestation of code wrapped in layers of instructions that created the portable package, a world in itself containing a world within. Of those games that exist independent of physical media, accessible only through hardware connected to a network or to the internet, these are digital artefacts lacking in materiality, yet behaving in the same way as their physical counterparts: the copy of *Uncharted 4* (Naughty Dog 2016) I downloaded plays exactly the same as the copy purchased at a brick-and-mortar retailer.

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2 Ancient monuments and other buildings made use of *spolia,* taking stone from older buildings and incorporating them into new ones. For example, Rome's Arch of Constantine (AD 315) contained reliefs from second century buildings.

Defining the Virtual Site

The final question to consider is "when can we call what we are looking at a site?" In the real world, the archaeologist can determine the boundaries of a site through investigation of the material remains, whether a fixed border of a wall, for example, or the petering out of a distribution of flakes left behind from tool-production. The archaeological record gradually transitions from site-to-other, like the layers of the atmosphere transitioning from the Earth to space. As archaeological sites are composed of the remains of human occupation, the archaeologist must consider those things left behind to create a provisional history of the site, or at the very least a definition of the site itself.

When dealing with digital media, archaeologists such as Gabe Moshenska (2014) and Sara Perry & Colleen Morgan (2015) have explored USB sticks and hard drives as archaeological sites. These containers hold a file structure composed of directories, subdirectories, and files, that when taken separately are themselves artefacts. Taken together, they compose an archaeological site.

Games are no different. For older PC games, one could browse to the installation directory and gradually tease out the files and contents of those files that when used together generated the game-space on-screen. As installation media have grown in sophistication, those files and their contents have become obfuscated, but all of the elements used to create the game for the player remain. These games are sites composed of artefacts working together, an electrified society of automatons.

In traditional archaeology, one cannot pick up a site and move it. For the game-archaeologist, all sites are portable, as are the artefacts they contain. Both have multiple moving parts that all contribute to the meaning of the site they comprise. The artefacts form a network created by culture. In the case of a video game's history, its creation originates from pop culture, industry trends, and the design spec (Therrien 2012: 21). The game-site is constructed, then reconstructed, always in a state of modification. The networked pieces contribute to an emergence of a broader meaning, and the creation of an interactive environment. As with any archaeological site, real or virtual, the site is a system, a network, that the archaeologist can attempt to break down into its constituent interacting agents, from whose behaviours and interactions various systems-level properties may emerge (Kohler 2012: 108). This is the definition of agent based modelling. Pieces of the whole work together to create an interactive environment, be it the city of Athens or a digital simulation of it.

Conclusion

An archaeological site communicates many things and can be used in several different ways at once. Holtorf describes the uses and appeals of archaeological sites as having: monumentality (big/visible = important); factual detail (conformity with educational values); commerce (commercial exploitation of sites); social order (reception that mirrors the present); identities (personal relation to the past); aesthetics (romance and scenery of ruins); reflection; aura; nostalgia; ideology; adventures; magical places; and progress (Holtorf 2005: 92-111). Take a game such as *Assassin's Creed Unity* (Ubisoft Montréal 2014) as a site, and you will find that all of the above uses apply equally to the virtual as they do to the real. In the

case of open worlds – games that allow for free movement/play – video games behave even more like their real-world counterparts. In *Eve Online* (CCP Games 2003) there are no developer-ordained goals or a traditional endgame. Instead, players band together to create their own goals, annex their own little corner of the universe, form alliances, foster animosities with other groups, and create their own in-game lore (Stanton 2015: 298-301). There is no difference between the archaeological understanding of a real-world place and a video game. These sites are formed in the same way, grow and change through mechanical, natural, and human intervention. They also contain the same data, which lends itself to the same questions archaeologists have asked for over a century.

Perhaps most simply put, as stated in this chapter's title, is that video games are built environments (which can also be classed as archaeological sites). Archaeologists understand built environments to be constructed by people for people, creating a manufactured space for everyday living, working, and recreation. For many people (including myself), that includes video games – digital built environments – especially in the case of MMOs and open worlds. I give these digital spaces hundreds, sometimes thousands, of hours of my time, spend my real-world money to inhabit these environments, and build my own social networks within them (e.g. my Carpe Praedam guild in *World of Warcraft*).[3] Some people even make a real-world living through their in-game interactions and activities (professional community managers and professional e-sports players come immediately to mind). These games have become the sites for a new archaeology, one that embraces the real and the virtual.

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3 See Ducheneaut *et al.* (2007) for a thorough breakdown of guilds in *World of Warcraft*.

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Single White Looter

Have whip, will travel

Erik Malcolm Champion

Introduction

This paper focuses on how generic game-based interaction could help improve the design of video games for archaeological (and heritage) purposes. I will address three questions:

1. Can we use genres to classify, evaluate, and predict the impact and success of games in archaeological research?
2. If the answer to the first question is not clear, are there common elements or features in computer games that would help us understand the difficulty of developing games for archaeology?
3. Given our understanding of these common game elements or features, could a refined theory of game mechanics help computer games convey archaeological method and archaeological interpretations?

Game Definitions and Classifications

There are many definitions of games. Games, and computer games in particular, are considered by many writers to be rule-based systems (Salen & Zimmerman 2004). Saying that games are rule-based systems is not particularly revealing because many other software applications are also rule-based systems; surely games are more than just systems? What games typically have that other virtual environments do not, is a relation to a cultural genre or a cultural setting, they are engaging, and they are challenging, they involve risks and rewards, and the selection of different strategies to solve immediate and long-term goals framed within a setting that evokes rather than defines the imagination.

Yet having direct and extensive expertise with different types of games does not necessarily mean one can better analyse or create new types of games. Zagal and Bruckman noted of their students that:

> *"In many ways, being expert videogame players interferes with their abilities to step back from their role as 'gamers' or 'fans' and reason critically and analytically about the games they are studying or designing. As Diane describes, 'it's hard for them to break out of being a fan. It's even that much harder to take an objective step back, because they just have so much fun playing games'"* (Zagal & Bruckman 2008).

My own PhD evaluations from 2003 uncovered a similar issue – I found that given game genres are both a blessing and a curse. When told a virtual environment is a game, participants of all ages and both genders seemed much more at ease and aware of potential affordances. However, they tended to look for interaction and personalization while disregarding the actual content, and they conflated fact, conjecture, and fiction. When told those same virtual environments were digital archaeological simulations, the participants were much more careful and circumspect but more navigationally confused and unclear as to what they were expected to interact with and even how to interact.

Game ontologies pose their own problems: they either continually change their definitions and classification systems to fit as many examples as possible, or they try to cram different types of games into a rigid classification system (Dahlskog *et al.* 2009). Few ontologies (Marsh 2011; Susi *et al.* 2007) cater to serious games; they certainly do not focus on archaeology games.

Classification systems are alluring but dangerous. When we assess the impact and potential of video games for archaeological research we could classify them in a myriad of ways, for example: via their subject matter, platforms, genres, learning outcomes, or interaction methods. Many games also share features, elements, and components. For example, we could simply separate game genres in terms of whether they involve the participant being socially embedded or physically embodied. The games that tend to emphasize physical embodiment are typically combat and racing games. An avatar represents the player, there are dynamic environmental elements (hostile or beneficial), and metaphorical mortality or health points. Collision typically results in acoustic feedback and/or surface erosion or deformation. Feedback tends be by loss of points, or the signalling of the end state, the end of the game or game level. These games tend to improve hand-eye co-ordination, however they do not give players time to think, they deliberately cognitively restrict the players so they focus on the immediate and the visceral.

Other games are more social, they require a sense of playing with other players or scripted agents. Typical tasks may include being set roles, procedures, or levels of ability to complete tasks. But games that incorporate social embeddedness (often referred to in Presence Research as social agency), also includes racing games, strategy games, *Civilization*-type world building games, interrogation or text-guessing games, and riddles. Competition or collaboration arising from the apparent or actual presence of others can be found in many game genres.

The design elements of games, and the design affordances which they borrow from imaginings of other media, do not always smoothly relate to the desired player experience or to optimal gameplay. Nor do their features necessarily distinguish them from each other; there are so many genres, parodies, and games blending

different genres and game elements that classification by genre becomes a lesson in taxonomic masochism.

Common Elements of Games

One thing common to all games, real or computer-based, is that they are challenging. Most computer games feature increasing complexity, number of puzzles, or situations to overcome (Malone 1980). They have tasks, affordances, and constraints. The mix of affordances, constraints, and different levels is designed to be challenging in the sense of 'hard fun.' It has to be difficult enough to be intriguing, but not too difficult to make the user give up in frustration, and hopefully it can be solved by different strategies, so players are not bored when replaying the game.

Sometimes winning, lucky guesses, random events, or appropriate strategy selection increase equipment or status, sometimes more of the environment is uncovered. As an easy way of increasing the sense of challenge, games are also often time-based. As challenges, games can develop pattern matching and puzzle solving skills, predictive thinking and bluffing.

Rewards are also a universal feature of games – they may be internal (game feedback), or external (awards and status conferred by other members of the gaming community). In addition, as one progresses there can be an increasing richness and variety of rewards, new weapons, changes in levels, and revealed secrets. In many games knowledge is unfolded over time and in relation to gameplay, directly related to the increasing success of the player. Increasing the level of difficulty and matching it to the increasing skill, confidence, and knowledge of different players with different learning preferences is not trivial.

Malone also stated that fantasy is a common feature of games (1980). Fantasy can indicate what is to be expected in the game, the type of character and their motivations and goals will be relevant, as well as their aptitude for certain skills and techniques. Fantasy encourages motivation and imagination; it provides an allegorical overview without restricting the player to specific details.

Malone's concept of fantasy was closer to general imagination than to the popular culture notion of swords and sorcery fantasy, but the latter is popular in games because it offers explicit but schematic examples of what the player might be expected to do as a situated character in a game-world with the minimum of backstory. To borrow the almost clichéd fantasy of Tolkien-inspired games, when provided with details of Orc, Dwarf, or Elf we immediately have some idea of their physical characteristics, location, motivation, interests, and capabilities, but explicit details are dependent on the player's actions. This can be a double-edged sword for archaeology-themed games: fantasy explains both the lure *and* the danger of computer games. In the words of Katy Meyers:

> *"Distant lands, searching for lost treasures, the threat of competing looters and foreign governments, the possibilities of cursed tombs, with only the lone archaeologist to right the wrongs and triumph* […] *But this is a far cry from reality, where the only epic battles of archaeology are between the professors and*

> *the funding agencies, and the quest for relics is a long, slow, well researched one. Real archaeology involves working closely with the cultures under investigation, collaborating across nations, and detailed planning"* (Meyers 2011).

Archaeology professors admit their archaeology students:

> *"Got their initial interest in archaeology from Indiana Jones* […] *'Most of us do archaeology because we love the opportunity to explore, to discover, to search for clues,' said Awe, 'It's like having a big sandbox. Like Indiana Jones, we keep being kids at heart.'* […] *Jaime Awe, director of the Institute of Archaeology in Belize, is a big fan of the 'Indiana Jones' movies but shows them to students as 'examples of what not to do'"* (Germain 2008).

Many years ago I called this the 'Indiana Jones Dilemma:' the movies made archaeology appear cool and entertaining, but not only is the depiction misleading and wildly, if imaginatively, inaccurate, but tomb-raiding, general looting, and wanton heritage destruction while kicking butt is *not* considered good archaeological practice (Champion 2004: 54).

Even the Archaeological Institute of America (AIA) has tried to ride this dangerous wave of popular media, likening preservation of pueblo houses with *Indiana Jones* film releases:

> *"Visitors to the National Monument can experience the wonder of seeing archaeological sites first hand, much as viewers of Harrison Ford's Indiana Jones movies experience the excitement of exploring lost civilizations"* (Archaeological Institute of America 2008).

There is an obvious potential conflict here between the objectives of archaeology (as a science and as a bastion of preservation), and heritage studies as a communication medium. There is an even more fundamental issue: do archaeology and video gaming mix? Could they work together fruitfully?

My issue with computer games as a medium for communicating heritage is that computer games are seldom hermeneutic *inside the game itself*. They do not offer a world of interpretative possibilities, or the ability to customize the world with the player's intentions and identity. Unlike games and game situations in real life, where playing may be changed due to in-game events, or are player-referential (refers to past players), this aspect is usually faked in computer games. Instructions are most often delivered via a narrator or book during the introduction, they cannot be added to, layered, or otherwise modified, as social interactions seldom directly influence or are incorporated into the design of computer games in the same way as audience and designer affect and influence each other in the real world.

While we may talk to other players about our interpretations of what happens inside these games, this dialogue is seldom possible *inside the game, nor do the social interactions between players immediately and permanently affect the rules and overall system of the game.* The digital simulation of place is a particularly interesting concept, but the setting of a game is typically more a prop or a stage than a place of

cultural significance. I suspect that a lack of hermeneutical layering is not an issue for action-based games, but it does raise potential limitations when we are trying to convey historically layered and contested interpretation rather than action-related instruction. How do we layer interpretations without restricting agency or curtailing engagement?

This issue brings us back to the issue of classification. To get around the issue of frozen typologies for virtual worlds, in previous writings (Champion 2011; Champion & Dave 2002) I suggested that virtual environments could be usefully classified in terms of their purpose: visualization, activity-based (such as games), or hermeneutic. I'd like to amend this simple classification. Initially I thought there were two subcategories of hermeneutic virtual environments, those that reveal things about ourselves to ourselves and those that reveal the intentions and beliefs of others (past or present) to us. For archaeological and heritage purposes, I suggest we need a further subcategory, there are activity-based virtual environments (computer games) that attempt to reveal the culturally specific ways in which people created, modified and experienced past environments.

Games can have far more impact than activity-based simulations. Not only are they *engagingly* goal-based and require game mechanics that help track and direct the advancement of the player towards the intended goal, but they also thematically reward or punish the player in relation to that goal. The question here, though, is how can mechanics best leverage the advantage of games for archaeology? My answer depends in part on the question of what mechanics actually means, and it seems to mean quite different things to different people.

Mechanics

Mechanics have many different definitions but Miguel Sicart offered a clear description: "a game mechanic, then, is the action invoked by an agent to interact with the game world, as constrained by the game rules" (2008). What is missing here is a clear explanation as to who identifies the game mechanics, the player or the designer? Game rules as designed are not necessarily the same as the user's understanding of their actions!

The *Mechanics, Dynamics & Aesthetics* framework (Hunicke *et al.* 2004) also attempted to create a clear and systematic definition. In this theory, mechanics are the agents, objects, elements, and their relationships in the game. They define the game as a rule-based system, specifying what there is, how everything behaves, and how the player can interact with the game world. *Dynamics* are considered to be the emergent behaviour that arises from gameplay, when the *mechanics* are put into use. *Aesthetics* are the emotional response from the players to the gameplay.

I suspect the MDA framework conflates too many different components into three overly simple concepts, and it does not address why people are motivated to play games, or even play different types of games. A more interesting direction for designers, following Malone and Lepper (1987) are four individual motivating factors: *challenge*, *curiosity*, *control*, and *fantasy*. These can be considered to be motivators for mechanics, the motivators that mechanics try to leverage, the reasons people are stimulated to play games, and are similar to the description of computer game features described by Malone (1980).

Mechanics can be viewed in two ways: the underlying system-based mechanics that changes states in the game logic, or mechanics that describe the player's experience from the player's point of view. So another way of looking at how mechanics is used as a term, is to see how it is understood by fans. On forums mechanics are viewed as tools, techniques, or widgets (Anonymous n.d.), as being akin to "constructs of rules" (Wikipedia Contributors 2016), or as fixed rules that players "are required to possess" (Nelson 2015). Game designers can view them as rules but they may also view them as "a major chunk of game play" (Stout 2010). Yet another definition says mechanics are the "methods by which the game moves forward, and these methods are the mechanics of the game" (Pulsipher 2014). A variant of this concept is to view mechanics as those decisions that help the player "level up" (Allen 2014).

Given these many differing interpretations, can we define the 'game mechanic?' We can, of course, but not in a way that incorporates most definitions and understandings. Pulsipher wrote: "in other words it is not clear what a mechanic is and what isn't. This is compounded by the tendency to use categories instead of specifics when discussing a mechanic" (2012).

'Mechanics' not only means so many things to so many people, there also appear to be unclear divisions inside the term itself, such as between mechanics and core mechanics (Paras & Bizzocchi 2005). And there are gaps or even rifts between the definitions used by game designers, and the definitions understood by gamers. Gaming fans – in my opinion – can conflate game components with the mechanics themselves, such as the spawning of enemies or cut-scenes and camera angles (Silent-Hal 2009).

Mechanics for Archaeology Games

Even if we could share an agreed-upon definition of mechanics, what are easy-to-translate mechanics for archaeological methods, experiments, and investigations that we could transform into game mechanics to engage and educate the public? The wonderfully varied world of archaeology does not appear to have easy to translate metaphors for the site-based process of excavation and classification that we can quickly and directly transform into game mechanics to engage and educate the public with the methods and approaches of archaeology and heritage studies. For while archaeological practice has many procedures, routines, and techniques, we do not have many existing examples that show how archaeological practice incorporated into games would sufficiently engage the general public.

I still see great potential for game-based digital archaeology. Digital archaeology as immersive virtual environments *should* be interactive because data changes, technologies change, and interaction can provide for different types of learning preferences while drawing in the younger generations. Yet, interaction alone is not very useful: what is the point of clicking buttons if we do not know how the changes depict and reconfigure the narrative, interpretations, or other types of evidence?

Can we design a flexible, situated, effective, and engaging mix of archaeology and games by leveraging mechanics to teach archaeological methods, approaches, and interpretation? It might be possible if we could collate language-style

interaction patterns and common mechanics, drawn from a survey of computer games of direct relevance to archaeology. I know of a survey of social science-related games, but not of archaeology-related game mechanics – this is a great area for future researchers.

For the more scholarly type of archaeological knowledge, another option might be to investigate if John Unsworth's (2000) scholarly primitives (discovering, annotating, comparing, referring, sampling, illustrating, representing) could inspire a classification of mechanics suitable for archaeology games. Mechanics are not scholarly primitives, but an examination of scholarly primitives as they might apply to archaeological activities (Eiteljorg II 2007) could inspire game design where the mechanics are more solidly (or richly, or effectively) based on scholarly activities.

There are, of course, already pseudo-scholarly activities in computer games that give players options (I am thinking, in particular, of the Mage academy, the librarians and archivists in *The Elder Scrolls V: Skyrim*, Bethesda Game Studios 2011). In that series and other games there are detective-and-thief-like situations that may have some more direct relevance (such as deciphering clues and unlocking mysteries), but in general the games labelled as archaeological have typical action-based violence as core to the gameplay.

I propose we explore how to understand and communicate the values and aims of archaeology. We need to consider how its mechanics (methods and practices) and situations (content, rewards, and challenges) can be *thematically engaging* via game design. Pulsipher's (2009) theories on game design lead me to suggest that for archaeology games wishing to emphasize mechanics rather than merely affordance we need to determine:

1. The look of the game in terms of theme, history, story, emotion, and images (and sounds).
2. The scale, granularity, complexity, difficulty, and duration of the game.
3. The level of conflict, competition, and resolutions.
4. What determines failure or success?
5. How the player actually interacts (core gameplay), to which extent, and how that relates to how historical characters typically or unusually acted.
6. The order in which objects, situations, levels of knowledge, and difficulty are sequenced.
7. What does the game remember about the player, other players, or past situations and performances?
8. Inventory and itinerary: how the player tools, powers, and experiences are recorded or affect the game or other players.
9. Finally, is the game largely 'mechanical' or 'psychological'?

Steps 3 to 8 are related to the importance of mechanics. It is crucial for game design to understand how the system and not just appearance of a game works in practice (play). Step 9 shows an interesting dualism: is the game a group of steps, of linear cause and effect events, or does it also create a process of discovery and increasingly elevated insights for the player?

Experiential Mechanics

In determining whether a game is more mechanical or psychological, it occurred to me that here again there is a problem of language, for game mechanics can be system-related or psychology-related. Instead of psychology, we might more modestly talk of experience changes caused by mechanics. I distinguish here between *system mechanics* and *psychological mechanics* (which I prefer to term *experiential mechanics*, as psychological seems to indicate a higher and more cerebral level of mechanics than may be easily addressed by games). System mechanics merely advances the game states, while experiential mechanics aims to orchestrate the player's experiences.

Roger Caillois' *Forms of Play* (1961) may be of interest here. The *Forms of Play* are: *agon* (competition and strategy, motivating through competition against people and through strategy against risk and chance), *alea* (chance, the opportunity for handling unpredictability and encountering humour), *ilinx* (a sense of vertigo, challenging us in commitment, focus, and multi-tasking), and *mimicry* (mimesis, relying on observation, control, and roleplaying). Although they were not developed for computer games, I have found *Forms of Play* more useful for seeing what is underrepresented in computer games as *modes of experience*. The *Forms of Play* give us an idea of what makes these games both challenging (inviting but difficult) and engaging from the player's point of view. They describe the general core experience, but they do not narrowly restrict an understanding of what these games must be in terms of genre or construction.

Caillois' *Forms of Play* reveal gaps between real-world games and digital games. For example, even though a great deal of cultural learning in the real-world is via *mimicry*, this is not commonly available in digital games as we lack the rich and nuanced social feedback of other players through a digital interface and abstraction.

With the above four forms, or as I would prefer to describe them, *experiential modes* of gameplay, I would extend *ilinx* to include control over one's own mind and body (master of the player over themselves as an embodied object). This also brings Caillois' framework closer to the motivators *challenge*, *curiosity*, *control*, and *fantasy* that Malone and Lepper (1987) suggested.

I would be tempted to add a fifth mode, decision-making, but Caillois could well argue that decision-making (selecting between competing strategies) is an aspect of all the other experiential modes of gameplay. Regardless of how many modes or categories of thematic experiences we include or ignore, these modes of play are useful because they provide not only a simple way of classifying computer games, but they also reveal the key motivation and experience, rewards, risks, and challenges of these different types of games (see Table 7.1).

Caillois' *Forms of Play* do indeed seem to feature in most, if not all, non-digital games, and they give an idea of the general challenge and motivation (and perhaps even experience) of that form of play.

So how do these forms or experiential modes of play relate to mechanics? Just as the forms have a dual nature – they evoke both an idea of the motivating and game-hindering elements (the reward and the risk) – game mechanics are also often used twofold. For example, you may have noticed that in my above various definitions of mechanics, that there appeared to be a schism or sometimes conflation between

Challenge	Risk	Reward/Motivation	Experience
Agon (competition)	Humiliation, feeling of inferiority	Feeling of superiority	Adversity
Alea (chance)	Bad luck	Mastery over chance, acceptance of fate	Gambling, risk-taking
Ilinx (vertigo)	Feeling of helplessness, confusion, fear	Control over mental and physical reactions	Movement
Mimicry (mimesis)	Humiliation	Observation and improvisation skills, social perceptiveness	Empathy, social responsiveness

Table 7.1: An extrapolation of Roger Caillois' Forms of Play.

mechanics as levers to move along game states (mechanics to direct the game system) and mechanics to help advance the experiential progression of the game from the player's point of view.

To clarify, here is a very simple distinction between different types of game mechanics:

1. Game progression mechanics: mechanics to progress the player through the game (from the point of view of the designer or the player).
2. Performance mechanics or rewards and skills mastery mechanics: mechanics to encourage the player to improve and extend their range of skills and judgement.
3. Narrative mechanics: tools to progress and unfold or bring together one or more apparent story threads in relation to game play.
4. Behavioural mechanics and role assimilation mechanics: mechanics which become habit through repeated game play and accustom players to see things in certain ways.
5. Insight and reversal mechanics: mechanics that disrupt the in-game or real-world expectations and presumptions of the player acquired previously or during the game, in order to reveal to them a viewpoint they may take for granted, or to supplant the view created by gameplay but a view the designer wants them to suddenly be alienated from.

The last type of game mechanics is most interesting to me. Chris Baker described how: "Will Wright calls *possibility space*: the scope of actions or reactions a player can undertake […] In Wright's best work, players have so much leeway to determine their own objectives that the distinction between game player and game designer blurs" (2012). Games are possibility spaces, archaeology games should be possibility spaces as well. Through interactive richness of possibility space – rather than through a high-tech ability to reproduce elements of the real world – people can both learn and enjoy alterity (experience of the 'other').

I believe that this is an under-used feature of computer games, where mythical or cultural constraints can become rules. An issue in archaeology is how to convey the significance of fragments, social beliefs, and cultural significance to an audience more concerned with money and current-ness. As an example, a recent article in the Guardian's online archaeology section entitled *'Hugely important' Iron Age Remains*

Found at Yorkshire Site (Parveen 2016) received strong criticism: "waste of time, energy and money, no relevance to now and the future" (Bringbackmono 2016).

What was required in this case, I suspect, was an educationally immersive experience that allowed members of the general public to imagine the situated cultural significance of that site as it was once viewed, understood, and inhabited. The more one can *understand in situ* local cultural behaviour, the more one can understand significant events from the local cultural perspective and thus appreciate the significance and uniqueness of that site. Cultural presence, which I once defined as "the feeling of being in the presence of a similar or distinctly different cultural belief system" (Champion 2011: 179) has some promise here, but it has proven very hard to incorporate into virtual heritage environments. For example, Maria Roussou has decried the paucity of VR evaluation studies that could provide evidence for the belief that "interactivity in a virtual learning environment can influence learning" (2005).

Perhaps gamification of history per se is a potential response to this challenge but I suspect gamification is too restricted. Fun is inherent in games, but gamification makes (or tries to make) things fun. According to Manrique (2013), games have spaces, actions, movements, and verbs. For gamification, actions are tasks, duties, or work, so we cannot directly apply game mechanics to gamification. That might explain why some of us do not find point and click games inherently engaging, at least not for historical simulations.

In regards to these games, I typically do not see the process, or understand how the results relate to my input and I do not recognize the value of my agency as a player in the final outcome. Point and click games typically appear too restrictive, linear, and fixed. The necessity to point and click often seems to be an imposition rather than an act that adds to the gameplay. When you physically roll dice there is the illusion or possibility of actively controlling fate, and the parameters of the rolling action requires me to remember the location and parameters of the board and to avoid the personal space of the other players. These features are not typically concerns or affordances of a digital game.

As I would rather explore Will Wright's notion that games are a form of possibility space, I am reluctant to create strict essentialist definitions for what games are and what they can do. However, I am also interested in Ian Bogost's notion of procedural rhetoric, which he defined as "a practice of using processes persuasively" (Bogost 2007: 3). If procedural rhetoric is an essential and defining component of games, is there a relationship between mechanics and procedural rhetoric that can help in the educational and engaging revealing of archaeological and historical places? Can we adjust the mechanics of virtual places and virtual heritage environments to move forward not just the game or narrative but also the cultural understanding of the player? For example, 'insight and reversal' mechanics disrupt the in-game or real-world expectations and presumptions of the player acquired previously or during the game in order to reveal to them a viewpoint they may take for granted, or to supplant the view created by game play but a view the designer wants them to suddenly be alienated from.

Figure 7.1: NewsGaming.com's political video game about the war on terror, September 12th: A Toy World.

This type of mechanic gives me the opportunity to provide a hypothetical example that I intend to develop into a serious game. I have outlined in another publication (Champion 2015) how this idea involves a reversal of the Turing test, where a human has to judge if the written responses to questions are from a computer or a human. In most computer games, artificial intelligence and the simulation of humans is approximate and does not stand up to close inspection by real humans. In this example, though, the objective for the human player is to disguise herself or himself as an NPC (Non Playing Character), or take over the NPC role in society and see how long they can be considered a local before being discovered.

Any knowledge the 'bots' or NPCs might impart on human players is likely to be viewed with suspicion. Imagine a reversal where human players must learn to imitate the situated local culture and social behaviour of the intelligent computer-directed characters in a historical setting. The local characters in turn try to weed out the imposters. This would lead to the players learning through observation, mimicry and role-play (in computer games this is the least often used *Form of Play*), it would at the same time challenge and engage players through the constant threat that the local NPCs would detect the imposter (the human player pretending to be a NPC).

Conclusion

My first question was whether we can use genres, mechanics, or game components to classify, evaluate, and predict the impact and success of games in archaeological research. So far this appears to be problematic. Game genres are too clumsy and

confused, game mechanics as a term is not built on a shared and clear definition, game components and game features are not clearly separate, and there are not enough examples of engaging and educational games in the service of archaeology.

Secondly, I suggested that games are more than systems, they are imaginative frames of references that challenge, that hinder, create risks, but also provide rewards and goal-based activities. Although Caillois' *Forms of Play* are not so popular now in computer game studies, I proposed that as modes of experience (and with some tweaking), the usefulness of these forms or modes is that they provide the reader with a sense of the specific motivators, the challenges, the risks, and the rewards. They relate to game mechanics because richer and more impactful games use game mechanics not only to advance the game as a system but also to advance the game as an experience.

Thirdly, would a better and more detailed study of game mechanics help computer games convey archaeological method and archaeological interpretations? Yes, I think so: while clear and powerful criteria and exemplars are beyond the reach of this chapter, this is a worthwhile research question that requires investigation in its own right.

I also do not believe that we have many clear examples of archaeology-related computer games that provide flexible and reconfigurable mechanics for archaeological discovery that engage and educate, but this is resolvable. The digital media assets and design patterns of interaction which make up computer games are typically not reconfigurable as the game is a compiled piece of code which will not willingly unravel back into media assets, source data, metadata, and paradata (ancillary data that led to the development of the final design but is not directly incorporated into the final design).

Currently, we do not preserve the interaction separately to the scholarly information and to the media assets, in fact we are only just beginning to preserve games themselves as playable media artefacts. Projects like *VSim* (UCLA IDRE 2014) have promise, but it is still early days.

We could and should clarify the definition and role of mechanics so we can better understand and implement interaction as a framework of design patterns. If assets in games and script libraries were reusable and reconfigurable, I believe that knowledge and judgement in selecting appropriate mechanics would improve particularly amongst game creators who are not full-time professional game designers.

Could a more nuanced understanding of mechanics help us create games that better challenge previously understood and assumed narratives, make more explicit contested interpretations, or substantiate new perspectives? In my suggestion of a redefining or re-tweaking of the concept of mechanics, I believe so.

Not-quite games like *September 12th: A Toy World* (NewsGaming.com 2003), *Papers, Please* (3909 LLC 2013), and *Space Refugees* (Zach Whalen 2006) use game mechanics not only to advance the game in terms of code and game states, but also to persuade people to reflect and reconsider (see Figures 7.1 & 7.2). Here the *psychological* or *experiential* concept of mechanics is of particular relevance to archaeological communication and heritage studies. I provided the scenario of a cultural Turing test as an implementable example of reversal mechanics, but there should be easier ways of implementing reversal mechanics in the pursuit of richer game experiences.

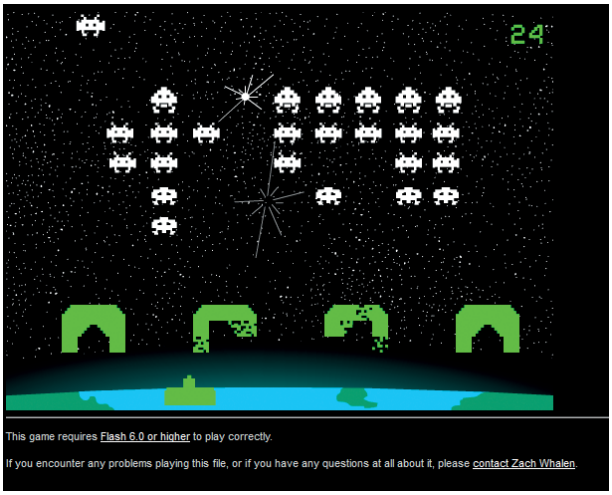

Figure 7.2: Space Refugees inverts the plot of Space Invaders: the player is an unarmed alien dodging Earth's defences while fellow refugees are being killed.

There is still much research and design to be undertaken on archaeology game-related mechanics: with interactive loops that forward, reverse, and change game states, prompting reflection and the revealing of time, place, and culture-situated perceptions. We have seen that mechanics *engage* with content, the question is, in relation to archaeology, exactly how?

Actually, there was another question hiding in the title: can we only attract beginner archaeologists by the offer of whips, looting, and violence? In other words, was Indiana Jones a bad archaeologist? A tricky question. Perhaps a more useful rephrasing of the question would be: how could we transform Indiana Jones into a good archaeologist? I propose that we need to convey process and inspire inquiry: yes, we can borrow the tropes that inspire *Indiana Jones* fans but we should add *experiential mechanics* that provide gamers with the opportunity to reflect on their decisions and their beliefs, just as archaeological excavations cause us to ponder what life meant to us and what it meant for others.

As the (unrelated-to-me) Matt Champion wrote in relation to a real-world archaeology project:

> *"But have we answered any of the questions that we set out to examine? Possibly, and possibly not. What I am clear on is that we have certainly generated one hell of a lot MORE questions. Things that would never have occurred to me, or probably anyone else for that matter, when we first began staring at the stones all those years ago* […] *We have traced the tragedy of seemingly insignificant deaths; so significant to those around them, those who loved them, that they etched the very stones themselves. These questions we have answered. And yet, the bigger questions remain* […] *The question of why?"* (Champion 2016)

Why, indeed. In 2008, the actor Harrison Ford (archaeologist Indiana Jones) was elected to the Board of Directors of the AIA. In his speech, the film star said "knowledge is power, and understanding the past can only help us in dealing with the present and the future" (Archaeological Institute of America 2008).

I agree. To understand the interpretations and intentions of the past, we have to experiment with it as a possibility space. To understand and communicate the values and aims of archaeology, I argued that we should consider how mechanics (methods and practices) and situations (content, rewards, and challenges) can be *thematically engaging* via game design. I proposed, quite bluntly, that current game genres and typologies do not fully address this challenge. While we need to move the punters away from the movie seats and game consoles and towards the exhibits, books, archives, sites, and trenches, we do not have to portray the latter as boring. This may be possible figuratively and virtually, but hopefully without the whips and the bulging sacks of precious loot.

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On Games that Play Themselves

Agent based models, archaeogaming, and the useful deaths of digital Romans

Shawn Graham

Archaeologists have been simulating past societies via computation for decades (for recent overviews, *cf.* Costopoulos & Lake 2010; Wurzer *et al.* 2015). It is nothing new for us to perform a kind of practical necromancy to raise the dead to see what they can tell us. Archaeogaming introduces a new actor into these artificial societies: living humans. There are dangers to guard against, and opportunities to seize, when we co-write the past with our digital homunculi. In this chapter, I draw on some of my own experiences to suggest a path forward on this quest.

Heads Will Roll

Consider life in a small society run along patriarchal lines. The head of the household's word is law; perhaps even your household looks up to him as well, in a chain of lesser families connected by kith and kin. All depends on your relationship with him. But consider a situation where he is suddenly removed – perhaps he has died suddenly. Your world wobbles a little bit, but succession rules quickly allow us to figure out who is now in charge. It is a rigid structure, yet it works. Most of the time.

For now.

But what would happen if many heads rolled, all at once? If the heads died in infamy and shame? How much damage can such a social world sustain before it collapses, recovers, or transforms? I am thinking now of the social world of the Romans in the late Republic or the early days of Empire, a world self-consciously rigid in the way I described, but yet, one that manages to carry on regardless. Let us, then, kill some Romans. It is perhaps one of the best ways to understand the ways in which Roman society was resilient to the frequent pogroms and proscriptions of the late Republic and other eras, because we can see what happens next.

Romans must die for me to explore the ways Rome's social network reacted under stress. This does of course present some obvious practical issues, but through simulation, some of that is tractable. The kind of simulation I used was an 'agent based model' (ABM) (for the publication of this particular simulation: Graham 2009). Think of an ABM as a kind of giant self-running, self-organizing petri dish. Each 'agent' is its own program, coded to react to its environment and/or the presence of other 'agents' (Lake 2015). Agent based modelling allows me to raise Romans from the dead over and over, and give them patterns of interaction known from the archaeology. In this particular case, I recovered fossilized 'nodes' of social interactions from the stamps on bricks made in the Tiber Valley. During the first two centuries or so of the Roman Empire, brick makers were in the habit of recording the name of the estate, the name of the workshop, the landowner's name, and even the name of the workshop operator. Because of the shape and style of these stamps (and from time to time the consular date itself was marked) it is possible to follow the evolution of individuals brick makers' careers over time as they moved from slave to freed, from workshop owner to landowner, and as various estates were bought up and brought into the Imperial patrimony. From this a social network then can be stitched together, tying individuals who worked at the same estates, in the same workshop, or for the same landowner, over time. This social network becomes the substrate on which I simulate the past, where each node is an individual software agent. I raise these digital Romans up; I give them artificial life; and then I kill them (or rather, I set them up in an environment where their deaths are a very likely outcome). Since the agents are programmed to interact based on these known social networks, aspects of their emergent behaviour are necessarily tied to that past (*cf.* Epstein 2006: 31-33). Thus, since I wish to know under what circumstances this society might collapse, I have them interact in an economic and social world as known from the scholarly literature. In essence, my agents play the game of the *salutatio*, the morning salutation of men of higher status by men of lower status. In this game of seeing and being seen (lower status men would wait in the hallway to be admitted to see the patron, and so it was quite evident who was where in the pecking order), not everyone who sought the attention of a patron might get it, of course. Then, morning greeting having been given, the patron and his entourage would process to the Forum for the morning business. In this way, everyone could assess each other's relative power and prestige by the number and quality of one's clients (for an accessible introduction to the workings of Roman patronage in general: Wallace-Hadrill 1989). In the digital version of this game, the agents' primary motivation is to find chains of patrons and clients to whom they can attach in order to obtain resources; that is, a classic rich-get-richer effect is in play. Those who have not, get shut out. These agents have memories. They harbour grudges; they nurse wounds and social slights; they take their revenge. And then I start to put this world under stress to see what happens next.

There is something mesmerizing as I watch this artificial life creep and fight its way across the screen. As described, it is a giant petri dish, where my intervention is limited to setting up the pieces, writing the rules, and flipping the 'on' switch. But… wouldn't you want to play this game?

'Climb the social ladder in Rome! Help your clients and find yourself better patrons – but make sure you don't make too many enemies along the way or you too will lose… Game of Togas.'

Conceptually, it does not take much to flip an agent based model into a video game: it is simply a matter of whether or not the player/researcher has any active agency in what happens on the screen. In this regard then, archaeologists are already gamers. They use ABM to explore the past, but remove themselves from the action: thus an ABM is just a species of video game that plays itself. In which case, there is little reason why games-qua-games should not also be another kind of experimental petri dish for archaeologists to write the past.

In this chapter, I explore the affinities between agent based modelling and video gaming, paying particular attention to the role of the investigator/player in all of this. I offer up a framework for exploring this affinity space, but first I turn to a danger common to both approaches. It is in guarding against the seductive lure of the digital landscape, and the methods developed to do this, that we see the greatest utility of the framework.

The Seductive Lure of the Digital Landscape

As I watch the screen and tell the story of what my digital Romans are up to, as they live and die, it becomes easier and easier to believe that I'm watching something *actually* true about the past…

In *Foucault's Pendulum*, Umberto Eco (1988) tells a story where the protagonists feed a computer with vast amounts of information, to devise a conspiracy theory, for their own entertainment, to determine a 'truer' story of European history. Things take a turn for the worse when the men begin to believe that the simulation is mapping out an actual 'real' truth – and even more dangerously, others come to believe in it too.

This, it strikes me, is a problem common both to gaming and to simulation. It is all too easy to succumb to the beauty of the digital landscape, a world that turns around *me* the player, *me* the creator. In both video games and agent based simulations, we have a kind of control, an agency, that we do not have in other aspects of our lives. This seductive power blinds us (see below; also Agar 2003; Romanowska 2014; Wurzer *et al.* 2015: 74-75). When we are *very* good at a game, when we can anticipate what happens next and hit that state where the game is just challenging enough to keep us pushing forward, we have internalized the rules that govern the game and its story. To be 'good' at a game is to perform (uncritically) the vision of the world that its creators have encoded in the rules, in the mechanics (notwithstanding 'speedrunners' and 'pro' players, who have submerged themselves in the game to a wholly different level and are beyond my current concern, or people who play explicitly to 'break' the game, to see what is possible within the game; Copplestone 2016). When we are very good at simulation, we similarly have internalized the ways in which code can be used to tell stories of the world.

In which case, if we are interested in *archaeogaming*, it might be worth thinking about the methods that have evolved to guard against this tendency in modellers. If we are interested in *mere* simulation, it might be worth thinking about the

methods used to understand games to guard against this tendency in gamers. In both cases, what we are circling around are ideas of 'validation.' Another way to think about it is to ask: does this [model/game] 'do' good history? Let us expand, therefore, on some of the ways agent based modelling and video gaming might intersect, particularly in terms of how we evaluate the success or failure of both to 'do good history,' as a contribution towards the methods of archaeogaming. After all, archaeology has always been concerned with understanding virtual worlds (Champion 2015; *e.g.* papers in Forte 2010), whether those worlds are built from stone, wood, or concrete; it is just that now we must understand the worlds built from sand and electricity as well.

Perspectives on Space and Time

The difference between games and agent based simulations is not so vast. An agent based model is a special class of video game where the player, does not, in fact, play. She sets it all up, and she watches to see how that world reacts. She is interested in the whole-world interrelationships; the player of games on the other hand is necessarily interested in the reactions to his own actions. In some respects, one could make the analogy to social network analysis: simulation is to whole-network analysis, as a video game is to ego-analysis (on network analysis *cf.* Weingart 2011). That is to say, the difference is one of perspective.

If archaeogaming is going to be a serious pursuit, then the first lesson we can take from agent based modelling concerns *time* and *space*. The way that time is treated in agent based models is critical: time is malleable so that there is time *for* something to take place. It makes a difference to your model whether or not your agents update themselves one-at-a-time, each one running its procedures sequentially, versus in parallel. Emergent effects that can seem profound or meaningful might only be an artefact of how 'time' is imagined. Then there is the time *within which* something might take place. Terry Pratchett's *Thief of Time* (2001) calls this the 'universal tick,' or the time it takes for *now* to become *then*. Agent based models tick in time with the computer's clock: does processor-clock time have any meaningful analogy to 'historical time'? Similarly, agent based models happen in a kind of space. This space can be a flat two dimensional world subject to edge effects that can muddy the waters; in some models, the left hand side of the world connects to the right hand side, and the top connects to the bottom, which gives us a torus shape. In others, the space is the gaps between social actors, that is, a network. How does space work in the games we are analysing from an archaeogamer perspective?

Aarseth and colleagues years ago devised a typology for video games that depended upon considering several axes of analysis: space, time, player-structure, control, and rules (Aarseth *et al.* 2003). As we begin to devise the methods for archaeogaming, I want to suggest that we pay attention to space and time in their formulation: *space* contains 'perspective,' 'topography,' and 'environment'; *time* contains 'pace,' 'representation' and 'teleology.' Whether the virtual world we are analysing is in 'meatspace' or cyberspace, these categories usefully force us to concentrate on what space and time are doing in the game/simulation in meaningful ways. Consider my simulation of Roman social life where the Romans must die. In terms of 'space,' the

		Caesar IV	*Civilization IV*	*Game of Togas*
Space	**Perspective**	Omni-Present	Vagrant	Omni-Present
	Topography	Topological	Geometrical	Geometrical
	Environment	Dynamic	Dynamic	Static
Time	**Pace**	Real-Time	Turn-Based	Turn-Based
	Representation	Arbitrary	Mimetic	Mimetic
	Teleology	Finite	Finite	Finite

Table 8.1: Comparing time and space in video games and an agent based model. An expansion of Kee & Graham (2014: table 13.2). Game of Togas is the agent based model described in the opening of this chapter.

simulation has an omni-present perspective: I see all, I can peer into each agent's life at will. The environment is geometric; the world in which these Romans move is static, the conditions do not change during the run. In terms of 'time,' the pace is turn-based (each Roman updates in turn), time is mimetic (it takes time for the Roman to achieve something), time is teleological in that the Romans have clear goals and ambitions in mind. My simulation occupies an interesting space between *Caesar IV* (Tilted Mill Games 2006) and *Civilization IV* (Firaxis Games 2005), two well-known games in the so-called 'city-builder' and 'turn-based strategy' genres that also contain useful simulations of Roman society. As can be seen, those 'genres' do not on their own tell us anything interesting about the games from our perspective; rather, by considering a typology based on space and time (rather than on marketing genres) we can see interesting points of convergence and divergence between the games and my agent based model (see Table 8.1).

The framework of space and time gives us a sense of how human-agency could be built into an agent based model by fitting one's (human-agency-free) model into simulations explicitly built to allow the human player agency in the digital world. If I were to re-build *Game of Togas* (originally called 'PatronWorld') to allow a player agent to interact with my simulated agents, one could imagine a game more similar to the turn-based strategy of *Civilization*. Who are you going to call on *this* morning? Is it worth joining the mob and turning on patrons who denied you in a previous turn? Will you successfully survive the wave of violence?

Let's put the shoe on the other foot. How does *Caesar IV* hold up against the standards used to understand agent based models? Let us use Iza Romanowska's framework (2014; see also her longer discussion, 2015) for evaluating agent models. For Romanowska, the key elements to usefully evaluating the success of an agent based model are:

1. Scope
2. Appropriateness
3. Resolution
4. How complicated is it?
5. Parsimonious parameters
6. Utility

Scope and appropriateness deal with research questions. Are we building a model to explore a hypothetical or to understand patterns in the data? *Caesar IV* clearly has a research question at its heart: how does experience in the provinces make a man fit to govern in Rome? When I reframed *Game of Togas* as a game in my opening – help your clients succeed, find a patron to help *you* succeed – I was framing a question about the role of patronage in generating social structure in Rome. Indeed, I was arguing that patronage was *the* motor of both social structure *and* civil violence. The value of that model was in working through the landscape of possible combinations to find situations where violence was or was not generated, and then mapping that back against the history of the period. The researcher has to be attuned to whether or not the model or game is too narrow or too broad in scope. It could well be that the kinds of tasks that *Caesar IV* has the player perform are simply too narrow (speaking to scope), and possibly the wrong ones, which speaks to appropriateness. A resource management simulation may not be an appropriate tool for answering the question about governance. Roman governors perhaps were not too concerned with the minutiae of making a city work (on the other hand, Pliny's letters to Trajan *do* show a governor interested in precisely these questions, *e.g.* X.25).

Resolution: *Caesar IV* populates its cities with individual Romans, with whom I have to interact. That may be too low a level given the scope and appropriateness. Parsimonious parameters refer to the number and variety of settings that the modeller/player can adjust. In general, the more of these, the more complex and difficult to understand the resulting behaviour. What and where are the feedback loops? Complexity theory teaches that simpler is better (Romanowska 2015).

Under 'utility' we ask not, is this a 'fun' game, but rather, 'what have we learned?' How are we changed? The lessons of *Caesar IV,* where the game designers are motivated more by 'playability' than 'accuracy' in a historical sense (Copplestone 2016), force the player into a delicate balancing act of competing demands. This may in fact be a good thing, given the research question (that we can imagine here) on the preparation of a man for governance. Indeed, the kind of player who plays to not merely win the game but to 'break' it, to explore its possibility space, is in fact acting like a researcher in this simulation (see also Kee *et al.* 2009). The framework that Romanowska develops for assessing agent based modelling in fact gives us quite a rich structure for understanding the archaeological and historical meanings of video games.

Archaeogaming and Simulation as a Kind of Digital Public Archaeology

Finally, I put it to you that one of the most powerful ways that archaeogaming could intersect with digital public archaeology becomes evident if we consider the original purpose of the NetLogo agent based modelling environment (an accessible programming environment for agent based modelling, Wilensky 1999). 'Public archaeology' can mean many things, such as the dissemination of professional archaeological knowledge for use by both the state, as well as a notional 'layperson.' The addition of 'digital' to the idea introduces ideas of interactivity and co-creation of knowledge of the past. More powerfully, a digital public archaeology can be seen

as sitting at the intersection of the past and contemporary society and the use/abuse of the past for current ends (Richardson 2013). NetLogo was originally designed to teach students about complex phenomena by getting them to observe the ways small parameter changes could affect the global behaviour of the complex system (Wilensky 1999). The *Evolving Planet* archaeogame (Murphy's Toast Games 2016; see Rubio-Campillo *et al.*, this volume) takes this approach. But we could go further. What if we put the players into our agent based models? Not just tweaking the global, but engaging through the first-person? Holistic and egocentric at the same time. NetLogo comes with an extension called 'hubnet,' which allows individuals to take on the role of a single agent within an otherwise fully digital simulation. The NetLogo developers call this 'participatory simulation.' Is there room in archaeogaming to merge humans and machine-made societies? That tools change us and what it means to be human is a truism of archaeology: archaeogaming perhaps is a way to understand what this digital moment is doing to our humanity. Thus, a digital public archaeology informed by archaeogaming/agent based modelling could be about empowering an individual's engagement with the past, to understand that what-is is not necessarily foreordained or inevitable. If the present is contingent, then so too the future. Imagine if we took *Game of Togas* and enabled mass participation. Armed with an understanding of the pernicious effects of chains of patronage under various circumstances, the uses/abuses of Roman history to understand the relevance of patronage to this current historical moment (e.g. Beard 2015; Fontaine 2016; Murphy 2008) might be usefully examined.

The Useful Deaths of Digital Romans

Archaeologists are natural gamers already: they have been building virtual worlds long before video games emerged. We have already developed methods and techniques for understanding the virtual worlds of the past; the things we see as archaeologists in the virtual worlds of the present accordingly can be grounded in the methods and techniques of archaeology. This small essay has suggested a framework based on typologies of time and space coupled with perspectives on agent based modelling validation techniques to help guard against the seductive lure of the digital, so that when Romans must die, they die usefully.

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Part Three

Playful Heritage Outreach

Playing the Archive

'Let's Play' videos, game preservation, and the exhibition of play

René Glas, Jesse de Vos, Jasper van Vught & Hugo Zijlstra

Introduction

Since the late 70s, digital games have grown into a socio-cultural phenomenon which cannot and should not be ignored. More recently, scholars investigating the rise and impact of the medium have emphasized digital games as being part of our cultural heritage which subsequently should be preserved as such (Barwick *et al.* 2009; Newman 2012). Preservation of digital games has become a matter of urgency due to the deterioration of both old hardware and software carriers (e.g. bit rot on cartridges, disks, CD-ROMs), obsolescence of software due to ever developing hardware (e.g. new consoles unable to run older software), and the transience of online environments on which some games depend (see also Delve *et al.* 2012; McDonough *et al.* 2010). In addition, Lowood and colleagues warn for "the potential disappearance of original game content and intellectual property" (Lowood *et al.* 2009: 1) in their white paper on game preservation, titled *Before It's Too Late*. They argue that this is not just an issue of interest for game studies or those with a historical appreciation of games, but also for game developers and the industry.

Over the years there have been a host of initiatives by fan communities,[1] research institutions (e.g. the Online Archive of California), heritage institutions (e.g. Computerspielemuseum in Berlin), and private collectors to pay heed to these warnings. However, as Barwick and colleagues (2009: 377) have argued, games do not automatically fit within the collection strategies of existing heritage

1 Such as the websites *c64tapes*, *abandonia*, and *mamedev*, as well as physical locations like, in the Netherlands, Awesome Space (Utrecht) and the Netherlands Institute for Games and Computers (Zwolle).

institutions due to the large number of digital (and analogue) materials and multitude of forms available (e.g. console games, pc games, online social network games, mobile games). Institutions are therefore struggling with new selection and retention strategies because they simply cannot preserve everything. While this is already the case for 'game-only' institutions such as the Computerspielemuseum in Berlin, it is even more evident for institutions that wish to take up games as part of an already existing (not game-related) collection. These institutions have strong and established collection- and exhibition policies in place, which means that game preservation has to fit into a larger strategy. For instance, New York's Museum of Modern Art in recent years acquired a small number of games as a part of its 'applied design' section, which consequently focuses on the design aspect of what is happening on the screen. Also in New York, The Strong National Museum of Play has had a focus on collecting the history of (non-digital) games, ranging from board games to toys and dolls, and has added computer games from that perspective. Adding games to these existing collections does not only have consequences for the selection criteria used (e.g. aesthetic value, socio-cultural or economic impact, technological innovation), but also for the way that games are interpreted by these institutions as for instance software, toys, art, audio-visual media and so on. This influences the way the public perceives these media forms, both in terms of historical legacy and socio-cultural impact.

To further explore the challenges faced by an existing heritage institution in including games as part of its collection, the Netherlands Institute for Sound and Vision,[2] game researchers from Utrecht University and members of the Dutch game industry[3] embarked on a unified effort to define, preserve, and archive the history of Dutch digital games and game development.

Preserving Games as Audio-Visual Heritage

So far, Sound and Vision has focused its preservation efforts on more traditional media, such as radio and television, although in more recent years the institute has started to collect videos from online sources such as YouTube and has started an archive for websites. Now, Sound and Vision's 5-year strategy plan (Nederlands Instituut voor Beeld en Geluid 2015) explicitly mentions internet culture, new media, and games as part of the audio-visual media landscape at which its preservation efforts are aimed. The transition from preserving linear, time-based media such as radio and television to interactive productions like games, means

2 Sound and Vision is the national audio-visual archive of the Netherlands and as such preserves Dutch history and cultural heritage as captured in audio-visual media – so far mostly radio and television. Its history is firmly intertwined with public broadcasting, serving as their business archives for many decades. However, over time the collection of the institute has broadened to a representation of Dutch media history. Sound and Vision has a public task and therefore prioritizes ease of access for as many users as possible. This is a task, not a legal deposit, which means that the institute is not legally bound to preserve every single publication, such as some national archives (e.g. the Bibliotheque National de France and the Danish Det Kongelige Bibliotek), but instead is responsible for creating its own selection policies and criteria. The institute is also home to a museum, called the *Experience*, which allows its visitors to interactively explore the world of media.

3 For more information about the Dutch game industry, see Koops and colleagues (Koops *et al.* 2016) and Van Grinsven & Raessens (2015).

that the institution needs to acquaint itself with other preservation strategies than digitization and migration. This is being done by engaging in a number of research pilots, one of which is called *Game On!* and focuses on Dutch games from the 80s and 90s. Within *Game On!* Sound and Vision sought cooperation with different stakeholders in the game industry, communities of game collectors, and research institutions. The project covers the entire Open Archival Information System (OAIS) model, a standard for archives which defines the processes, from ingest to access, that are involved in preserving information and making it accessible to a designated community (ISO 2012; *cf.* Sierman 2012). To preserve the games themselves, Sound and Vision explores emulation and virtualization, in accordance with suggestions from the *Preserving Virtual Worlds Final Report* (McDonough *et al.* 2010: 87). Though emulation will play a big role in preservation, especially of interactive productions, the institute is also well aware that emulation is more expensive, and (still) quite often simply not an option (see also Rosenthal 2015). Additionally, emulation usually fails to recreate the specific hardware-dependent constellation of games and much of the networked, interactive, performative, and transient nature of gameplay.

For the reasons described above, this chapter further explores a particular form of documentation as a preservation strategy for games (see also De Vos 2013: 28). Documentation is an umbrella term that covers a whole variety of different actions and can serve a number of goals and perspectives. Particularly in the field of media art preservation, documentation is seen as a way of capturing both "the technological and material dimensions of these complex works, but also the cultural contexts in which they emerged and were seen" (Saba 2013: 101). As we will see, there is a paradox to documentation: as a representation it never fully captures the original, at the same time, though, documentation can outlive the ephemeral and obsolete game itself and, more importantly, it can add layers of meaning. In the arts, video registration, as a particular form of documentation, is seen as a useful, though somewhat problematic way of capturing the processual and performative nature of a work, but also human-machine interaction (Dekker 2013). For instance, Net Art Database is an initiative by Constant Dullaart and Robert Sakrowski that aims to preserve net art by filming users in front of their screens as they interact with net artworks. They take two perspectives: one of the interface itself, a so-called screencast. The other is an over the shoulder shot that captures the activities, setting, and context of the user. Afterwards, both videos are played simultaneously next to each other. For art preservation "[a]udio-visual recordings provide us with a unique perspective on the history of art, a perspective that moves beyond the image in a book, words on paper, or abstract notations. They provide us with a fuller sense of what it was like to be there and then" (Dekker 2013: 155).

For some game titles too, the focus on capturing and documenting play sessions becomes essential as it is difficult, if not impossible, to preserve the game in its hardware or software form. In the case of large persistent online multiplayer games worlds like *World of Warcraft* (Blizzard Entertainment 2004) for example, the original boxed version from 2004 contains software which does not look or feel at all like the game as it currently exists online. It has, after all, been patched and

expanded countless times. It is a game in constant flux, with both the developers and the players shaping its form over time (*cf.* Glas 2012). For Lowood (2011), this is reason to suggest that we should look elsewhere than to the game software or hardware to preserve its essence. He argues that preserving gameplay recordings in the form of *machinima*, of which hundreds of thousands of hours can be found online on video platforms like YouTube, provide a better preservation strategy, as it "creates historical documentation that captures aspects of the spaces, events, and activities through the lens of a player's view of the game world" (Ibid.: 4). For Lowood, when dealing with these kinds of games, machinima forms a documentary medium. This does stretch the more traditional definition of machinima, usually considered "animated filmmaking within a real-time virtual 3D environment" (Marino 2004: 1) such as a game engine. To differentiate more artistically, story-driven production from other types of gameplay recordings, Menotti argues for the notion of "non-narrative machinima," which is not about "subverting the videogame performance in order to build fictional representations" (2014: 84), but rather fully exploring such performance itself. While it could be argued whether it is still helpful to retain the 'machinima' nomenclature here, Menotti does continue with the argumentation strand that such recorded gameplay explorations are documentary in nature, and this is where we also make a shift towards Let's Play videos.

Let's Play the Archive

Within the world of gameplay recordings in all their various forms, the Let's Play video is a relatively new phenomenon which became one of the most popular online video forms in the early 2010s, with several LP channels ranking among the most subscribed on YouTube.[4] What differentiates Let's Play videos from machinima productions or more traditional gameplay recordings is that, as Newman points out, "we see not only recorded gameplay footage but also hear the commentary of the LP player who narrates their performance thereby annotating their gameplay in real time" (2013: 62). This commentary is either provided through audio commentary or a picture-in-picture window showing the player, both recorded during play. Even though there are many styles of Let's Play videos, in most cases Let's Play videos present disorderly, unstructured recordings of play – rather than dedicated play sessions showing off skill – and rely on the often humorous commentary to offer a more 'real,' free-flowing experience of playing a game. For Menotti, Let's Play videos in their documentary form can be seen as a form of direct cinema "which does not avoid documenting the effort and emotions of the filmmaker during its manufacture" (2014: 89) and as such provide a more authentic experience of gameplay. This experience, of course, is always a second-hand one for the viewer of the video. The visible or audible presence of the player itself within the video, combined with the authentic looking gameplay on display, evokes a sense of being there with the player. As Glas has argued elsewhere,

4 The LP phenomenon can be traced back to forums of the website *Something Awful* in 2006, where players allegedly initially started to post screenshots of their gameplay with added commentary. The early history of LP is documented and archived on the *Let's Play Archive* <www.lparchive.org>.

"regardless of whether the viewer shares the same play style preferences as the LP creator, the combination between ludic immersion and non-ludic engagement offers an experience of vicarious play" (2015: 84).

Recognizing this potential, scholars such as Newman (2012), Hale (2013), and Nylund (2015) have argued for an audio-visual documentation of gameplay in the form of Let's Play videos. To put it in Newman's words, Let's Play videos capture the "lived experience of gameplay" (2012: 83) and watching these videos has the potential to provide the viewer with a sense of playing in a more direct or engaging way than a regular gameplay recording would.

But what about older games? As Nylund rightfully points out, when trying to fully understand the historical significance of a particular game, "the biggest challenge is to understand what kind of game it was when it first was created and published. How was it played, by whom and why?" (2015: 61). After an investigation of the scarce video recordings of a Finnish game from the mid-80s, *Raharuhtinas* (Simo Ojaniemi 1984), Nylund concludes that Let's Play videos only have a preservation potential for current and future games if a more dedicated effort to record gameplay within a game preservation context would be made. In his words: "what about putting up a Let's Play recording studio in the museum and inviting game hobbyists, researchers, cultural historians or complete outsiders to play a game and voice their reactions to it?" (Nylund 2015: 61).

In this chapter we aim to answer Nylund's what-if question and explore the Let's Play recordings by a number of visitors to Sound and Vision's museum and their potential for preservation purposes. Nylund's approach seems to suggest that for older games, Let's Play videos no longer offer opportunities to document gameplay, because we lack access to the 'original,' first experience of playing that particular game. We were interested to see how players nowadays negotiate the semantics and mechanics of older games. In that respect, we intend to move beyond an idealization of the 'original experience' which, as Swalwell (2013) has pointed out, is an often expressed sentiment in writings about game preservation but an inherently problematic one. As she explains, taking an 'original experience' as historical evidence seems to deny its discursive nature and, on top of that, our understanding of such an experience is coloured by our own historical position (Ibid.: 6). By exploring the new interpretative frames that players brought to these older games, we were interested to see what kind of games they are now. How do players, for instance, highlight or negotiate the social, cultural, and technological significance of older Dutch games from a contemporary perspective? And can it help us understand video games as a developing medium by drawing historical connections that can shine a new or different light on this now well-established medium?

Lights. Camera. Action!

As mentioned, the Netherlands Institute for Sound and Vision also features a museum with both permanent and temporary exhibitions of various dimensions of Dutch audio-visual cultural heritage. For this project, this meant we could count on a steady flow of visitors from a wide range of demographics that we could invite to participate in our Let's Play project. To provide a low threshold for

Figure 9.1: An overview of the Let's Play setup at the Netherlands Institute for Sound and Vision.

participation, a small Let's Play studio setup was created on the ground floor of the building. With the use of handouts, throughout the day we would ask visitors to sit down with us and play some old games from Sound and Vision's archive. The choice was made to explicitly ask players to participate in pairs (or trios), rather than individually, in order to stimulate a higher level of interaction and verbal reflection. After signing a consent form, they were ready to go. Over the course of two weeks we recorded 13 videos mostly in pairs, but also some individuals and groups of three.[5] In total there were 19 participants, ranging from 7 to 65 years old, with an average age of 20,3.

The Let's Play setup itself consisted of an original Commodore 64 console (first released in 1982), with accompanying monitor, connected to a PC setup. A game capture device captured the gameplay feed directly from the console, while two webcams recorded the players. One of the webcams was placed on top of the monitor in order to capture the players' facial expressions, while simultaneously assuming the role of a microphone by recording accompanying commentaries. A green screen was placed behind the players to allow for background filtering. In addition, all physical interactions with the hardware (e.g. controlling the Commodore's joystick) were captured and added to the video overlay by filming them top-down using the second webcam (see Figure 9.1).

While participants were encouraged to figure out for themselves how to operate the hardware and play the games, one research team member was present for assistance when needed throughout the play session. Participants were allowed to choose from

5 A compilation of the recorded videos (in Dutch) can be seen here <https://www.youtube.com/watch?v=B1WwnNNI3Qg>. On the same YouTube channel, roughly sixty videos can be found of Let's Play sessions that took place in the museum at a later date, titled *Let's Play @ Beeld en Geluid*. These latter were not part of the body of research for this paper.

a small selection of Dutch games from the mid-80s donated to Sound and Vision's archive by their original developer Radarsoft. These games were: *Eindeloos* (aka *Endless*, a side-scrolling, maze-like shooter; Radarsoft 1985), *Topografie Nederland* and *Topografie Wereld* (educational games with the aim of learning topography; Radarsoft 1984), *Herby* (a maze-like action platformer; Radarsoft 1984), *Tempo Typen* (another educational game that tests the player's typing skills; Radarsoft 1984) and *Verkeersrally* (aka *Traffix*, a driving simulation with educational elements; Radarsoft 1985). Various games were present in their original packaging, ensuring that participants did not just encounter these games in play, but also in their original material form. Players were then given minimal instructions on how to play or act, but were asked beforehand to describe anything that came to mind whilst playing the games. In cases where players kept their commentary to a minimum, questions were asked by the accompanying researcher regarding their experiences with the game, but also about the hardware, similarities and differences with contemporary games, their perception of the game's mechanics and more.

While the technical but also legal benefits of using emulators are manifold (Newman 2012; Rosenthal 2015), capturing encounters with the original hardware and software creates a more authentic experience than having players engage with an emulator on a contemporary pc. While over the years games have shifted to digital-only formats, for many players the materiality of games and game hardware have always been a meaningful part of domestic life (Toivonen & Sotamaa 2011). While a relatively short encounter with a game within a museum context will not be able to mimic the more emotional bonds players can form with their games, we believe that this material aspect of both hardware and software at least approaches this feeling.

Let's Play Preservation

One of the first things that our Let's Play videos highlighted, was that players would often remark on the relatively few action opportunities compared to newer games. As one *Eindeloos* player stated (all player quotes here and elsewhere translated from Dutch):

> *"Nowadays, games are a lot more beautiful. But of course, the technology is also very different from 30 years ago* […] *There are more opportunities to play in the game. And I find the looks of the game a lot prettier. And the sound, and the interaction with the game. That you're able to be a more active part of the game than the joystick allows for."*

This observation led us to expect lower levels of engagement and potentially even feelings of boredom which would indeed highlight the historically dependent nature of the gameplay experience and thereby support Swalwell's (2013) critique at trying to achieve an original experience. As this player suggested, the fact that current games often allow for more ways to act could lead to a greater sensation of being, acting, or playing in the game world. As Van Vught has argued, this is because our sensation of being in a world comes from the possibility to perform a wide range of different actions. Furthermore, more action opportunities would

give players more ways to overcome the game's challenges and/or more ways of failing to do so, thereby increasing difficulty and creativity (Van Vught 2016: 171).

However, in spite of our expectations, it turned out that only one game (*Traffix*) was deemed boring, which was mostly due to the fact that the game's goal remained obfuscated for the players – making it appear to be a traffic simulation game in which players drive around a town abiding by traffic rules. For the other games, the fewer action opportunities had no bearing on players' positive engagement or interest. However, we did notice that players would often *expect* a lot more action opportunities and would, therefore, have to adjust these expectations during play. For example, when playing the topography games, several players would express concerns about how to land the helicopter, only to realize that the game does not afford that type of action:

> *"And then I press the red button if..?*
> *Sure. Give it a try.*
> *I don't know how to land it. Can you try?*
> *Or maybe it will stop automatically when you're there?*
> *No, it doesn't."*

This again shows the difficulty with preserving an older game and the experience of playing it 'the way it really was.' Swalwell indeed notes that "today's player is accustomed to objects on the screen responding to their input in a way that the first time player was not" (2013: 6). This is not only the case when we're preserving an old hardware station and trying to recreate an original experience by playing on it. It is also the case when we are looking at an original play experience in the form of an early Let's Play video. We cannot understand how natural or unnatural the player-game interaction felt when the game first came out; not from a video, nor from playing around with the original hardware and software.

To that extent we're better off asking different questions about the possibilities of Let's Play videos for gameplay preservation. For instance, what the above example highlights is that, rather than showing a true original experience, Let's Play videos have the potential to create a history of experiences, whereby the game is approached during several moments in time. This would then show the way that games as a technological artefact and players as socio-cultural beings change over time by highlighting discrepancies between the players' expectations and the game's characteristics. This is the case for the game's action opportunities but also for the players' struggles to understand many of the games without the presence of a clear tutorial. As one *Traffix* player stated:

> *"I believe that you get more of an explanation nowadays. You often have tutorials at the beginning of certain games and apps. Now I don't really understand the goal of this game."*

By recording gameplay of older games in a current context, the Let's Play videos show how the medium has changed significantly over a period of thirty years, highlighting specific characteristics of games now and a lack thereof then. By

doing this, the videos still highlight original qualities of the software and hardware without claiming any documentation of an 'original experience.'

We refer back to Saba's reflections on documentation and digital archiving. With regards to interactive media art installations, Saba rightfully asks the question how we can archive "the textual and contextual components in one aggregated complex of data and metadata so as to take into account the variability of the installations and their 'plural immanences'" (2013: 110). She continues to argue for a dual strategy that works both towards the game's digital permanence, through migration and emulation, as well as the documentation of its initial qualities. We argue that a Let's Play setup allows for at least one end of the dual strategy that Saba argues for. The setup emphasizes the original quality of the game and game hardware which means the resulting videos help towards maintaining the game's documentary integrity. While this integrity is often referred to in terms of the 'original,' Saba points out that in this case "the concept of 'original' defines a quality referred to as being 'compatible,' and 'not equivalent,' to the 'original' version" (2013: 114). So, while the setup does not recreate an original experience, the videos do show qualities of the games that are compatible with the original.

This becomes especially clear in the way that the videos emphasize the materiality of both hardware and software carriers. For example, players would often comment on the joystick as an unfamiliar piece of hardware. As one *Eindeloos* player noted:

> *"You would think that nowadays, with thousand-and-one keys to press, it would be more difficult, but it is actually more difficult with one joystick."*

In fact, many players commented on the difficulty of the controls, blaming in-game mistakes on their unfamiliarity or their lack of sensitivity. As one *Herby* player said:

> *"Nowadays you simply know where to place your fingers. But in this case you find yourself bumping into stuff, and then you're dead."*

Here, the Let's Play videos show an interesting decreased familiarity with the controls and consequently a reduced sense of ownership over the virtual character and a greater awareness of the materiality of the game system (see Figure 9.2). Gregersen & Grodal (2009) argued that although the actions of pushing keys/buttons or moving joysticks (which they term 'primitive player actions' or 'P-actions') are arbitrary, these actions will often come natural to players which allows them to shift their phenomenal action space from the keyboard into the game space and experience a sense of ownership over the character's actions. What these Let's Play videos show, however, is that the naturalness of P-actions is very much historically determined, and contemporary players have a great difficulty adjusting to the controls of older games. Consequently, these players show a greater awareness of the materiality of the gaming machine, thereby highlighting characteristics of the machine which emphasize elements of the original without recreating an original experience.

Figure 9.2: A player in a Let's Play session at the museum playing Radarsoft's Eindeloos.

This greater awareness of materiality was also visible in players' comments about software carriers and box art. As one young *Herby* player stated:

> *"My grandma has these kinds of cassette tapes at home, but I didn't know they could also contain games. My grandma only has music on them."*

Or as another commented on the dissonance between box art and game art:

> *"But look! This doesn't look like that blue man at all! Look! This character is yellow and green, and here it's blue."*

With the deterioration of hardware and software carriers, and the fact that preservation of games would eventually require translation into new digital formats, it is exactly this material quality of games that runs the risk of being lost. While one can, of course, try to document contextual data at the time of the game's first release, we argue here that playing around with old hardware and software (while still available) in a different historical setting allows for a renewed understanding of a game's significance, highlighting original qualities in the documentation process itself. To that extent, the immanently forward-moving game industry is best understood backwards. As Newman notes, the game industry has been characterized as a "relentlessly forward marching industry" (2012: 52) in which older games function mostly as benchmarks for the next generation and are thereby quickly forgotten or only selectively remembered. In this ecosystem, current-day players are only able to reflect minimally on the significance or defining

characteristics of past games and game hardware.[6] On the other hand, looking back allows for a renewed understanding of original qualities exactly because we come to it from a different historical setting and our unfamiliarity encourages reflection. In response to Nylund, we would thus argue that this is the greatest preservation potential of putting up a Let's Play recording studio in a museum.

Moving from Preservation to Exhibition

Within the institutional context of a cultural heritage institution such as Sound and Vision, the goal of preservation is to be able to make audio-visual media accessible in different settings. Within the museum, people are encouraged to engage with and reflect upon the preserved media and their history at large. Merely displaying the hardware and software that make video games possible does not sit well with the more social, educational, and reflexive experiences the museum would like to offer. As many have pointed out, making the games playable within the exhibition is essential here (e.g. Naskali *et al.* 2013: 232; Prax *et al.* 2016: 6). Simultaneously, allowing visitors to record Let's Play videos according to their own preference adds another dimension. While providing valuable research results from a preservation perspective, we found that the Let's Play setup also provided visitors with a means of extending their museum visit with an interactive experience during which they consciously reflected on that experience. For three reasons, the production of Let's Play videos by museum visitors was shown to be a particularly helpful tool in exhibiting games as not just static objects but as media you need to engage with in order to understand them.

First of all, the contemporary media practice of making and watching Let's Play videos has become a familiar and popular pastime especially among younger visitors. Many of their heroes on YouTube make Let's Play videos, so we found that they have great motivation to participate in making their own. Visitors also had the media literacy to execute the assignment with little extra instruction. Some participants even suggested that they were considering making similar videos themselves in the future at home. Secondly, by inviting visitors to record a Let's Play video together with a friend or family member, the individual experience of playing the game became a social event. Especially interesting was the intergenerational interaction, where parents and even grandparents recount their memories of early gameplay to their (grand-)children. Children, in turn, relate the old games to their contemporary equivalent and discuss these with their (grand-)parents.

> *"Mother: What's the matter? Is it taking too long?*
> *Child: Yes…*
> *Mother: Yes, that's what it was like at the time (laughs), but that is no longer the case."*

6 With games now spanning over several generations, there is certainly a trend towards game nostalgia, whereby players are now seeking out and playing revived versions of older games. However, industry initiatives to revive or even actively remember these older games (e.g. older Nintendo games in the Wii U store) are purposefully selective since the industry generally does not want to be remembered for some more controversial titles and instead chooses those past accomplishments to steer the company towards future success (Newman 2012: 52).

Figure 9.3: Two young museum visitors recording their own Let's Play video, playing Radarsoft's Eindeloos.

> *"Mother: What do you think of the controls?*
> *Child: It is funny.*
> *Mother: It's called a joystick. At home you use the arrow keys for that of course."*

Finally, the lens of the camera encourages a self-conscious and self-reflexive disposition towards the activity of gaming and the historical development of games. Critical reflection on playing games and technological progress is evoked which is fitting for museums which "should be a place for reflection of past and present" (Mortensen & Kapper 2015: 72). Making a Let's Play video becomes a form of informal and playful learning, well suited for the context of a museum.

> *"These days we play in 3D. We have actually come quite far since 1985."*

> *"I think this game could be quite addicting because you want to get further every time. Just like in Flappy Bird, people kept playing it however difficult it was."*

> *"Can we go again? This is fun!"*

Returning to Newman's argument that the capturing of games in and at play should be at the forefront of game preservation (2012: 38), Let's Play videos allow us to extend this argument to exhibition as well. The authentic nature of the recorded gameplay ensures that we do not just produce and view ideal (or idealized) forms of play, but also failure, confusion, experimentation, deviance and so on, both by experienced players as well as newcomers. As Newman himself points out

elsewhere, the large range of different Let's Play videos of games available "ensures that we get a clear sense of the range of potential playings which a given game might support and, importantly, gain insight into the performances, observations and techniques of others" (2013: 62). Through its vicarious nature, the Let's Play video furthermore allows the viewer to experience these potential playings in a way which goes beyond an optimized and impersonal, recorded playthrough of a game.

Let's Play Installation at the Exhibition
Following up on our initial research experiment, we set up a more stylized version of the Let's Play installation in the museum and allowed visitors to live-stream their gameplay to YouTube. Over 60 videos were recorded of various games. These videos can be seen on the YouTube channel "Let's Play @ Beeld en Geluid."

Makers Play
We also recorded a few Let's Play videos with two makers of older Dutch games, playing their own games and explaining their mechanics and what inspired them to make these games. These videos were shown right next to the playable games at the exhibition.

As Swalwell pointed out, game collecting and preservation efforts are all too often committed to "a view of history as 'how it really was,' and of preservation as the means to relive past experiences" (2013: 11). While there is nothing inherently wrong with this commitment, one can wonder if there really was an original 'true' way to play the game. More so, the combination of the original playable game and a host of Let's Play recordings of its gameplay does not just provide insight into how it really was, but also how old games actually exist in the now, as channelled through contemporary player practices and expectations.

It's a Wrap! Games and Gameplay as Intangible Heritage

The aim of this project was to highlight the value of including both games *and* gameplay as cultural heritage. With this project, we argue that game preservation should be handled in such a way that the physical interaction between man and machine which the game affords can be understood, recreated, and again experienced, both vicariously and actually. Preserving the original hardware is one way to do that, but there is a definite expiration date to this approach. Using emulation is another way to approach the physical experience of playing the game, but as described above it is no panacea. Let's Play videos, then, enable us to capture and preserve the subjective, situated experience of an individual interacting with the game itself. It adds, as it were, an interpretative layer of personal experience or reception to the game itself.

Equally, this sense of what it was like to be there and then reminds us that the event of game*play* is an integral and essential part of the cultural value of computer games. These events can be considered to be intangible cultural heritage,

by which is meant those "practices, representations, expressions, as well as the knowledge and skills (including instruments, objects, artefacts, cultural spaces), that communities, groups and, in some cases, individuals recognize as part of their cultural heritage" (UNESCO 2003). As was pointed out by Kurin, the notion of intangible heritage, as conceived by the experts involved in drafting the convention, mostly excludes more contemporary (pop) culture practices such as, among others, playing video games (2004: 69). By now, however, many cultural heritage institutions do understand the importance and urgency of preservation strategies for such less traditional cultural objects and accompanying practices.

Of course, approaching gameplay as intangible cultural heritage reminds us that gameplay is always a historically situated and context-dependent activity. Capturing and preserving fragments of this wide array of playing experiences should be seen as part of the greater undertaking of capturing game culture and history. Gameplay as intangible cultural heritage constitutes highly subjective and variable experiences and only a multiplicity of sources can paint a vivid picture of what this heritage entails. Of course, that picture can never be all encompassing since Let's Play videos are not able to capture all the possible playthroughs and experiences that games as interactive media afford. In fact, Ligman (2011) and in extension Hale (2013) already notice "a tendency towards canonization of particular gameplay paths" (Ligman 2011).

Nevertheless, we argue that Let's Play videos provide significant potentials for both game preservation and exhibition. For preservation purposes, the Let's Play videos created in our setup highlighted interesting original qualities of older games such as their lack of tutorials, their limited action opportunities, and the materiality of hardware and software carriers. Here, it is exactly the discrepancy between contemporary player expectations and the older games, that allows for a reflection of original qualities and a documentation thereof in the process. For exhibition purposes, the Let's Play setup added a highly engaging component to the experience of Sound and Vision's museum, with visitors engaging in intergenerational discussions about games and gameplay. However, most importantly, the videos encouraged players to adopt a more analytical stance towards the game, reflecting on the game's technological characteristics and/or socio-cultural significance. Adding these videos to the exhibition space would not only give new insights into the game's significance but also give visitors a greater understanding of the game's wide range of potential playings.

Of course, documenting interactive phenomena like games through non-interactive video recordings always runs the risk of oversimplifying the gameplay experience since it does not provide insights into the game as a configurative practice. To that extent we also do not wish to argue for Let's Play videos as a one-size-fits-all solution to the issues surrounding game and gameplay preservation and exhibition. Instead, this chapter aims to explore the benefits of adding Let's Play videos to the range of already existing preservation strategies, such as emulation and other documentation efforts such as textual descriptions and interviews. And while this exploration has only just begun, the first results are promising.

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Explaining Archaeological Research with Video Games

The case of *Evolving Planet*

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Introduction

Archaeology has seen a large number of digital innovations during recent decades. Geographical Information Systems, archaeometry, or laser scanning are only some of the methodological advances of the discipline. However, the public image of how archaeology works is roughly the same as it was several years ago. Public fascination with archaeology is built upon a sense of discovery. Fictional works such as *Indiana Jones*, the *Tomb Raider* series (Core Design & Crystal Dynamics 1996-2016) or *Uncharted* series (Naughty Dog 2007-2016) are based on the concept of solving a mystery by unearthing an artefact or a city that has been forgotten for centuries (Meyers Emery & Reinhard 2015). Non-fiction but still popular media producers, such as *Time Team* or *National Geographic*, also promote this sense of wonder while emphasizing the rigorous methodology of archaeological research – as distant from these fictional pillagers as can be imagined.

These efforts for the dissemination of knowledge about archaeological practice are mostly focused on fieldwork. A simple search of images on the internet reveals that archaeological research is portrayed as excavations, surveys, and spectacular sites. Fieldwork is essential for contemporary archaeology, but the types of activities linked to the exploration of the past are much more diverse, ranging from remote sensing to laboratory work or Geographic Information Systems (Renfrew & Bahn 2011: 12-18). More importantly, the use of quantitative methods allow us to test hypotheses against evidence, and for this reason scientific thinking is at the core of all contemporary archaeology. However, how much of these other archaeological

scientific practices are presented to the public? Can we exploit this fascination with discovery while explaining what archaeology is really about?

We argue here that video games can promote scientific thinking while keeping the sense of discovery used in public archaeological outreach. A video game is essentially an interactive narrative device guided by the player's attempts to face the challenges posed by game mechanics. Every time a puzzle is solved or a decision is made the story advances, thus fostering an experience of discovery. At the same time, the emphasis on problem solving is based on trial-and-error mechanisms that can be linked to the scientific method through content knowledge, process skills, and logic reasoning (Morris *et al.* 2013).

In this chapter we discuss *Evolving Planet* (Murphy's Toast Games 2016), a video game created to increase the visibility of archaeological sciences, and specifically the emerging field of Model-Based Archaeology. This video game was designed as a dissemination initiative by the research project SimulPast. The player takes the role of a future scientist studying the extinction of a sentient species on a distant planet. The use of science-fiction allowed us to portray topics such as evolution, technology, and cooperation while solving the mystery of the disappearance of an entire civilization. At the same time, the game mechanics are remarkably similar to the methods used in the project, and particularly to computer simulation. We explore here a diversity of challenges and decisions faced by the development team in the effort to explain our research methods while retaining the sense of discovery of fictional archaeology. This is followed by a discussion on the most challenging question of the development: how can we explain evolution? It is a highly influential concept in archaeology, but its mechanism of random mutation and selection cannot be easily transformed to an interactive experience. We will conclude by summarizing the results of the initiative and the potential of video games for conveying scientific thinking in archaeology.

Explaining Simulation in Archaeology

Model-based archaeology is arguably one of the most exciting fields in archaeological research, as the current study of the past requires "both sophisticated modeling and large-scale synthetic research that are only now becoming possible" (Kintigh *et al.* 2014). Model-based archaeology transforms research hypotheses into formal models that can potentially be tested against empirical evidence. It provides several advantages over traditional descriptive models, including the explication of assumptions, the use of non-ambiguous languages, and the exploration of links between variables (Epstein 2008).

Computer simulation is one of the most widely used types of formal models in archaeology. It allows researchers to cope with the uncertainty of archaeological data while exploring the dynamics of socio-natural systems (Costopoulos & Lake 2010). Simulation is not new in archaeology: there have been up to three generalized attempts to integrate this tool in the field in a similar manner to other disciplines (Lake 2014). Although its application is not as common as other computational tools currently used in the field, such as Geographical Information Systems, its use is spreading. It is almost a standard approach in evolutionary archaeology (Lycett 2015), while its presence is

increasing in the study of topics such as resilience to environmental change (Balbo *et al.* 2014) or taphonomic processes (Davies *et al.* 2016).

This is the context of the project *SimulPast: Simulating the Past to Understand Human Behaviour*. SimulPast is a large-scale 6-year project aimed to integrate simulation into current archaeological research (Caro *et al.* 2013). This ambitious agenda is pursued through the creation of multidisciplinary teams of archaeologists, physicists, computer scientists, and anthropologists working on particular case studies (for a general overview, Madella *et al.* 2014). Achieving impact beyond academic environments was one of the major challenges of SimulPast. As any other large-scale research project it should explain its goals, methods, and results to the rest of society. However, it was at first unclear how we could achieve this objective, considering the previous remarks about the public perception of archaeology. The idea of linking simulation to the perception of archaeological research seemed challenging for conventional knowledge dissemination approaches such as books or presentations. Instead, the project team decided to create a video game.

Educators have highlighted the learning potential of these interactive entertainment media since the beginning (Bredemeier & Greenblat 1981). However, most of these games are not designed for this goal and their integration within current formal educational frameworks is difficult (Amory *et al.* 1999; Gee 2003). In contrast, their use within non-formal education has become hugely popular. The flexibility of these contexts makes it possible to exploit the potential of video games, even if they were not designed for educational purposes. Learning is an essential process in most games because the player needs to learn about rules, objectives, and strategies in order to beat the game (Metzger & Paxton 2016; Squire 2008). This emphasis on problem solving can be complemented by stories. Video games are narrative devices that unfold a story as the player advances through the game. This combination seemed perfect for archaeological research: problem solving could be used to explore scientific methods, while the narrative would promote the required sense of discovery. Finally, it could be argued that games are essentially simulations in which the player takes the role of one component of a system (Rubio-Campillo 2013). Both games and simulation integrate concepts such as complexity, interactivity, and non-determinism; even the interactive experimentation of games is also present in simulation (Clapper 2016).

Thus, the planned SimulPast video game would combine these three components: problem solving, discovery, and simulation. The player would take the role of an archaeologist, using simulation in a virtual laboratory designed to explore the past. At the same time, the narrative of the game would be exploring concepts that were also central to SimulPast, such as human evolution, environmental change, or cooperation mechanisms.

The Fate of the Lovans

The first drafts of the game placed the events on planet Earth and sought to tell the story of a hypothetical extinction of *Homo Sapiens* from the perspective of the aliens. The approach had obvious educational benefits as the player would be playing through actual biological and cultural evolutionary episodes (e.g. out

of Africa, Neanderthal extinction, Neolithic transition). However it also posed strong limits in terms of game design, as we would be explaining a story we and the players already knew. We ultimately decided to set the game on a new planet in a distant future. The player would be a part of the discovery of an extinct species of sentient aliens. The idea was not new, as the search for extra-terrestrial intelligences has, in the popular imagination, been linked to the possibility of finding extinct sentient species. This fictional field, called Xenoarchaeology, has been depicted in several science-fiction works, including literature (*Hyperion*, 1989; *Gateway*, 1977; *Revelation Space,* 2000), movies (*Stargate*, 1994-2011; *Prometheus*, 2012), and video games (*Mass Effect* series, BioWare 2007-2012; *Star Wars Knights of the Old Republic II: The Sith Lords*, Obsidian Entertainment 2004; *No Man's Sky*, Hello Games 2016).

The science-fiction setting also had other advantages. By imagining the evolution of a humanoid species we would link it to our own history. At the same time, we would disentangle archaeological thinking from current academic debates, thus increasing the understanding of the discipline beyond particular sites, cultures, or periods. The new planet gave the team the freedom to create a unique ecosystem and illustrate it with innovative and unique artwork. We could also showcase current technological advances in archaeology by imagining how archaeologists may make use of them in 1000 years. Finally, the player would be discovering the fate of an ancient and mysterious civilization so we could tap into the sense of discovery that is so typical for fictional archaeology.

The entire plot of the game was based on a common archaeological research question: what are the reasons behind the collapse of a society (e.g. Diamond 2002; Downey *et al.* 2016; Tainter 2006)? The use of a science-fiction context where an entire species had become extinct increased the sense of mystery in the story. In this hypothetical context, xenoarchaeology would be the only science able to provide valid answers. Research questions were fully integrated into the science-fiction plot, as can be seen in its summary:

> *"It's the year 3016, and you are in charge of an archaeological expedition to the planet Kepler-1138. Your aim is to know what happened to the Lovans, humanoid aliens that became extinct for unknown reasons. You will use artificial life to replicate the story of the mysterious species. Will you develop their technology, make them experts on warfare or strengthen their cultural influence? Choose carefully your strategy to reveal the past of the Lovans, and also their future."*

The Development of *Evolving Planet*

The creation of a game, from the initial concepts to its release, is no straightforward process. We found out that this is even more complex for dissemination initiatives, as their goals and limitations are rather different than other video game projects. We were able to assemble a team of experts in the different components of game creation, including programming, audio, artwork, and contents. However, the team did not include anyone with previous experience in game development, so all the topics were carefully analysed and discussed in the group before making decisions.

Here we list the most important aspects of this process, including the technology used, the design of game mechanics, and the development of the plot. This set of topics will hopefully exemplify how a game designed for scientific outreach differs from other initiatives. It also illustrates the diversity of the decision making processes involved in game development, from purely technical choices to level design and narrative development.

Technology

One of the aims of this project was to create a product that could be accessed by as many players as possible. While use in formal educational settings was not disregarded, emphasis was placed on the individual experience of gaming as a method of non-formal education. This user-centred learning environment is completely voluntary, in contrast with a teacher-centred context (Watson *et al.* 2011). As a consequence, we sought to bring a similar level of game design and interactive engagement as the commercial products with whom it would be competing, otherwise nobody would play the game and the experiment would fail.

The project aimed for the game to be distributed through digital delivery services. In recent years, these platforms have democratized the access to both the target audience and the products. Digital distribution allows any small development team to publish software in contrast with the difficulties posed by physical retailers and conventional distribution methods. As a consequence, a large percentage of low-budget games are currently released only in digital downloadable formats (Lowthorpe *et al.* 2013).

The game would only be available for portable devices (i.e. smartphones and tablets). The release of the game both in the Google Play Store and Apple's App Store would allow us to maximize access to the game, while avoiding any delay posed by the Steam publication process. This was extremely important considering that the project had a fixed length of 2 years.

The decision to deliver multiplatform support (Android and iOS systems) was constrained by the fact that the team only had two part-time programmers. Each supported platform would mean duplicating the coding effort, as each platform supports a different programming language (Java for Android and Swift/Objective-C for iOS). Fortunately, this problem is ubiquitous to independent game development so to facilitate the task the programming community has created cross-platform development frameworks. Cocos2d-x was the final choice after careful evaluation. It is an open-source C++ platform able to generate binary files compatible with several systems including iOS and Android. It is important to note that a video game is a very complex piece of software because it requires interfaces for audio, image, and player interaction. Cocos2d-x helped to reduce the effort by including a diversity of modules for data storage, Artificial Intelligence, scripting, and several other required functionalities.

Game Mechanics

The content of the game included several processes linked to human societies (e.g. dispersion, adaptation, conflict, and cooperation). The player should be able to use and explore these topics through game mechanics. For this reason, it was decided

that *Evolving Planet* would be a strategy game. This decision would allow us to develop a game engine similar to current agent based models used in archaeology. The entire game would be based on a set of small duration missions. This progress dynamic was tailored to the type of short-term gaming typically seen on portable devices (Rubio-Campillo 2013). The player would control a population of agents within a dynamic landscape on each mission. The goals of the mission would be achieved by modifying traits on the level of the population instead of individual agents. This general structure would be flexible enough to create missions focused on particular processes or a combination of them.

As stated above, one of the major interests of the initiative was to explain how the scientific method is applied to understand past societies. The mission-based structure seemed perfect as each of the missions would be presented as a particular experiment designed to test a working hypothesis. Each mission would have a briefing explaining the context and making a question explicit: how could they survive in this zone? Did they move fast? How was their interaction with other species? These briefings explained the ideas of the xenoarchaeology team and how these would be validated against the results of the simulation experiment. This is, in fact, the method used in model-based archaeology to test a research hypothesis against the archaeological record.

To illustrate this approach, we highlight some prototypical missions:

1. We know that the population moved from point A to point B within a given time span. The player needs to replicate the time of arrival given by the existing evidence: if the agents arrive too early or too late to B then the experiment fails.

2. The group colonized a region previously populated by another species. Different hypotheses have been suggested for what their interactions looked like, so the player can try a diversity of strategies to pass the mission (i.e. violent conflict, hybridization, indirect competition).

3. There is evidence that the population used natural resources from a distant region. Possible explanations involve trade or conquest so the player should explore both ideas.

This structure also highlights the fact that sometimes hypotheses cannot be rejected due to the lack of enough evidence (i.e. equifinality). In addition, any scientific explanation is always subject to revision when new data appears. This idea is also reflected in the game structure as players can repeat a mission to improve their score. The devised game mechanics were flexible enough to present all these properties linked to the nature and dynamics of science.

Narrative

Strategy games can run the risk of distancing the player from the action. The player is not an on-screen agent, like as is the case in First-Person Shooters (FPS) or Role-Playing Games (RPGs). The genre mostly consists of top-down perspectives in which the player controls a large amount of indistinguishable characters (see for

Figure 10.1: Command console of Evolving Planet. A region of the planet is portrayed in the map, including geographical and environmental features. Population is depicted as coloured white dots. The player can indirectly interact with them by spending Evolution Points on their modifiable attribute (in this scenario: mobility, reproduction rate, and resistance) or temporarily boosting some of them. This user interface is rather similar to the ones used in agent based modelling.

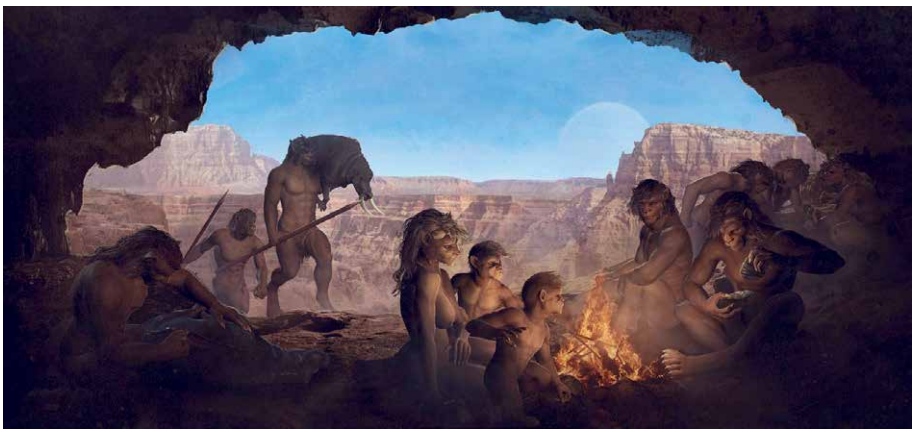

Figure 10.2: Sample of the illustrations unlocked by achieving mission goals. Here a hunter-gatherer domestic scene is portrayed. Despite the differences, several elements of the human past can be identified including fire, technology, food processing, and even social dynamics.

example the *Civilization* series, Microprose & Firaxis 1991-2016, and *Total War* franchise, Creative Assembly 2000-2016). This is useful for management but it has limits in terms of immersion. One of the current trends in strategy is complementing typical genre mechanics with RPG ideas designed to address this issue, such as personalization of characters (*X-COM*, Mythos Games *et al.*1994-2016) or the introduction of narrative elements (*The Banner Saga*, Stoic 2014).

Evolving Planet faced a similar challenge: the user interface would consist of a map with coloured dots representing the different populations (see Figure 10.1). The team decided to expand the original plot by adding a parallel narrative that would unfold over the 20 missions. After each successful experiment, the player would be provided with additional insight from the perspective of the replicated species. While the experiment briefings were based on short text descriptions and concise information, this parallel story was discovered through a set of high-quality illustrations accompanied by a window into the thoughts of and questions posed by the evolving species (see Figure 10.2). Each of the illustrations was thoroughly discussed to include state-of-the-art research hypotheses (e.g. Neanderthal-Sapiens hybridization). At the same time, the team tried to avoid common stereotypes of the past found in commercial video games such as predefined gender roles or the emphasis on social elites. In this way, we were able to tell the same story from two perspectives, that of the xenoarchaeologists and that of the sentient species, thereby increasing the engagement between the player and the controlled population.

The Challenge of Evolutionary Thinking

As exemplified by the title, evolution was one of the most important concepts for *Evolving Planet*. Evolutionary thinking is at the core of several archaeological simulations exploring topics as diverse as hominin dispersal (Romanowska 2015), cultural variation (Mesoudi & O'Brien 2008), social learning (Crema *et al.* 2014), or cooperation dynamics (Santos *et al.* 2015). The game roughly followed a trajectory spanning from the appearance of hominins to the Neolithic transition, combining ideas of both cultural and biological change. The importance of evolutionary dynamics could also be seen in the population-based approach: player interaction was based on the modification of adaptive traits in order to improve group fitness against different challenges.

The introduction of evolution proved to be extremely difficult. In our opinion, there is almost no video or board game in which evolution by natural selection is properly integrated into the mechanics. The reason is simple: real evolution is quite boring in terms of game design as it operates through random mutations instead of purposeful agency. In fact, any interaction between the player and her population should not be seen as evolution at work, but as a form of intelligent design. It does not matter if the player can affect the innovation path, learning, environment, or DNA: any change of selection mechanisms will be a manifestation of the player's ('God's') will. As a consequence, a large majority of games are not portraying Darwinian evolution but a flavour of Creationism such as intelligent design. Due to the randomness of mutation mechanisms, natural selection also implies non-predictability. In contrast, most games have a predefined pool of potential innovations (see for example *Plague Inc.*, Ndemic Creations 2012, for biological change and the *Civilization* franchise for cultural change). As a consequence, games portraying evolution are essentially showing a narrative of progress guided by the decisions of supernatural entities such as the player or the designers. It is worth noting that these limits on the narrative of video games have been explored by some games such as *The Stanley Parable* (Galactic Cafe 2013) or, more recently, *Inside* (Playdead 2016).

How, then, can we integrate evolution in a video game if any interactive game mechanic is breaking the concept of evolution itself? The development team tackled this challenge with multiple decisions. First, we discarded a pure evolutionary mechanism and decided to create a story that would explicitly integrate intelligent design. In contrast with games like *Plague Inc*. or *Civilization*, the player would not be interacting with a natural context but with a large-scale laboratory. She would take the role of the scientist controlling a population of androids created by humans through artificial selection. In this way we avoided the paradox of interacting with a purely evolutionary system led by natural selection. At the same time we wanted to show how natural selection will interfere with any artificial selection process. We introduced this concept using a narrative device: as the missions progress the player will feel that control over the population decreases over time, peaking in the different endings of the game.

We also avoided linearity by designing missions with multiple solutions. The population would achieve its goals by different means, from specializing on some strategy to increasing its reproductive rate or attacking competitors. Contrary to most games, the adaptations of the species would not accumulate from one mission to the other. In this way we wanted to show that fitness is an ever-changing concept as it is strictly linked to present environmental conditions: a species with high fitness in one scenario can become extinct if its environment changes. As a consequence, the populations of the later missions would not have increased reproductive or movement rates compared to the first ones.

Finally, achievements would be unlocked based on the player's performance. They provide small tokens of scientific knowledge linked to the goals of each mission. A large percentage of them promote evolutionary thinking, from the famous tree of life drawn by Charles Darwin to quotes by famous scientific communicators on topics such as intelligent design and biological evolution. In this way, the project tried to improve the understanding of evolution via multiple routes while relying on thoroughly tested design mechanisms. It remains a challenge for future projects to create an interesting video game using evolution by natural selection as its main game mechanic.

Release and Impact

After being in development for almost 2 years, including an extensive beta testing phase, *Evolving Planet* was successfully released for iOS and Android platforms in early 2016. The impact of the project exceeded the team's expectations, despite the limited resources and the lack of advertising budget. The game has been downloaded over 40.000 times in 1 year. Beyond quantitative measurements, the team also got feedback from persons with a diversity of profiles, including hardcore gamers, high school teachers, and archaeologists (see *e.g.* Graham 2016).

This experience supports the idea that video games are one of the best available methods for explaining the past (Metzger & Paxton 2016). The combination of powerful narrative and problem solving makes them particularly well adapted to translate the dynamics of archaeological research (Meyers Emery & Reinhard 2015). They can provide a rich perspective on the past while avoiding the linearity and determinism of other media such as books or documentaries. It

is also remarkable that players are active users who need to download and play the game. Their interactivity and ability to craft experiences for individuals on a massive scale gives video games an edge over other mass media such as television or newspapers (Skoric *et al.* 2009). Finally, the new distribution systems and open-source development platforms have decreased the budget required to create a video game up to the point where initiatives linked to research can actually compete with the rest of the market.

Video games are frequently judged negatively in terms of education. Scholars have been so focused on analysing whether they can affect social and individual behaviour, that we often ignore their potential benefits (Squire 2003). As researchers, part of our job is to explain what we do to the rest of society, and video games can be an excellent tool to achieve this goal.

Acknowledgements

We would like to thank the reviewers for their comments on previous versions of this manuscript.

Evolving Planet would not have been possible without the participation of several institutions and individuals. Xavier Rubio-Campillo is part of the SimulPast Project (CSD2010-00034) funded by the CONSOLIDER-INGENIO2010 programme of the Ministry of Science and Innovation, Spain. The remaining authors were part of the SimulPlay project funded by the Recercaixa 2013 programme.

The development team was continuously supported by a broader community, including Maria Yubero, Debora Zurro, Enrico Crema, María Coto, Simon Carrignon, Jean-Marc Montanier, Gemma Ribas, Francesc Xavier Hernàndez, Maria Feliu, Maria Toth, Carme Pérez, Carla Lancelotti, Marco Madella, Jonàs Alcaina and many others. Special thanks to the community of people supporting Cocos2d-x. Finally, we would like to thank the thousands of players who downloaded, played, and enjoyed *Evolving Planet*.

The game is freely available for iOS and Android devices at <www.evoplanetgame.com>. Source code has also been released under a GPL license and can be downloaded from GitHub.

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Crafting the Past

Unlocking new audiences

Julianne McGraw, Stephen Reid & Jeff Sanders

Introduction

One of the main aims of *Dig It! 2015*, the year-long celebration of Scottish archaeology, was to make it easier for new audiences to engage with the past. Thanks to ImmersiveMinds, games-based learning specialists, the Dig It! 2015 team was introduced to the versatility and popularity of *Minecraft* (Mojang 2011). *Crafting the Past* was born and over the next twelve months, the project pulled in a range of partners resulting in a variety of historical builds and innovative events, as well as sponsorship from Multiplay and AOC Archaeology Group. This paper explores some of the successes, challenges, and lessons learned from the project, and what can happen when organizations step away from their comfort zones and start a conversation with an entirely new audience.

The Background Story

Encouraging new audiences to discover Scotland's stories was central to Dig It! 2015, as there is a lack of engagement and provision in terms of heritage activities for demographic groups such as 16-24 year olds. This year-long celebration of Scottish archaeology was coordinated by two charities, the Society of Antiquaries of Scotland and Archaeology Scotland, but was designed to encompass the entire heritage sector. The connection of people to place over time, labelled as 'Identities,' was set as the overarching theme, and young people (16-24 year olds) as well as Lifelong Learners were the core target audiences. By the end of the project, Dig It! 2015 had promoted over 1,500 events, worked with over 225 partner organizations and covered all 32 local authority areas in Scotland.

One of the most popular Dig It! 2015 initiatives came from a partnership with ImmersiveMinds. ImmersiveMinds uses gaming to teach both soft skills (confidence, communication and collaboration) and knowledge (maths, science, history), as well as develop emotional intelligence (empathy, self-awareness, resilience) by theming builds and activities around contemporary issues such as the refugee crisis, international aid and development, and global citizenship through

the ImmersiveMinds Humanities Maps (Reid 2014a). For this particular project, Crafting the Past, ImmersiveMinds used *Minecraft* to bring archaeology to life for new audiences by recreating real world sites on a 1:1 scale.

In the heritage sector, 'traditional' audiences tend to be older: for example, the Scottish Household Survey for 2015 showed attendance at 'historic places' (including archaeological sites) for 16-24 year olds at 25%, second lowest of all the age categories (Scottish Government, 2016: 239). Younger people comprise the majority of the 40 million people playing *Minecraft* each month (Hill 2016), representing a huge potential audience to engage. The game has also attracted a much broader and older demographic, including professionals from fields such as architecture and construction. This first-person sandbox game allows players to create their own experience by mining for materials, crafting basic raw materials into more complex ones, and building and creating. By using this game, ImmersiveMinds and Dig It! 2015 could invite players to take part in digital archaeological digs, explore heritage sites, and redevelop ruined buildings, ranging from Pictish hillforts to 18th century Palladian mansions. Crafting the Past has been supported by a range of partners, including those in the gaming and archaeology communities, with backing from Multiplay and funding from AOC Archaeology Group.

As with most endeavours, the biggest challenge was the first step. In many cases, cross-sector ideas such as Crafting the Past struggle to get off the ground, as heritage organizations do not always have the skills, experience, or contacts required to bridge the gap, or they do not have the resources or flexibility to take such a 'leap of faith.' In the same way, external organizations may be keen to work with those in the heritage sector, but are faced with similar challenges. This is where the partnership aspect comes in. Thanks to ImmersiveMinds' enthusiasm and games-based learning expertise, and Dig It! 2015's pre-existing heritage contacts and desire to innovate, the teams were able to start building these links and diversifying their audiences. This paper will explore the lessons learned throughout the development, launch, and management of this collaborative project and illustrate how organizations can reach beyond their traditional audiences by working with a different sector – in this case, archaeology and gaming.

Step One: The Building Blocks

Minecraft is the second most successful computer game ever (second only to *Tetris*), with over 100 million copies sold, and with players now in every country in the world. It is available cross-platform on the PC, Mac, Xbox, PlayStation 3/4, tablet, and even on the Raspberry Pi. *Minecraft* is currently one of a few games in the world to have its own convention, which is dedicated solely to the celebration of both the game itself and the community of players, modifiers, coders and map makers who use the game to create countless new adaptations on a daily basis. The game has rocketed to success in a range of fields beyond its intended purpose (a game for home computers), including use as a tool for social and structural development with the UN (i.e. the *Block by Block* project) and as a tool for the exploration of art, language, and poetry in major art galleries (e.g. see mcKupo 2014). It is also amassing a huge following in schools, colleges, and universities around the world with the introduction of *Minecraft: Education Edition* (Mojang 2016; *cf.* Reid

2014b). For example, a pioneering project at Ulster University, *BelMCraft*, is being used to help young people better understand the built environment and develop skills and competencies that are highly valuable in the construction sector (Ulster University 2016). By working closely with children from primary and secondary schools, the university hopes to raise the profile of the construction industry and promote the flow of talented young people into these professions.

The Dig It! 2015 team was first introduced to the possibilities of *Minecraft* at a *Teens in Museums* workshop[1] on reaching younger audiences. One of the projects discussed was *Tatecraft* created by Adam Clarke (aka Wizard Keen), which used *Minecraft* to allow people to step into famous artworks held in the Tate collections (Tate 2014). Clarke subsequently put Dig It! 2015 in touch with the ImmersiveMinds team and they began to explore the potential of a games-based learning approach. As a trial run, ImmersiveMinds buried a Roman amphitheatre in a *Minecraft* world and assembled a group of players from their online *Minecraft* community to excavate it 'as an archaeologist would.' The group was made up of all ages who were participating from different countries across the world, with the whole dig observable in real time through Twitch, a video streaming platform.

Without any prompting, the participants discussed topics ranging from health and safety to excavation strategies. They pondered (and researched) questions such as: where are the toilets on a dig site? Did the Romans actually reach Scotland? Have archaeologists ever uncovered an amphitheatre in Scotland? People with no prior interest in archaeology were inspired and motivated enough to go off and undertake their own learning thanks to this tool – not because they 'needed to,' but because they 'wanted to.' Engagement of this sort – behavioural, cognitive, and motivational – is a core objective of pedagogical practice, because of its intrinsic relationship to the quality of learning that takes place (Linnenbrink & Pintrich 2003). Educational research suggests that students' motivation and engagement increase when they place value on what they are learning (Miller & Brickman 2004; Shell & Husman 2001). Therefore, it could be suggested that the use of this virtual tool encouraged the novice virtual dig team to place value in understanding practical and historical information pertaining to the real world site, resulting in active engagement, motivation, and self-regulated learning. In terms of archaeological outreach and engagement with new audiences, this linking of past and present, and digital and real-world sites was a substantial indicator of success for the collaboration: it was active learning, it explored archaeological methods, and it engaged a new audience on their own terms. With one digital dig, the Dig It! 2015 team was convinced.

ImmersiveMinds was already well aware of *Minecraft*'s games-based learning potential and its audience appeal. The definition of 'games-based learning' varies throughout the academic literature, but put simply, it can be considered "the use of digital games with serious goals (i.e. educational objectives) as tools that support learning processes in a significant way" (Sica *et al.* 2012: 108). There has been significant interest in the use of digital games for classroom learning in recent years, largely stemming from long-standing arguments about the relevance

1 *Teens in Museums* is an initiative working both with, and for, young people in museums.

of outdated educational models for preparing learners to participate, learn, and work in a digital society (OECD 2013). While there has been a lack of empirical data to support claims about the long-term impacts of games-based learning, there is general consensus that computer games used as part of the learning process can lead to greater engagement and motivation in learners, pique curiosity, spark ideas and creative thought, and promote enjoyment in learning (Gee 2009; Kirriemuir & McFarlane 2004; Rupp *et al.* 2010; Sica *et al.* 2012). Of direct significance to this project was the opportunity for players to be immersed in new environments and learning contexts (such as history and archaeology), thereby stimulating experiential learning and motivating learners to explore, ask questions, and engage within the context (De Freitas 2006; Sica *et al.* 2012).

While this was a pioneering project, *Minecraft* is rapidly gaining acknowledgment for its potential as a tool for learning. A review by Scientific American in 2014 suggested that "not only is *Minecraft* immersive and creative, but it is an excellent platform for making almost any subject area more engaging" (Gerschenfeld 2014). More recently, Emeritus Professor of Mathematics at University College Cork, Patrick Fitzpatrick, has suggested that it is of critical importance that teachers are encouraged to exploit the learning potential of *Minecraft* and other video games in their classrooms (Broad 2015). Professor Fitzpatrick is leading a new global mathematics enrichment initiative that aims to support teachers in developing children's logical and critical thinking skills through games like *Minecraft* (e.g. George Boole 200 2015).

While much of the literature on the benefits of using *Minecraft* as a learning tool relies on observational and anecdotal evidence from education professionals, the references to higher order thinking skills, including problem solving, and critical and creative thinking, are an indicator of where games have the potential to make a real difference in the classroom. Bloom's taxonomy provides a framework that categorizes cognitive skills by their complexity (Bloom *et al.* 1956). In the revised version of the framework (Krathwohl 2002), analytical thinking, evaluative thinking, and creative thinking are considered to be most complex and, as such, have become commonplace as learning objectives in curricula throughout the world (Ananiadou & Claro 2009). These Higher Order Thinking (HOT) skills, have become synonymous with the skills required to be a successful citizen, a life-long learner, and competent employee in a globalized, digital society (P21 2003).

Unlike most other video games, *Minecraft* does not have a right or wrong solution, there is nothing to win and there is no narrative or storyline carrying the players through someone else's imaginary adventure. *Minecraft* provides learners with the opportunity to build, craft, or create anything that can be imagined. This is of intrinsic value in a classroom setting because teachers can use the blank canvas *Minecraft* presents to weave opportunities for creative thinking through contextualized curricular learning and collaborative projects (Murray 2014). Couple this ability to develop higher order cognitive skills with the other benefits of games-based learning (including high engagement, motivation, and self-directed learning) and you have an incredibly powerful learning tool that can be used in class, at home, or to connect with the work of other learners in other countries. In a rapidly advancing technological world, creative thinking, problem

solving, communication, and collaboration are highly valued by educators and employers alike, and necessary for the success of individuals in modern, knowledge-based economies. Other sectors, such as culture and heritage can now build upon the advancements made in education and use tools such as *Minecraft* to promote engagement and learning with their projects, in addition to sparking what could become a lifelong interest in their work.

Dig It! 2015 decided to embrace this approach and began to look for support. AOC Archaeology Group Ltd and Multiplay were approached and agreed to contribute financially and in-kind with expertise and technical support. This support was essential to the success of the project, and the fact that a commercial archaeology organization and a gaming services company were both associated with the project created a compelling story in itself.

The trial dig had demonstrated *Minecraft*'s potential and proven that topics such as health and safety could be explored and even enjoyed. For example, the trial dig provoked considerable discussion (and amusement) regarding early mistakes in approach, from *Minecraft* archaeologists trapped in poorly dug trenches to the need for suitable and hi-vis clothing. The other unique selling point was accuracy. Therefore, we sought to build Scotland as the most topographically accurate map of any country in *Minecraft*. Such precision was important from an archaeological point of view as activities involved a real world component: people could explore both real and digital worlds armed with accurate information.

However, this was easier said than done. The ImmersiveMinds team pioneered this approach by developing a massive map in three parts: topography, structure, and textures. The first aspect involved bringing a landscape into *Minecraft* at 1:1 scale with every element of the landscape in place. As an added challenge, this had yet to be achieved in the desired scale. Before producing any results in *Minecraft*, ImmersiveMinds had to port GIS data through several separate software programmes and manually calculate a series of formulae (including one for the curvature of the earth). This was a trial and error task, and the calculations had to be changed slightly each time. Although the team did manage to create the whole of Scotland at a 1:1 scale, they could not access a computer that could process it as a raw file or as a *Minecraft* map. It was simply too big and they are now waiting for technology to catch up. This level of accuracy meant that they could only create individual builds on relatively small areas of Scotland at any one time (although these could still be sizeable). The Isle of Arran and the Orkney Islands, for example, were successfully built on a 1:1 scale. For the purposes of the smaller, more focused *Minecraft* builds for Crafting the Past, they learned to limit themselves to maps[2] of no more than 500 x 500 blocks.

Structural elements in *Minecraft* also offered challenges. Some real-world buildings have complex life histories of alteration and, in some cases, ruination, while other builds involve reconstructing buildings from negative features (for example, a defensive wall from post holes). Where there are existing structures (e.g. Penicuik House, see below) the team spent days on site taking photographs and video recording all of the essential features and analysing plans and geospatial

2 All *Crafting the Past* maps are available online <http://digit2017.com/crafting-the-past/>.

software to ensure accuracy. Textural elements provided opportunities for the team to explore the artistic capabilities of *Minecraft*. Using software such as Photoshop, the team recreated textures and patterns for individual builds, including oil paintings and historic wallpaper.

As ImmersiveMinds improved the technical aspects and honed the process, both teams also wanted to explore the historical dimensions to games and games-based learning and how this had evolved over time. In January 2015, Dig It! 2015 and Society of Antiquaries of Scotland co-organized *Playing the Past*,[3] a joint event with National Museums Scotland to coincide with their *Game Masters* exhibition. The exhibition featured more than 100 playable games and according to National Museums Scotland's annual review, "the reach of the exhibition was extended through an imaginative programme of events and activities, featuring talks and debates led by industry experts, game designers, and animators. These attracted a diverse young audience, many of whom had not previously visited the museum" (National Museums Scotland 2015: 10). Playing the Past featured a series of speakers and a panel discussion in front of a fully-booked auditorium at the National Museum of Scotland in Edinburgh. The event challenged the audience to explore how people in the past used games to distract, escape, and teach, and how they are mobilized today for similar purposes. The speakers also explored the role of games-based learning before a panel discussion between academics, games journalists, games-based educators, and the audience. The audience was then encouraged to try a series of games, including computer games, chess, Nine Men's Morris, and *hnefatafl* (a Viking board game). There was a huge appetite for this type of crossover, and regardless of what attracted them to each station, participants of all ages took full advantage of the opportunity to talk and play. As an added benefit, the success of Playing the Past helped to convince future partner organizations of the value of a games-based learning approach, while illustrating both the academic and educational benefits.

Step Two: Pressing Play

Once ImmersiveMinds and Dig It! 2015 had a better idea of how archaeology and *Minecraft* could be combined, it was easy to pitch Crafting the Past as an exciting educational opportunity to reach new audiences. People would engage either through single player maps available on multiple computers or on servers (*Minecraft* servers can host up to 100 people). The former approach was more regularly used, although the latter offers more scope for assigning roles and collaborative work (which will be a future direction for Crafting the Past).

Watling Lodge

The first opportunity came on World Heritage Day 2015, at a Roman site along the Antonine Wall called Watling Lodge. The wall itself is part of the Frontiers of the Roman Empire UNESCO World Heritage Site. It poses a challenge in terms of presentation and engagement, as the building foundations are not always visible, which makes it difficult to promote in a traditional sense.

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3 The title was inspired by the *Play the Past* blog <http://www.playthepast.org/>.

Barnardo's Scotland and the *'Previously…'* Scotland's History Festival had approached Dig It! 2015 with regards to an event with the Tamfourhill Local Resident's Association at their Watling Lodge property. It happens to be located on one of the best preserved stretches of the wall, and is surrounded by residential properties at Tamfourhill. Their idea was to celebrate and raise awareness of local heritage, while building links between the co-ordinating organizations.

Watling Lodge exists today as an 18th century lodge with a unique shape and complex roof. Creating the 18th century structure in *Minecraft* required a substantial amount of planning, build testing, and retexturing. It also had to be sited in a topographically-accurate landscape, including footpaths, fencing, tree lines, roads, and other buildings. The Roman fort itself (buried behind the current Watling Lodge), included fort walls, stables, a well, and living quarters. Once built, it was digitally buried using third party software in *Minecraft* and covered with topography.

On the day of the event, participants were invited to re-enact the archaeological dig in *Minecraft* in tandem with a live dig. Children used digital tools to uncover the *Minecraft* build and real archaeological tools to uncover the past in the real world.[4] A member of the ImmersiveMinds community also acted as a Roman ghost in the game by logging in from a remote location and changing her character to look like a Roman centurion. This was an immediate hit and the young players began asking the 'ghost' questions about Rome, the fort, and the Roman campaign in Britain.

Crafting the Past aimed to equip people with the confidence to use *Minecraft* in other formal and informal education contexts. To support this development, ImmersiveMinds was very open about their work and used the company blog to post videos and articles to explain the builds and the step-by-step process. Readers were encouraged to get in touch if they had any questions about the map or their techniques. The *Watling Lodge* blog post outlined how the build was created using Google Earth and Google Maps data images and how certain websites were used to adjust the graphics (Reid 2015a). There was noticeable demand for this kind of information, as this post in particular proved to be very popular and attracted press interest.[5]

Moncreiffe Hill

One of the most technically challenging and biggest *Minecraft* builds was Moncreiffe Hill, which was created for the Tay Landscape Partnership.[6] This hill in Perthshire contains the below-ground remains of a Pictish hillfort, Moredun Top. The build involved topographically recreating the hill as well as the buried site. It also involved the reconstruction of the fort as it would have originally stood. This meant that archaeologists needed to visualize the site and communicate this to the *Minecraft* team. The build was initially showcased as part of the *UNEARTH: The*

4 Not within the boundary of the World Heritage Site, however!

5 For example, the Scottish television network STV featured this dig based on the blog post <http://glasgow.stv.tv/articles/319093-stephen-reid-build-minecraft-scotland-map-for-archaeology-project/>.

6 The Tay Landscape Partnership is a four year project celebrating the landscape of where the Scottish rivers Tay and Earn meet.

Mystery of Prehistory! festival in Perth and was followed by a real world community excavation on the hill itself.

ImmersiveMinds started by building a topographically accurate terrain of over a mile square. Thanks largely to the work of the Tay Landscape Partnership, archaeological surveys and assessment could be used to get a good sense of what lay beneath the surface. They also worked alongside archaeologists to identify the most probable locations of the Pictish structures. ImmersiveMinds then manually 'sketched' the lines of the fort walls using stone *Minecraft* blocks. This was followed by the massive task of actually building the walls. In order to maintain historical and engineering accuracy, they created the wooden beam frame for the walls using tree posts in *Minecraft*. They then filled the frames with stone to create the looming, rounded walls which surround the inner fort. The team also created the walkway on the top of the wall which lead to the inner and outer gates. Once this was complete, they created the quarry**,** pond, houses, workshops, and livestock pens. They then duplicated the *Minecraft* map, ruined and buried the fort beneath the surface, and replaced the topography. This created two maps from two different time periods. ImmersiveMinds was careful to leave impressions of what was buried beneath, which meant that you could make out the shapes of the walls and some buildings from above the hill, as you can in real life.

The Moncreiffe Hill build first premiered at the Tay Landscape Partnership's outdoor prehistory festival in August 2015. It did not take long to catch the public's interest and the Crafting the Past stall on Perth High Street soon saw queues of visitors looking to become digital archaeologists. People of all ages were encouraged to explore the fort by once again using their digital spades to carefully dig down into the earth and uncover the ruins that ImmersiveMinds had buried. The original map was also projected onto the wall so that players could see what they would eventually uncover. Visitors and gamers of all ages worked together to uncover the houses, walls, and part of the quarry, while discussing the site and its history.

Penicuik House

One of the highest profile Crafting the Past projects was Penicuik House[7] – an 18th century Palladian mansion in Midlothian which was gutted by fire in 1899 (see Figure 11.1). The build was used to launch *Doors Open Days 2015* in Scotland as part of *European Heritage Days* and received national press coverage, including a resulting STV interview with ImmersiveMinds, Dig It! 2015, and AOC Archaeology Group.

As with all Crafting the Past builds, ImmersiveMinds started with the topography. This was a challenge, as the house sits at a significantly odd angle towards the north. In most cases, the angle is small enough to simply tilt the landscape to suit the building, therefore creating a 'fake north' in the game. In this case, however, it was larger than a few degrees, which would have caused additional issues with the topography. Because *Minecraft* works on the basis of squares, any building that is not 90 degrees in reality can be difficult to represent in a block-

7 The build was in partnership with the Scottish Civic Trust and Penicuik House Preservation Trust.

Figure 11.1: Penicuik House. The ImmersiveMinds team used a combination of site visits, still photos, GoPro camera footage, sketches, paintings, plans, and models to create detailed, 1:1 scale Minecraft versions of sites such as Penicuik House.

based world. It is not impossible, but it was far easier to create the building on a 90 degree axis and then adjust the scenery around it to match. Often this needs to be done manually on a block by block basis. On the Penicuik House map, the process of placing the building and adjusting the scenery took an additional 72 hours to complete.

ImmersiveMinds required a lengthy site visit to recreate the structure in full detail to a 1:1 scale. By combining still photos and GoPro camera footage, they created their own detailed tour of the building. They were also able to access a huge amount of online and paper resources which detailed the history of the building, including old sketches, paintings, and plans. The owner, Sir Robert Clark, also gave them access to an old physical model of the building. The team used this imagery to work between their video monitor and the game by pausing the footage to view and build each small section. They recreated the house exterior and interior by decorating the house as it had been in the 1890s, complete with chandeliers, statues, wallpaper, and the oil paintings of the Clark family who had been resident in the house since the early 1600s. Finally, they added textures to create the correct brick effect, window detail, and pillars.

Once ImmersiveMinds had created this level of detail, they began looking at the fire that destroyed the house. As the internal walls did not survive, these were created with inner layers made out of wool *Minecraft* blocks (textured to look like stone). The roof was then made from wood (retextured to look like tiles) and the walls that remain today were left as stone. They knew that if they set the whole structure on fire, the wool and wood would burn away, while the stone

ruins would remain standing. By the end of the project, three builds had been created: the building as it currently exists, the building as it stood before the fire, and the building as it burned down in 1899. As there is a campaign to restore the house and grounds, it has even been suggested that a fourth build be added: a reconstruction of what the area might look like in the future.

To bring Penicuik House to a wider audience, ImmersiveMinds once again produced a blog post detailing the build (Reid 2015b). In addition, the map data was used to 3D print the ruined house and grounds for outreach, and the *Minecraft* build was the subject of a YouTube video by Dig It! TV (2015). This volunteer-led channel, co-ordinated by (now) *Dig It! 2017*, was designed to reach new audiences and inspire them to explore Scotland's history, heritage and archaeology. YouTube was an ideal place to showcase Crafting the Past, as this platform reaches more people than most cable networks (Chau 2010; Nield 2015). It also offers a unique opportunity to engage with wider audiences by opening up locations, people, and artefacts which might otherwise be restricted in terms of access or availability, such as the Penicuik House interior (Tait *et al.* 2013). In addition, YouTube is seen by viewers as both a more authentic and a more approachable medium than television, which makes it a popular access point for informal learning (Strangelove 2010). Since being uploaded in October 2015, the 'Crafting Penicuik House' video has garnered hundreds of views and has reached audiences in the Philippines, India, Australia and beyond.

Response

The response to this type of educational *Minecraft* work has been overwhelming. As a tool for engagement and audience retention, Crafting the Past has attracted audiences in excess of 100,000 at events such as *Minecon*, *Minefaire*, *Minevention*, *The International Society for Technology in Education*[8] (ISTE), *The Microsoft Global Educators Exchange* and the *Insomnia Gaming Festivals*. Insomnia is held at the National Exhibition Centre in Birmingham three times each year and this festival alone caters to 85,000 people. Gamers from all over the world visit to play the latest games, preview new game content before it hits the shelves, and bond as a community. Children, young people, parents, and teachers are among the 85,000 visitors. At Insomnia in 2015/16, Crafting the Past was presented to a massive crowd through stage time, panels and a 238 square foot floor space complete with PCs and a virtual reality version of the maps (see Figure 11.2). This exposure was the result of the partnership between Dig It! 2015, ImmersiveMinds and the Insomnia hosts, Multiplay. Multiplay believes that games can be a powerful tool for good and education, and provide this sponsorship as part of their corporate social responsibility. Events such as Insomnia allowed Dig It! 2015 and ImmersiveMinds to communicate directly with their target audiences in large numbers – a rare opportunity in the heritage sector.

8 Events such as ISTE involved professionals in technology and education rather than children and families, attracting 16,000 delegates from 76 countries <https://conference.iste.org/2016/exhibitors/demographics.php>.

Figure 11.2: Showcasing Crafting the Past. Crafting the Past builds were showcased by ImmersiveMinds at festivals including the Insomnia Gaming Festivals, which allowed the team to take their work to a much wider audience when compared to traditional methods of celebrating and disseminating archaeology.

Crafting the Past has also paved the way for the use of *Minecraft* in smaller heritage outreach events. *Explorathon*, a celebration for *European Researchers' Night*, saw a digital recreation of the National Museum of Scotland in 2015, with rooms linking to Rome, Egypt, and Iron Age Scotland. In addition, Young Archaeologists' Clubs across the central belt of Scotland are now using *Minecraft* to build their own heritage recreations and archaeological digs, with Dunfermline Abbey and Abbot House started in autumn 2016. The *Your Future in the Past* programme of events coordinated by Dig It! 2015 also used *Minecraft* as a stepping off point to discuss a range of topics in the heritage, archaeology, and town planning fields, with ImmersiveMinds using the project to promote conversations around entrepreneurship and careers options. A strong feature of a games-based learning approach is its flexibility, and many Crafting the Past projects developed organically.

Step Three: Levelling Up

Many young people are already confident using *Minecraft*, but there was an opportunity when it came to using these digital building blocks to explore the past. In particular, audience development through gaming has considerable potential and by working with the *Minecraft* community, Dig It! 2015 reached several new audiences (and not just young people). The project touched a chord with parents and educators at the Insomnia Gaming Festivals, curious passers-by on the street at the festival in Perth, members of the press, a group of parents with autistic children, and Ministry of Antiquities Inspectors in Egypt. By highlighting the project through talks and articles, it also turned out to be a fantastic method

of advocacy for the heritage sector – particularly valuable when reaching out to funders and politicians. As *Minecraft* appears to be so far removed from 'traditional' heritage, it has the ability to grab reader and audience attention by putting a new spin on an 'old' subject.

With regards to archaeology outreach, the Dig It! 2015 team learned a lot from ImmersiveMinds in terms of framing audiences as active and participative learners, not just consumers. Throughout the project, ImmersiveMinds provided training to teachers and youth leaders, and rather than setting out rigid tasks or schedules, they encouraged players of all ages to apply their own ideas to the events and builds. They wanted the participants to be able to modify *Minecraft* for their own use. In spring 2016, for example, ImmersiveMinds held a workshop with several Young Archaeologists' Clubs in Scotland with the aim of passing these skills to the leaders and, as a result, the groups are now able to organize their own projects with minimal support. Overall, the wider games-based learning approach is well suited to formal and informal learning, and has the added benefit of actively empowering both educators and audience.

The team found that an 'off the shelf' solution was not only easier, but also preferable in terms of both sustainability and 'meeting an existing audience halfway' – in this case, the enormous *Minecraft* community. It also made it much easier to advertise the project to members of the public, as they were already comfortable with and loyal to the game. In addition, using existing software was much cheaper than developing a bespoke resource. This also meant that there was an existing behind-the-scenes community who were keen to develop *Minecraft* further and embrace the challenging technical and conceptual aspects. This community was an invaluable resource for the ImmersiveMinds team when they tackled the more complicated builds.

Every 'real-world' Crafting the Past event came with its own challenges and a resulting 'lesson learned.' For starters, the Dig It! 2015 team had never played *Minecraft*, which made it difficult to explain the project to their audience. ImmersiveMinds addressed this issue with a series of *Minecraft* demonstrations to introduce the team to the game and explain some of the more technical aspects. Additionally, one of the Dig It! 2015 volunteers was specifically trained to showcase Crafting the Past, and this dedicated volunteer was invaluable when it came to handling the flow of participants onsite or filling in when Dig It! 2015 and ImmersiveMinds were unavailable. As with any project of this nature, technical hiccups were unavoidable. It was essential to arrive early and come equipped with backup plans and spare sets of everything. However, once the game was underway, each session turned out to be a massive success.

In the digital world, the ImmersiveMinds team faced and conquered their own set of challenges. As most of these organizations had never used *Minecraft* before, the team had to learn to manage expectations regarding how much work and time went into the builds. Penicuik House alone took 86 hours to complete and is comprised of over 350,000 blocks. Furthermore, although all builds are now freely available on the Dig It! 2017 website (see above), this had not originally been envisioned. While the provision of space and website design to host them was not challenging, the supporting literature which enabled people to download and

apply the various resources required preparation. Additionally, some organizations were initially hoping to 'own' and raise funds directly from the *Minecraft* maps, although legally no one is allowed to make money from the products (Hill 2014). Despite any initial hurdles or misconceptions, working with Dig It! 2015 opened up new horizons for ImmersiveMinds in terms of potential clients and their rich data. Archaeological work produces large volumes of data and information in a variety of formats, and although this information offers a wealth of stories, the sector often struggles to tell them effectively. While the ImmersiveMinds team had an existing set of skills and expertise in recreating present-day or extant structures in *Minecraft*, this project developed their skills in interpreting complex data to accurately recreate buildings and landscapes that had once existed. In some cases, these historical structures had very little remaining physical evidence on site (e.g. Moncreiff Hill), which therefore required in-depth research, interpolation, visualization, and translation, all involving iterative feedback with the stakeholders. The process required a great deal of accuracy, problem solving, and creativity, and the skills acquired have been directly transferrable to other archaeological projects.

In terms of the wider role of games-based learning, the teams found that Crafting the Past was a powerful stepping off point to discuss history, heritage, and archaeology. At a career event in South Lanarkshire, for example, the Dig It! 2015 Project Manager spoke to small groups of disengaged students and asked them about their hobbies. Many students were interested in computer games, such as the *Call of Duty* series (Infinity Ward *et al.* 2003-2016), and he was able to use this to strike up a conversation regarding historical accuracy and why this is important in the gaming world. It became clear that games-based learning in the heritage sector was not limited to *Minecraft*. For example, *Valiant Hearts: The Great War* (Ubisoft Montpellier 2014) is a puzzle-adventure computer game that puts players directly into the shoes of those fighting WW1, exploring the human story from the battle-scarred ground up. The game opens players up to narrative, personal perspective, and empathy through gameplay. Issues of friendship, love, loyalty, sacrifice, and personal tragedy are threaded throughout this beautifully animated game.

Publicity was an important element of Dig It! 2015, as a core purpose of the project was to promote Scottish archaeology. However, most builds and events were dependent upon funding, which trickled in throughout the year. Additionally, as the two teams had no prior heritage/gaming crossover experience or pre-existing examples, the only way to learn about and develop the project was to actually run it. This meant that Crafting the Past was very reactive, which made it difficult to plan ahead.[9] Opportunities to drive people to the website and increase reach and engagement were ultimately lost. Ideally, the free downloads would have been available on site earlier, a block of funding would have been secured, and activities would have been scheduled well ahead of time, therefore allowing for better planning and wider and more diverse coverage. Thankfully, games-based initiatives are extremely marketable from a heritage perspective. By leaning on the popularity of *Minecraft*, highlighting the cross-sectoral angle, and leading

9 An important point on this subject is made by Martha Henson in her blog: "stop wasting money on digital projects if you aren't prepared to promote them properly" (2016).

with striking images of the builds, the project grabbed the attention of local and national press and broadcast media.

As with a lot of media coverage, the teams found it difficult to convey the nuances behind the project through eye-catching headlines. Coverage tended to focus on the number of blocks and hours of work, as opposed to the specific learning outcomes or historic details. One article in Holyrood Magazine in May 2015 titled *A Future in the Past* (McGraw 2015) came closest in terms of delivering the balance between nuance and impact, as the teams were given the space to elaborate on the detail and complexity of the project. The teams filled this gap by creating their own content, including the aforementioned Dig It! TV videos and ImmersiveMinds blog posts and videos.

Understanding the key drivers for the funders and partners was also a learning process. Once again, it was difficult for Dig It! 2015 to identify their motives beforehand without any games-based learning experience. From the archaeology side, the teams found that organizations were keen to tell their stories more effectively to different audiences. From the gaming side, they wanted to introduce the games to a wider audience while adding depth and greater parental engagement.

In terms of return on investment, this archaeogaming project made a significant impact. On a relatively modest budget (from a range of different funders), Crafting the Past resulted in collaboration with organizations including Barnardo's Scotland, the Scottish Civic Trust, Penicuik House Preservation Trust and Tay Landscape Partnership, involved audiences from traditionally 'harder to reach' groups, and created links to different initiatives including Doors Open Days, World Heritage Day, and various festivals. It has also continued to build steam into 2017, with organizations such as the Dunfermline Young Archaeologists' Club planning builds and activities. The project also succeeded in terms of Dig It! 2015's charitable mission (and the two charities who co-ordinate the project) with regards to education. With each build, Crafting the Past raised awareness of these sites and told their stories, introducing new audiences to archaeology in the process.

Organizations outside of the heritage sector sometimes struggle to see how archaeology can fit in with their work, regardless of how positively they regard the subject. When the teams began to talk to heritage organizations about *Minecraft*, they ran into this challenge once again. However, as the project progressed, the teams were able to develop their own examples of good practise and were able to present organizations with an array of event options and build examples. ImmersiveMinds was soon inundated with requests.

Conclusion: Crafting the Past – The Sequel

Our experience with Crafting the Past demonstrated one way in which an archaeogaming partnership can enrich how people think about and explore heritage. To fully realize this potential, more collaboration is needed, in turn requiring more people with the skills and experience to bridge these different sectors. Crafting the Past would not have worked without partnerships and, in particular, the close working relationship between Dig It! 2015 and ImmersiveMinds.

Scotland is known both for its heritage and its pioneering games industry, and as Crafting the Past demonstrates, these sectors can be a natural fit – opportunities appear to be on the rise. The Insomnia Gaming Festival came to Scotland for the first time in 2016, for example, and the BBC and Microsoft have turned to ImmersiveMinds to help develop their *Minecraft* projects. These organizations are keen on rich content that engages and teaches young people, as well as their parents and educators. The *Build It Scotland* project (BBC 2016) which the BBC and ImmersiveMinds showcased at Insomnia Scotland, encouraged children to build structures and buildings in their local landscape to create a national map of Scotland with sites that were significant to young people. Interestingly, the sites chosen were incredibly diverse, from natural landscape features such as Dundee Law to modern structures such as the Falkirk Wheel, illustrating the rich and diverse appreciation young people have for the natural and built environment around them, and the ways in which digital tools can be used to harness students' creativity in directed project-based learning.

With 2017 as *Scotland's Year of History, Heritage and Archaeology* and 2018 as *Scotland's Year of Young People*, the Crafting the Past project has a bright future. Newer builds, such as the National Mining Museum and Atholl Palace Hotel, now feature playable games within the *Minecraft* map, and a second Moncreiffe Hill map is already underway. Once completed, these builds will join the rest of the free Crafting the Past downloads on the (now) Dig It! 2017 website. Both teams will be looking to build on the successes, explore the potential of co-production, reach new audiences, and further link the heritage sector with the gaming industry. Ultimately, archaeogaming can inspire the heritage, education, and gaming sectors to work together, empower educators in informal and formal settings, and encourage new audiences to play with Scotland's past.

Acknowledgements

Crafting the Past was only possible due to the help and support of a number of different organizations, many mentioned throughout the text. In particular, Historic Environment Scotland deserve special mention for being the primary funders for Dig It! 2015, while Multiplay and AOC Archaeology Ltd supported Crafting the Past throughout 2015.

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The Potential for Modding Communities in Cultural Heritage

Jakub Majewski

Introduction

The concept of applying video game technology for the exploration and popularization of cultural heritage is both powerful and obvious. The educational potential of video games has been much discussed (Egenfeldt-Nielsen 2006), and practical attempts to use video game technology for education and training have been made across a range of different fields, including secondary and university education, medicine, and military training. It is unsurprising, therefore, that the same technology has been extensively discussed in regards to heritage (Champion 2011; Champion 2015). Besides a myriad of maths and typing skill games, some of the earliest attempts at educational games, in particular *The Oregon Trail* (MECC 1971), explored history and heritage. Such educational games could be considered a part of the broader group of serious games, a category typically defined as games whose core design goal is something other than entertainment (Djaouti *et al.* 2011).

Today, serious games are a vital plank in virtual heritage: the exploration of heritage through digital means (Champion 2011; Champion 2015). While researchers in this field often concentrate on relatively simple virtual recreations of heritage sites or objects (e.g. Anderson *et al.* 2009; Arnab *et al.* 2011; Ch'ng 2007; Flynn 2012), where only the technology and occasionally methods of navigation are drawn from games, the influence of video games can be identified in even the least game-like heritage applications.

At the more game-like end of virtual heritage, a robust discussion continues on what aspects of commercial games can be used to enhance depictions of heritage in serious games (e.g. Champion 2012b; Champion 2015; Granström 2013; Kardan 2006), with some researchers going as far as to modify existing games for the purposes of creating virtual heritage (Francis 2011; Goins *et al.* 2013).

Yet, serious problems may emerge when scholars draw inspiration from commercial games. One problem is what Champion (2011) has aptly labelled as the 'Indiana Jones dilemma:' much as in the case of the *Indiana Jones* films which popularized archaeology in a bastardized form through adventure cinema,

Category	Element	Description
Interactivity	Interactivity	Ability to affect, use or communicate.
Interactivity	Exploration	Openly navigable environment.
Interactivity	Tasks	Assignments, errands, missions, quests, challenges.
Interactivity	Dialogue	Communication/conversation between player and non-player character.
Interactivity	Quiz	Test with questions.
Depth of Meaning	Culture & history	Intangible heritage. Cultural expressions, rituals, traditions, customs, skills, beliefs, values. Historical events and developments.
Depth of Meaning	Story	Plot/narrative.
Characters	Roleplay	The player assuming the role of the player character.
Characters	Avatar	Visual representation of the player character.
Characters	Personalized avatar	Possibility to alter the appearance of the player character.
Characters	Other characters	Real or virtual characters/actors.
Characters	Multiplayer	Ability to play with other players in the same environment.
Accuracy & Realism	Cultural & historical	Cultural and historical correctness.
Accuracy & Realism	Visual & behavioural	3D models, textures, shaders. Animation, artificial intelligence, crowd simulation, physics.
Accuracy & Realism	Environmental	Weather, day and night cycle, wildlife, vegetation.
Accuracy & Realism	Auditory	Sound.
Accuracy & Realism	Olfactory	Smell.

Table 12.1: A matrix of 17 game elements that are useful for cultural heritage (based on Granström 2013).

the most engaging, and therefore most useful, aspects of video games are the ones that are oriented at destruction rather than education. The financial aspect is also problematic, as illustrated by Granström (2013), who employed a literature review to construct a matrix of 17 game elements deemed most useful for cultural heritage (see Table 12.1), and then matched these elements to several popular video games. The game that emerged as the most successful case from Granström's comparison was *The Elder Scrolls V: Skyrim* (Bethesda Game Studios 2011); an unsurprising result, given the emerging scholarly discourse at the intersection between heritage and the *Elder Scrolls* series (Bethesda Game Studios 1994-2016; *e.g.* Daun 2014; DiPietro 2014; Johnson 2013). As Granström points out, however, whatever design inspirations could be drawn from *Skyrim* into the virtual heritage space, these will be constrained by the fact that the game was developed with an $85 million budget. Given the virtual impossibility of any serious game project obtaining such funding, Granström concludes, "where there is will, but not enough money, there is no way" (2013: 34).

However, scholarly, and even commercial development efforts need not be constrained by money. The rise of the internet and the consequent opening up of media production in what Jenkins and colleagues (Jenkins *et al.* 2009) refer to as participatory culture, has in fact resulted in a tremendous burst of media created

and shared online by willing but unpaid users.[1] One particular emanation of such works are game modifications, or mods. Players have modified games for virtually as long as video games themselves have existed (Christiansen 2012), sometimes using the game as a vehicle for self-expression, but often also driven by a desire to enhance a specific aspect of the game in question. Among these aspects, culture is a recurring theme; many mods aim to add new cultural content into a game, or to make existing content more accurate.[2] Just one example of such efforts would be *Csatádi's Visual and Historical Mod* (Csatádi 2011) for *Mount & Blade: With Fire & Sword* (Sich Studio & TaleWorlds 2011). Csatádi's mod is an example of a production that makes no attempt to add any significant new content to its host game, but instead revises existing content for a particular purpose – in this case, historical accuracy. The mod alters the game in many small ways, by revising the game's economy, changing the equipment combinations used by various troop types, replacing some of the visuals for weapons, armour and clothing, as well as adding various new items. In all cases, there is no guarantee that the new content indeed more accurately represents the game's historical setting; what is important is that this was the modder's explicit goal.

Given the financial constraints on virtual heritage, mods present an interesting possibility of expanding the breadth and depth of heritage without necessarily increasing costs. While the benefits of modifying existing games for scholarly purposes have already been explored (Champion 2012a; Francis 2011), the possibilities afforded by direct collaboration with modders 'in the wild,' or even of simply drawing inspiration from modding communities, are virtually unexamined. This paper aims to address these possibilities, and to shed more light on several existing game mods that, while developed outside of the virtual heritage arena, can be classified as heritage products by virtue of their content. The main examples discussed in this paper, *Brytenwalda* (Brytenwalda-DevTeam 2010) and *Suvarnabhumi Mahayuth* (Rasiya Team 2012) have been chosen because they exhibit an attention to cultural detail and historical accuracy, and have succeeded in reaching a relatively broad public.

An investigation of modding in heritage also opens up other possible benefits, which in the long term may prove even more important than the financial aspect. Heritage studies today are increasingly aware of the importance of engaging with the public in a collaborative relationship that does not merely co-opt the public, but actively solicits its support. The benefits of such collaboration have been noted elsewhere in heritage studies, such as for the transcription of archival materials (Ridge 2014). Similarly, historical re-enactment, where members of the public dress in costumes to re-enact historical events and activities, is coming under

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1 This, naturally, has in turn triggered a burst of protests from Marxist scholars, driven by ideology into a desperate search for a new proletariat to 'liberate.' Unsurprisingly, these scholars have found their new proletariat entirely uncooperative, and happy to be 'exploited' (De Kosnik 2013; Terranova 2013). False consciousness strikes again?

2 Accuracy, realism, and authenticity are ever-problematic concepts in heritage, given the inherent uncertainty associated with studying the past (Champion 2011). In this case, however, what matters is not whether the mods are indeed more accurate, but the fact that their creators specifically desired historical accuracy.

increasing scrutiny of heritage scholars (De Groot 2016). In general, heritage studies are shifting away from what Smith (2006) has labelled the 'authorized heritage discourse,' an institutionalized, top-down approach to the exposition and interpretation of heritage, which also had a tendency to prioritize tangible cultural objects over the intangible. Thus, the time seems ripe to start this discussion also in regards to video game-based cultural heritage. This chapter advances the conversation not by drawing any strong conclusions or recommendations, but rather by inviting further questions regarding the viability of a mod-inspired approach. In order to approach mods, however, some space needs to be first devoted to an overview of other approaches to heritage through games technology, especially commercial and serious games.

Four Models of Cultural Heritage through Games

Broadly speaking, games that explore cultural heritage can be classified into four categories (Majewski 2015). Two of these, commercial and serious games, are polar opposites representing the two ends of a very broad bi-axial spectrum, with commercial games aiming to maximize their entertainment value and to reach the broadest possible audience, while serious games seek to maximize education rather than entertainment, and do not typically concern themselves with reaching a broad audience. The remaining two categories, culture-centric games and game mods, are in a sense hybrid forms which emerge out of either serious or commercial games, and thus form the middle ground. For the purposes of this categorization, culture-centric games are those that, unlike serious games, seek to reach a broad audience, but simultaneously make heritage either a key objective, or a key selling point, and thus in some ways emphasize heritage information over entertainment value. Conversely, game mods, as modifications of existing commercial games, tend to aim to reach only a small audience, and are created for entertainment, indeed often purely for the entertainment of their creators.

These four categories may be plotted on a bi-axial graph (see Figure 12.1), with one axis defined by their focus either on entertainment or education, in this case culture, and the other by their emphasis on either a mass market audience or a small, narrowly targeted audience.

These categories have been previously explored by the author (Majewski 2015), and the two main categories of commercial and serious games require little additional contextualization, particularly in light of the scholarly attention they generally receive (Champion 2015; De Groot 2016). It is enough to state that heritage-related topics are indeed explored in some commercial games, with especially the *Assassin's Creed* series (Ubisoft Montréal 2007-2015) earning praise from historians for its meticulously recreated settings (Whitaker & Andress 2015; Whitaker & Glass 2013; Whitaker & Luther 2014). Commercial games have even been adopted on an experimental basis to teach history (Egenfeldt-Nielsen 2007). However, many commercial games invoke heritage only in a shallow and stereotypical manner (Majewski 2014; Sołtysiak 2015). Mythologies, legends, and works of literature have been widely exploited as convenient tropes, with evidently little desire to draw anything more than recognizable names from the adapted objects, as exemplified by the *God of War* series (SIE Santa Monica Studio 2005-

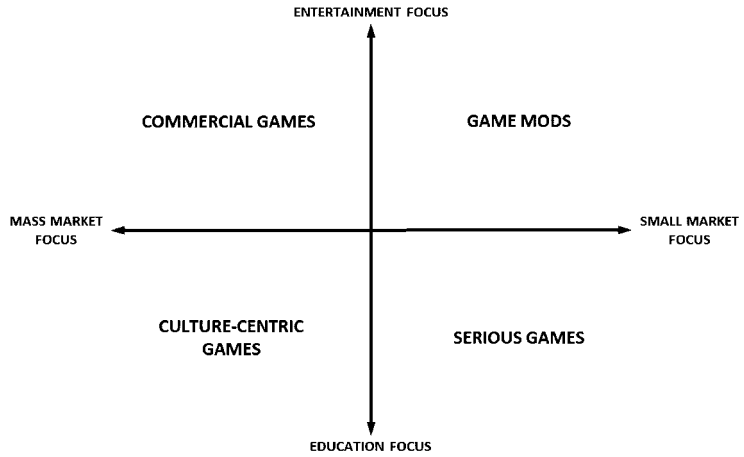

Figure 12.1: A graph of approaches to cultural heritage in games (image by: Jakub Majewski).

2015), where Greek mythology is quite literally destroyed through the player's progressive killing of key deities in the Greek pantheon.

While many commercial games take an interest in heritage, serious games valorize education value without necessarily eschewing entertainment value (Sawyer & Smith 2008), making for an inherently fuzzy distinction between the two. This fuzzy middle ground between commercial and serious games is occupied by culture-centric games. This category includes those serious games that have consciously attempted to imitate the practice of commercial games in order to make their educational aspect more enjoyable, as well as those commercial games that have consciously attempted to invoke cultural content typical of serious games, usually with the purpose of gaining a significant selling point (Majewski 2015).

It must be noted that the category of culture-centric games is purely theoretical; in practice, the developers of culture-centric games would see their products either as commercial or as serious games. Nonetheless, this construct facilitates an examination of what exactly occurs at the intersection between commercial and serious games, and the way these two approaches sometimes converge.

Firstly, culture-centric games can emerge from efforts to improve serious games by incorporating gameplay aspects from commercial games. This approach results in games like *Ohana* (University of Hawaii Academy of Creative Media 2006) or *World of Temasek* (Magma Studios 2011), which retain a serious game-like concern with detailed and accurate cultural information, but seek to transmit this information in a commercial game-like package with fun gameplay and mass appeal. Possibly the most successful example of this approach is *Never Alone* (Upper One Games 2014), a game developed to transmit the heritage of the Iñupiaq indigenous people of Alaska (see Cook Inlet Tribal Council, this volume; Roberts 2015). It is noteworthy that while the total Iñupiaq population is estimated to be around 13,500 people (University of Alaska Fairbanks 2007), according to the data aggregation portal SteamSpy (2017) *Never Alone* has sold more than 400,000 copies via the Steam platform. Even taking into account that only about 220,000 of those

copies are estimated to have actually been played, *Never Alone*'s impact is equivalent to every member of the Iñupiaq community talking to 16 people for several hours about Iñupiaq culture. This impact is further magnified when it is considered that comparatively few of the Iñupiat would have both the knowledge and the time for such a public service engagement. Conversely, *Never Alone* also shows the limitations of such an approach; the game's puzzle-platformer mechanics indicate that *Never Alone* was designed to fit within the constraints of a relatively small budget. These constraints have also prevented the game from exploring Iñupiaq culture at the deeper level of procedural rhetoric (Bogost 2007), where cultural content could be conveyed not only through video cut-scenes and the visual layer of the experience, but also through the rules and mechanics of the game.

Culture-centric games can also arise when a commercial game chooses to place a stronger than usual emphasis on culture, typically in order to leverage heritage as a selling point. Even though such products could potentially be developed at a grandiose scale, in most cases the financial constraints observed with *Never Alone* remain an issue. For instance, although the budget for the RPG game *Mount & Blade: With Fire & Sword* is unknown, its production values indicate a comparatively small budget. This particular game made a conscious effort to depict itself as a loose adaptation of the classic Polish historical novel *With Fire and Sword* originally by Nobel laureate Henryk Sienkiewicz. Although the depth of the game's depiction of its setting was ultimately rather limited (Majewski 2014), it was the cultural setting that was used to distinguish between this title and other similar games: culture was a crucial selling point. Similarly, *Sangokushi Online* (Koei 2008; English title: *Romance of the Three Kingdoms Online*) attempted to set itself apart from other massively multiplayer online games by strongly referencing the classical 14th century Chinese work *Romance of the Three Kingdoms* by Luo Guanzhong.

The other category of heritage games poised in the middle ground between serious and commercial, is modding. Like culture-centric games, modding can in some ways be a hybrid between commercial and serious games. The derivative relationship between game mods and commercial games is clear enough: mods are simply packages of additional materials designed to expand a particular commercial game. Unlike typical downloadable content (DLC) expansion packs produced and sold by commercial game developers, game mods are typically produced by players. Modding itself has garnered some scholarly attention as a cultural phenomenon (Newman 2008), an inspiration for education (Gee 2013), a world-building/prototyping tool (Bostan 2005), and finally as a very useful classroom technique, particularly in teaching games design (Champion 2012b). There is also an overlap between game mods and serious games, as a number of serious game projects are actually modifications of existing games, as in the case of *Hysteria!* (Rochester Institute of Technology c. 2012; Goins *et al.* 2013) and *Revolution* (MIT Education Arcade 2004; Francis 2011). However, with the exception of mod-based serious game projects, the mods themselves do not attract scholarly attention. It would appear that while the process of modding is of interest to scholars, the results of the process are considered irrelevant.

Nonetheless, from a heritage perspective, these results can be very relevant, as many mods explore heritage topics. Modding strongly interfaces with serious game concerns. While modders typically work mainly for their own gratification and indeed entertainment, it is not unusual to find modders whose stated objective is specifically to improve the cultural detail or historical accuracy in a given title. One such example, already mentioned, is *Csatádi's Visual and Historical Mod* for *Mount & Blade: With Fire & Sword*. Players also engage in efforts to adapt a game into an entirely new setting, and here again the *Mount & Blade* series (TaleWorlds Entertainment 2007-2015) provides notable examples, especially the mods *Brytenwalda* and *Suvarnabhumi Mahayuth*. Of these, the former adapts the game into 7th century Britain, while the latter is set in 16th century continental Southeast Asia. *Brytenwalda* has indeed been successful enough to entice the publisher of the *Mount & Blade* series to collaborate with the modding team behind it on a new expansion, *Mount & Blade: Warband – Viking Conquest* (TaleWorlds Entertainment & Brytenwalda 2014). It explores the broader North Sea area encompassing Great Britain, Ireland and parts of continental Europe in the 8th-9th century, and bridges the gap between mods and culture-centric games. The attention to heritage content in these mods is evident, with *Viking Conquest* even employing live-action historical re-enactment in its marketing. In spite of this, both projects remain outside of the interest of cultural heritage scholars; as far as the author was able to ascertain, no archaeologist or historian has attempted to explore and discuss the cultural depictions seen in these titles. Such a discussion is beyond the scope of this paper; the author merely hopes to bring these works to the attention of other heritage scholars for further investigation.

The large-scale efforts evident in *Brytenwalda* also demand an explanation of the process of modding. It is evident that projects of this size could not be developed without any organization. Therefore, there is a need to explain how players converge into communities and teams around particular projects, allowing them to succeed in the development of projects that, in a commercial environment, would require not inconsiderable budgets.

Modding and the Affinity Space

Education scholar James Paul Gee (2013), in discussing how games drive their players to learn, proposes the term 'passionate affinity space' (PAS) to describe how players collaborate. Players, regardless of their age, ethnicity, or gender, converge around a strong common interest – their passionate affinity – in a real or online space, such as a website or forum. The PAS as described by Gee is not a community but rather a space, where individuals come and go freely. Social status exists in the PAS, but can be achieved in different ways, and is often informal. Leadership is porous. The leaders often owe their high status to cultural capital or technical skill, and are more of a resource than a hierarchy for the community. The PAS does not prescribe forms of participation to its members, and while some members will only consume, the PAS also facilitates production of new items or knowledge. Knowledge in the PAS is distributed among individuals, but those who hold tacit knowledge, the ability to do things, are encouraged to transform it

into explicit knowledge for the benefit of others. The PAS as a site of production is transformative, so the content of the PAS changes as a result of user actions.

An example of a PAS is a fan website revolving around a particular game, or an academic site of learning and dissemination (Squire 2011). The potential scope of PAS knowledge practices is illustrated most clearly with examples of online collaborative encyclopaedias. A prominent example is the *WoWWiki*, serving the 10 million member community (Kollar 2014) for *World of Warcraft* (Blizzard Entertainment 2004). *WoWWiki* features more than 100,000 articles and is currently the second-biggest English language wiki-based encyclopaedia in the world, second only to the general Wikipedia (Dybwad 2008). The *Unofficial Elder Scrolls Pages* (UESP), an *Elder Scrolls* Wikipedia, has 42,000 articles, and its content goes far beyond the official game guides licensed by the game developers. These encyclopaedist efforts to catalogue the lore of the *Warcraft* and *Elder Scrolls* universes along with in-depth gameplay information are not constrained to the gathering of data. Considerable analysis is involved, with extensive debates and often a near-academic insistence on solid referencing (Hunter 2011). These debates, and the ultimate power for certain members with administrative privileges to make final decisions, demonstrate that perhaps, Gee's (2013) concept of the PAS as a site without formal organization overly simplifies such sites. Indeed, some fan websites, including large-scale wikis, remain under the permanent control of their original founders, often because they are the ones who continue to cover the costs of website hosting, as is currently the case for the *UESP*. Thus, while for the overwhelming bulk of the participants in any given PAS, Gee's description of porous membership and fluid leadership will remain accurate, it must be noted that the PAS is not at its core an anarchistic concept; online technology will usually render anarchy impractical, as ultimately, there will be someone setting up a website or Facebook page, arranging server access, and managing discussion forums.

Beyond data collection and analysis, players also engage in creativity and expression (Wirman 2007). This may include YouTube videos (Puente & Tosca 2013), fan fiction, fan art or even fan-produced videos, and finally, mods (Christiansen 2012). Many of these works require collaboration between players. In the same way that online technologies facilitate collaboration on knowledge repositories exemplified by the wikis, they also facilitate complex collaborative arrangements on creative projects. Players readily exploit modern collaborative platforms like GitHub, and have their own online distribution networks, such as NexusMods and ModDB. In some cases, development is further streamlined through the use of bug-tracking systems which enable players to report issues encountered when playing a particular mod, and for the developers to assign these issues to individual team members for resolution.[3] Far from anarchistic or disorganized, the large teams behind complex mods such as *Brytenwalda* or *Suvarnabhumi Mahayuth*, employ such means to maintain a reasonably organized, though certainly still fluid and porous development environment. In some cases,

3 An example of this may be found in the bug-tracking page for the *Unofficial Skyrim Patch* mod <https://afkmods.iguanadons.net/index.php?/tracdown/categories/12-unofficial-skyrim-patch/>.

collaboration may even occur between PAS participants and commercial game developers, a concept John Banks (2013) describes as co-creation.

These methodological aspects are worth highlighting as an area in which scholarly collaboration is typically still lagging behind. In particular, the academic serious games scene is highly fragmented (Champion 2015). It is quite common for serious game projects to never properly disseminate the finished product. Many projects are only described in an academic paper, with no direct access to the game. By extension, there is little possibility of external parties joining in to collaborate on a project in progress, because the typical serious game projects will only be described after its completion (e.g. Anderson *et al.* 2009; Arnab *et al.* 2011; Ch'ng 2007; Goins *et al.* 2013; Kardan 2006).

The features of mods developed in PAS environments, and the potential to draw from them for heritage dissemination, may best be illustrated by comparing two works that share similar subject matter, with one being a culture-centric or serious game, the other being a mod. For the purposes of this paper, a comparison will be drawn between two titles concentrating on Southeast Asia, namely the aforementioned *Suvarnabhumi Mahayuth* and *World of Temasek*. The latter title was chosen as an example of a particularly advanced and well-developed culture-centric game, while *Suvarnabhumi Mahayuth*, as a player-developed mod encompassing a similar cultural area, makes for an apt comparison.

A Mod and Serious Game Comparison: *Suvarnabhumi Mahayuth* and *World of Temasek*

Suvarnabhumi Mahayuth (see Figure 12.2) represents what is typically called a total conversion mod, i.e. a game mod that seeks to replace the main setting and most of the content of a particular game, retaining only the game mechanics and re-purposing some of the graphical assets. In this case, the fantasy world depicted in *Mount & Blade: Warband* (TaleWorlds Entertainment 2010) is converted into 16th century Southeast Asia, while retaining the combat-centric role-playing game model of the original game. The player creates a character and is then free to roam in an open environment, in this case constrained to the continental portion of Southeast Asia. In order to prosper in these explorations, the player is encouraged to gradually build up a retinue of warriors, and to join one of the political factions. *Suvarnabhumi Mahayuth* concentrates on Thailand, and it was indeed developed mainly by Thai players who enjoyed the original *Warband*, but wished to see its gameplay play out across their own history and geography. The team was comparatively tiny, with less than ten members active at any one time, although the actual labour that went into the mod is amplified by the subsidiary integration of other smaller mods into the complete package.

The other object of comparison, *World of Temasek* (see Figure 12.3), is a culture-centric title developed through a collaboration between Singapore's governmental Media Development Authority, the private company Magma Studios, and Singaporean heritage scholars, particularly archaeologists (Lim 2012). This collaboration had as its purpose the development of a massively multiplayer online role-playing game (MMORPG) which could be used in Singapore's schools as part of the national curriculum to teach Singaporean history, and particularly the

Figure 12.2: Mount & Blade: Warband (top) and Suvarnabhumi Mahayuth (bottom) with the original game's pseudo-Nordic architecture visible as part of the palatial structure in the centre of the second image; also evident is the creative manner in which such graphical assets are modified almost beyond recognition (images by: Jakub Majewski).

14th century period which is depicted in the game (Wu & Jones 2010). Although Magma Studios does not seem to be an especially large company, the manpower available for *World of Temasek* is incomparable to *Suvarnabhumi Mahayuth*.

World of Temasek seems to have been part of a broader regional trend, with two other government-backed MMOs developed in the same timeframe: Thailand's *King Naresuan Online* (PromptNow 2011) and Indonesia's *Nusantara Online* (Sangkuriang Internasional & Telegraph Studio 2011). All three games appeared to draw substantial inspiration from commercial MMORPGs like *World of Warcraft*. Thus, even though *Temasek* is designed from the ground up for its intended purpose of transmitting heritage, its design is nonetheless constrained to some extent by commercial genre conventions.

Figure 12.3: World of Temasek (image by: Magma Studios).

In comparing *Suvarnabhumi Mahayuth* with *World of Temasek*, it is immediately clear the latter is the more highly polished of the two. The game was developed with careful pre-production and high attention to historic detail ensured by collaboration with scholars. Importantly, the game smoothly integrates heritage and gameplay, in the sense that all parts of the game were designed to complement the whole. The game also contains particular features that made it strongly adaptable for educational purposes, with a component of the game, *Magmaflow*, being designed as a quest-building kit to allow educators to tailor the experience for their own students (Tan 2009). It must also be noted that the game was not designed solely for classroom education, being also released on a free-to-play basis to the public via a browser-based client on the game website.

While less polished, and constrained by the combat-oriented gameplay framework of the original game for which it was developed, *Suvarnabhumi Mahayuth* still holds some advantages over *Temasek*. Despite being developed without any funding, the mod has a far broader scope than *Temasek*: while the latter revolves only around the geographic and cultural area of Singapore, the former encompasses the entirety of Southeast Asia. *Suvarnabhumi Mahayuth* depicts characters and locations from Burmese, Thai, Chinese, Vietnamese, Cambodian, Laotian and Malay cultures, as well as confronting these with the Portuguese colonial forces that had seized the port city of Malacca shortly before the timeframe of the mod's historical setting. However, because the underlying gameplay of *Mount & Blade* forces the mod to concentrate on battles, cultural depictions concentrate on depicting the enormous diversity of military formations and armament styles of the period.

An arguably weak point of the mod are the cities which, in many cases, are merely the same models as in the original *Warband*, simply covered with different textures. Consequently, a fantasy building styled upon Scandinavian architecture might show up with new textures in *Suvarnabhumi Mahayuth*, posing as a Thai palace. Under these circumstances, and also in the light of the gameplay mechanics that drive the game towards ahistorical events, the mod does not conform to realism understood as historical accuracy. In this respect, *Temasek* certainly represents a much stronger effort to reconstruct historical reality, even if a truly accurate reconstruction of a 14th century city is a self-evident impossibility. Nonetheless, *Suvarnabhumi Mahayuth* still manages to convey some level of immersion in what feels like a historical environment.

One final aspect of this comparison needs to be mentioned, namely that *World of Temasek* is effectively dead as a game. In personal communications with the developers, the author was informed that subsequent changes to the educational curriculum effectively rendered the game irrelevant, ending its usage in schools (pers. comm. with Aroon Tan, 2015). Consequently, there is no funding for its continued development or even technical support, and while the game is still available to be played, the author found that it suffers from serious visual problems on modern hardware. As far as can be determined, the game is not being played. Indeed, the game's community forum contains around 100 posts and no further conversations since August 2011 – a strong indication the game never actually had a statistically significant audience. Conversely, *Suvarnabhumi Mahayuth* lives on. Modding teams are dynamic and fluid, and while the original founder of the mod seems to have disappeared, the mod is being continued by what is effectively a completely new team. New features and enhancements continue to be added in new versions of the mod, and while the mod's audience is relatively small, with around 29,500 subscribers on Steam and a further 10,000 downloads on ModDB, it is still incomparably more popular than *Temasek*. This point is not intended as criticism of *World of Temasek* or its team, whose efforts were curtailed by a change in external circumstances. However, such problems are not uncommon in serious games development; indeed, almost every aspect of the comparison between *World of Temasek* and *Suvarnabhumi Mahayuth* could be repeated for *King Naresuan Online* and *Nusantara Online*. University and public funding priorities are subject to change, leaving projects stranded in mid-development. From this perspective, player-driven modding efforts are potentially more sustainable: unlike a centrally-organized university project, mods tend to be network-based, bringing together multiple actors, all potentially capable of continuing mod development if the currently-recognized mod leaders leave. The author may add, from personal modding experience, that while long-term mod development is naturally as emotionally and physically exhausting as any large-scale game project, the tension associated with financial management is delightfully non-existent. Paradoxically, the absence of a budget means that money is never a problem, and considerable energy otherwise spent on financial concerns can instead be funnelled into creative concerns.

Questions and Conclusions

The comparison between *World of Temasek* and *Suvarnabhumi Mahayuth* presented here is a simplification. A deeper comparison would not only examine the cultural content and the gameplay mechanics of both games in far greater detail, but would also investigate the technological limitations imposed on both games. In particular, it must be acknowledged that *World of Temasek* was developed at a time when low-cost commercial games development was a far more challenging proposition. The industry has changed dramatically in the five years since *Temasek*'s release, becoming far more open to low-cost and independent game development (Egenfeldt-Nielsen *et al.* 2015). One example of these changes may be found in Unity, the game engine employed by *Temasek*. In 2010, this engine was far less well-developed than it is today, in terms of efficiency, feature range, and overall sophistication. An important aspect of the Unity development ecosystem, the Unity Asset Store, was only launched at the end of 2010, and thus could play no part in the development of *Temasek*. Today, the Unity Asset Store contains numerous items ranging from graphical objects to code packages that integrate specific features into the game engine; the availability of these diverse assets greatly accelerates development, reduces costs, and overall allows developers to do more with the same budget. Simultaneously, other engines, such as Unreal and the CryEngine, have aggressively pushed into low-cost development, with the latter even offering a pay-what-you-want model for its customers (Graft 2016). Newer heritage projects such as *Never Alone* and *Virtual Meanjin* (Brett Leavy 2015), both built on Unity, have been able to take advantage of these changes to great effect. Other novelties in games development, such as the advent of crowdfunding, hold the promise to enhance existing possibilities by potentially providing heritage developers with sources of funding alternative to public grants.

In light of these changes, the potential benefits of integrating modding into the development of cultural heritage games should not be understood as a condemnation of serious games development from the ground up, nor as an argument for concentrating on modding as a means of development. Games development is today a far more reasonable proposition even for scholars with their limited grant-based budgets.

Nonetheless, many of the difficulties of games development remain, and a sophisticated heritage project, if it were indeed trying to draw inspiration from *Skyrim* as suggested by Granström (2013), would inevitably find funding issues to be a painful constraint. Consequently, the possibilities of modding raise a number of questions well worth investigating.

Firstly, are there any barriers preventing scholars and heritage practitioners from engaging with modding communities? Could such collaboration provide a tangible benefit in terms of bringing heritage to the public? Certainly, there are procedural difficulties, with many universities now employing very robust ethics policies on any research involving external participants potentially vulnerable to exploitation or harm; where collaborating with a commercial entity is relatively uncomplicated in this sense, the case becomes much different for collaboration with individual (voluntary) modders. A situation where the researcher benefits significantly from the labour of modders without providing them with demonstrably commensurate

benefits in return may be viewed as ethically unacceptable. Other difficulties may arise from the fact that projects distributed as mods on top of a commercial game in some ways become vehicles for the promotion of the commercial game itself; furthermore, if such a mod were to be displayed as part of a museum exhibit, it may require complex licensing agreements between the museum and the original game's publisher. In the case of wider distribution of a mod-based project, the need for members of the public to buy a commercial game in order to experience the mod would create an additional step between the public and the heritage experience; this may not always be acceptable to the stakeholders. Another question worth asking is to what degree would modders be open to taking advice from experts? Given the meritocratic nature of modding communities as discussed by Gee (2013), such collaboration would need to begin with experts simply doing their best to prove themselves useful to the community, and especially learning some of the technical skills involved. Modders have little patience for people who enter the community and immediately seek to impose their views on how the mod should be shaped without at least showing some capacity to perform the technical tasks involved in realizing these views. Heritage experts seeking to establish connections with modders must also recall the truism that first impressions can only be made once, so any mistakes made early on in dealing with the community might require a much more substantial effort to mend later.

Secondly, if such collaboration were possible and fruitful, could it be pushed even further through judicious use of grant monies? For instance, could a researcher at a Southeast Asian institution obtain funding explicitly for the purpose of financing the production of more appropriate and more attractive assets for a mod like *Suvarnabhumi Mahayuth*? Indeed, would mod integration be a viable outlet for the assets created in more traditional virtual heritage research? The benefits of such collaboration are clear for modders. Given the shortcuts taken with architectural objects in *Suvarnabhumi Mahayuth*, where many prominent buildings are simply re-textured versions of original objects from *Mount & Blade*, the mod's cities could gain a lot in visual quality and authenticity if the traditional Malay architectural objects developed by Ibrahim and Azmi (2013) could be incorporated. Meanwhile, for scholars like Ibrahim and Azmi, the benefit lies in enhanced dissemination, as their virtual reconstructions become accessible to a greater public and potentially in a more effective way. A good example here is the virtual reconstruction of Nieszawa, a medieval Polish city (Jaworski 2014), which is currently only presented to the public in the form of a pre-rendered animation. It is easy to imagine this city being implemented in a mod set in medieval Poland, and thus allowing players to interact with the reconstruction more fully. The difference between watching a video and interacting with a game is vast, and arguably is the driving force behind all investigations of game-based heritage, whether in serious or commercial games.

It also seems almost rhetorical to ask whether a heritage game like *World of Temasek* could grow in depth and scope by providing the possibility of integrating user-generated mods. Collaboration may work in both directions, with academics stepping in to advise on modding projects, but also with academics and developers organizing their own projects in such a way as to invite the attentions of modders. However, in the latter case, there remain many implications that require serious

consideration. Foremost among these is the often controversial nature of game mods, which emerge from an often controversial gaming culture (Madigan 2016). One only needs to review a sample of existing *Skyrim* mods to realize the potential risks: for some modders, cultural content would not be considered as important as the incorporation of more sexually enticing female characters. A proliferation of sexually explicit mods for a heritage project would not only attract negative media attention and reflect badly on the researchers involved, but in the case of projects exploring the heritage of historically repressed groups such as indigenous peoples, could cause greater harm by pushing these groups away from interactive media. As Zimmerman (2007) notes, indigenous groups already have a history of frustrating experiences with heritage scholars and practitioners; considering this history, a project that depicts an indigenous group's heritage and invites all players to modify it could certainly provide ample opportunities for further frustrations. Could such problems be managed well enough to ensure that the benefits would ultimately outweigh the risks?

The examples of *World of Temasek* and *Suvarnabhumi Mahayuth* have angled the discussion towards Southeast Asia. Naturally, scholars in other parts of the world will do well to examine mods that explore their heritage. A British archaeologist might find *Brytenwalda* and *Viking Conquest* exceedingly interesting, both as objects to be examined in their own right, and as potential sites of collaboration. As a Polish scholar, the author finds himself looking at another culture-centric game, *Skarb Sobieskiego* (Calaris Studios 2013), funded by a local government body with exceedingly poor results, and asking: why try to develop a new game on an abysmally low budget, when the same locations and stories could have been implemented as a mod for an existing game such as *Mount & Blade: With Fire & Sword*, or indeed even *Skyrim*?

While this paper has concentrated on the potential financial benefits of collaborative approaches, a deeper investigation of the other aspects of such collaboration may ultimately prove that it is the engagement with the public that is the biggest potential benefit. Modding expands game development beyond the small circle of trained developers, allowing the public and experts from other fields to enter. One can imagine that some British *Brytenwalda* modders may have been driven not only by an interest in the broad national cultural heritage, but also more specifically by a desire to virtually recreate parts of their local heritage. Others may have already been engaged in history or historical re-enactment, and sought to transfer their knowledge of the period's weapons and other artefacts into virtual form. There seems to be no reason why such efforts should not proliferate in the future.

It is also almost certain that some of the modders out there are already heritage scholars or scholars in training: postgraduate students of archaeology, history, or other allied disciplines. Other, younger modders, may choose to study in these fields because the research they engaged in for a historical mod ignites a previously dormant interest. In the author's personal communications with Csatádi, the creator of *Csatádi's Visual and Historical Mod*, he indicated that he had indeed collaborated with heritage scholars on his mods. It seems, however, that such modding efforts are kept separate from scholarly work. There are remarkably few publications where a scholar-modder would discuss the mod they produced in the same way

serious game projects are discussed. This paper cannot draw any conclusions on the reasons for this separation, but it certainly must be challenging to justify modding as a scholarly endeavour when there is no awareness of the heritage value inherent in mods that currently exist. For this reason, one important avenue of investigation would be to evaluate particular mods like *Brytenwalda*, *Suvarnabhumi Mahayuth*, or *Viking Conquest* – among others – from the perspective of cultural heritage, while also investigating the motivations of the modders involved.

A final consideration is that even if scholars and practitioners see no reason to engage with modders for their particular projects, there may still be advantages to a close examination of modding methodologies. Serious game projects could potentially improve in effectiveness by adopting mod-inspired methodologies, and the broader community of heritage-oriented serious game developers could also benefit from mod-inspired collaboration. Co-creation does not necessarily have to be limited to the relations between gamers and game developers: it could and should occur also between scholars. Above all, infrastructural solutions analogous to ModDB could help to resolve some of the fragmentation problems in serious games that Champion (2015) has pointed out.

It is worthwhile to return at this point to Granström's poignant remark that "where there is will, but not enough money, there is no way" (2013: 34). Is there truly no way? Is it inconceivable that somebody could create a cultural heritage game attaining the quality level of *Skyrim*? Recently, the German modding team SureAI released *Enderal* (2016). As a total conversion mod, *Enderal* creates a completely new fantasy world by re-using *Skyrim*'s engine, game mechanics, and some graphical assets, while also introducing enormous amounts of new materials. *Enderal*'s peculiarity lies in the fact that it is the third in a series of total conversion mods for *The Elder Scrolls* games developed by the same team. Although the team's website gives them the appearance of a commercial game studio, team members are in fact volunteers. Given *Enderal*'s reliance on *Skyrim*, the only possibility of commercial publication for *Enderal* would be if its creators were able to persuade the developers of *Skyrim*, Bethesda Game Studios, to pick up the mod for publication. While such commercialization is not uncommon, in this case there is no evidence that anyone has even attempted to open such discussions. Given the team's track record of two previous, similar, non-commercial mods for earlier *Elder Scrolls* games, it seems *Enderal* is a labour of love, even if its developers do encourage fans to support them with donations.

Enderal appears to be set in a fairly typical, even generic, high fantasy world, and probably has no direct value from a heritage perspective. Nonetheless, its existence ought to arouse academic interest. The possibilities signalled by such ambitious volunteer-driven works are enormous, and absolutely warrant further exploration, but also demand something of a paradigm shift in cultural heritage practice, a move from 'bringing heritage to the public' to 'creating heritage with the public.'

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Looking for Group

A collective chapter writing game

The Interactive Past Community

How can dozens of people digitally write a chapter together? It was this question that we, the editors of this book, were considering in April 2016. In a spontaneous moment we had promised "*an additional chapter written by VALUE and you!*" as the first stretch goal of our Kickstarter campaign. At the time, we barely dared to hope that it would be possible at all to raise the goal amount needed for the publication of the book. Although we'd considered the financial implications of each stretch goal – *e.g.* an extra chapter will increase publishing costs – the remaining details we decided we'd just figure out if we ever even reached our initial goal; those were future-VALUE's problems. But then we did it! Not only did we reach our goal amount, we received enough pledges to 'excavate' the first four of our stretch goals.

Now we had as many as 83 backers to collaboratively write this extra chapter with. Daunting! How would we write it and what would it be about? Could we even think of a topic that all of our backers could relate to, not just the scholars, but also our moms and dads, or strangers from across the globe? We quickly dismissed the idea of picking a topic and opening a shared Google document: we feared only some backers might be comfortable writing in this setting, with many perhaps feeling that they lacked the necessary expertise. We also figured opening a document in which 'all backers could write something about the interactive past' would not provide enough direction and thus would lead to little or no participation. In the end, the solution presented itself in the form of a chain game.

We surveyed our interactive past community to see who would want to participate and then we set the chain game in motion. We started with a question solicited through VALUE's twitter, emailed this to a randomly selected participant and asked them to A) send us their response and B) send a new question for the next person. Starting on 7 July 2016, the ball rolled back and forth through our email until the chain game was wrapped up on 15 February 2017. We encouraged all kinds of contributions: short statements or long essays, screenshots, drawings, memes, anything! We hoped this would on the one hand guide participation (by having a concrete question to answer), yet encourage individual expertise (by

letting responses take a myriad of forms). Naturally, anyone could choose to pass on a question they felt they couldn't answer. We also shared a digital version of the growing chapter with the writers, in order to inspire them as they made their own contributions. Although the process ran slowly (sometimes writers needed time to reply or passed on questions requiring additional attempts), we dare say that the result is brilliant.

In a plurality of voices and writing styles, the interactive past community has written insightful responses based on their own experiences and interests and asked unexpected questions. Some writers are clearly frequent gamers, while others have distinctly old-school recollections of gaming. The chain game meanders in focus from the past, to the present, and forward to the future; it discusses a wide range of themes, such as interactivity, virtuality, touch, and travel. In summary, every answer is a surprise and every question intriguing. Given more time to run the game and include all of our interactive past community, it could have been a whole book in its own right. Maybe on a next playthrough!

Editors

Did playing a game ever change your conception of an archaeological topic? Which game and why? (L. Linde)

I like games that punish you for treating archaeological sites like treasure chests. And I mean really punish you – *Dragon Age Origins* has an 'ancient tombstone' site that can be looted but if you do it, a revenant 10 levels above you (or so it feels) shows up and completely destroys your party. Sure, you can go back later on and beat it (and get the loot) when you're big and strong, but when you first get to that part of the world you're still pretty low level and it's not going to be a fight that you are likely to beat easily. It certainly makes you think twice before touching any other 'ancient sites!' I also like it when games take cities seriously, archaeologically-speaking. For example in *The Witcher 3*, the city of Toussaint is built on an ancient elven city, and in the game there are parts of new and old mingling, much like in some other modern-ancient cities (I'm thinking a bit like Tarragona, in Spain, where there are parts of the Roman city literally embedded into the sides of modern buildings).

C. Flick

What do you do in games that you don't do in real life? Why? (Bonus points if it's something archaeology-related!) (C. Flick)

For me, games are an escape. I love getting lost in stories in any way I can in the real world, but the interactive medium has its own way of gripping you that beats the rest. There's nothing like making actual decisions and controlling the destiny of someone you've never met. You learn so much, become attached, and truly live vicariously through another in a meaningful way. And when it's over, it can seriously affect you. Be that in an emotional way from a story-driven game, or even in multiplayer games, where you have a near limitless space and the means to create unique memories in a virtual world with the people you care about. There's

something quite beautiful about that. Another unique thing that games offer you is a boarding pass to anywhere on Earth, and even beyond! I don't travel half as much as I would like to in real life (which I think is the case with everyone) but video games can have me globe-trotting every few hours. The faithful recreations of locations that actually exist in the real world creates a distinct wanderlust in me, and in a strange way, a developed appreciation for the outside world. Even though they may be covered with nefarious bad guys and tricky puzzles right now, they won't be when I rock up in my swim shorts a few years down the line. The ability to conduct archaeology in places you couldn't dream of getting the funding for is pretty neat too!

J. Oloman

> *What is your favourite example of world-building in a video game? Where do you like to escape to after a tough day of archaeology!* (J. Oloman)

Minecraft is the first game to cross my mind. It's the perfect game to create your own world. You can build whatever you want and the only limit is your imagination. The game is perfect to regenerate buildings, castles or other awesome archaeological wonders, and that is exactly what I love to do after a tough day of archaeology.

S. Barel

> *A lot of games have their own story and in-game history. As an archaeologist, it's obviously normal to investigate this history and the remains in the present timeline of the game. What is, in your opinion, the game which has put the most effort into creating an artificial past, and why?* (S. Barel)

Although it is kind of an expected answer, I think the game with the most developed and deepest history and archaeology is *World of Warcraft*, as a continuation of the Warcraft universe. Already starting from the *Warcraft* games, the history which has developed, both from the developers of the game as well as the players, is one of a kind. Although there are many games with histories worth investigating, the magnitude, the success and the involvement of players in the creation of the Warcraft history is unique.

A. Politopoulos

> *Many games incorporate moral systems within their gameplay (i.e. paragon and renegade in Mass Effect). Usually these moral systems are based on your actions and, more often than not, a choice between 'good' and 'bad' actions is quite clear in the moment of the decision. In historical games the dichotomy between good and bad is not always clear. Do you think that moral systems could be used in beneficial ways in historical video games?* (A. Politopoulos)

Disclaimer: much of my gaming experience lies firmly in the past (no pun intended), as such my take on this question will have a distinctly old school feel to it.

Having looked up the game mentioned in the question and having considered the issue of morality in games, I reminisce fondly about making similar gameplay choices in some of the earliest games I played on my Intel 286 and 386 processor PCs. House Atreides or House Harkonnen in *Dune 2*, the Allies or the Axis in numerous WW2 games; these were clear-cut good/bad choices and were interesting at that young age as a chance to either bask in boundless heroism or revel in unfettered evil. However, the good/evil dichotomy tended to result in a very black/white dichotomy that could ultimately be unsatisfying. Games I enjoyed playing later offered a wider array of gameplay, for instance *Colonization* where one could choose to play one of four nations, with the very handily stereotyped briefs of conquest (Spanish), settlement (English), trade (Dutch) and … what was it the French did again? Can't quite remember. The game *Civilization* offered even greater diversity, almost making its very variability the stand-out gameplay. First you could exercise godlike control over the way the earth was formed, then go about establishing yourself as a god on earth. Nevertheless, despite the semblance of choice, you always had the sense of history inexorably marching onwards according to predestined, invisible rules and parameters. Which was of course exactly the way the games had been programmed. If you tried to break free from imposed constraints, the game hit you with unforgiving (even unsurmountable) leveling mechanisms (fines, police, penalties, dreadfully unhappy citizens, revolts, deteriorating neighbourhoods etc.) to heavy-handedly steer you back on track. Not until years later, with the onset of nonlinear, open world gameplay could one for the first time experience the disturbingly exhilarating rush of going rogue, and literally getting away with murder or wreaking havoc as a temporary break from the semi-reality of the main storyline offered by the game in question (one could justify this renegade behaviour as championing the cause of the individual versus the strictures of society, or in archaeo-speak, manifesting the primacy of agency over structure).

To return to the main question, I don't feel much for a more overt presence of clearly defined morality in games. Besides the fact that one could view morality in some cases as time/context/culture-dependent, I think it is precisely the possibility to explore the boundaries and vagaries of morality within a safe, controlled yet realistic environment that can make gaming such an educational and rewarding experience. Murky morality opens up a (Pandora's?) box of fresh avenues and perspectives, which can in some instances segue into a valuable theoretical exercise we find referred to in historical literature as the What if? or Counterfactual history. In sum, I'll take the complex morality which is such a hallmark of Miyazaki's Studio Ghibli masterpieces over dichotomous morality any day.

A. Bright

> *With (historical) computer games getting ever more realistic all the time, do you think a limit should be imposed on the level of detail/realism/immersion? Should we be protected from losing ourselves in a virtual world?* (A. Bright)

Invention and curiosity are the engines that drive mankind forwards through this wild ride we call history. Limiting both those driving factors is more than detrimental, not just to video games, but to everything. Better graphics require better computer components, which in turn spur on breakthroughs in technology to make, for example, cheaper and more efficient circuit boards. The demand for more realism forces developers to perfect their research, else their competitors (or fans) will do it for them. Virtual Reality and haptic feedback leave people wanting more ways to interact with digital worlds, which has already opened up possibilities for scientific research.

And for video games specifically, who doesn't want to walk around in the world of *Witcher 3* and experience as much of Geralt's life as possible? And who hasn't envied Mario and his colourful and happy world? Not only would it make gaming a whole lot more fun, it would also open up so many possibilities to evolve the concept of video games. Already, we see games being used to teach or to heal people. What better way to interest bored teenagers in Medieval monastery life than to let them run around and explore a monastery digitally? Or teach a person to overcome their phobias, or re-learn to walk, from the safety of a nice and comfortable chair? And by developing more powerful soft- and hardware for videogames, scientists and researchers will have access to affordable and customizable tools to run tests and simulations.

For some, the virtual world is better or even more real than the 'real' world and they might choose to remain inside their preferred world for as long as possible. And people should have that right, to become Azeroth's most beloved Paladin instead of Earth's most boring desk clerk, or to explore strange new planets instead of being bedridden.

The devil's advocate would like to point out that while limiting the abovementioned factors would be a terrible thing, limiting the use of the results of these factors might at some point be the only thing that stands between us and the end of humanity. Many works of (science) fiction have warned us for empty worlds, where the only sound is the whirring of computers running the simulation in which the population lives. *Fallout 3*'s main story showed the player what a nightmare such a world could be, as did the *Matrix* trilogy. And some unfortunate gamers have pushed themselves too far already, and died while playing *Starcraft* or *Dota*. Which, by the way, aren't the most immersive games around.

No, limiting the level of detail, realism and immersion would always be a terrible thing, but limiting humanity's nature might be a necessity at some point.

B. van den Hout

> *History is a narrative based on incomplete/biased/wrong information. If a historical game is accurate and (nigh) complete in its representation, is the player's experience just as valid a retelling of the historical events as an historian's interpretation?*
> (B. van den Hout)

It is a truism to state that different media offer different capabilities. This is perhaps best illustrated by observing how the same works may differ radically when adapted into another medium – even a simple entertainment novel will lose some

aspects, such as subjective depth, in a transformation to a film, radio play, or game, while simultaneously also gaining the advantages offered by each of the mentioned media – this is well discussed by Mark J. P. Wolf in *Building Imaginary Worlds: The Theory and History of Subcreation* (2012). The novel asks the reader to imagine the scene and the events; film visualises them; games allow players to participate in a procedural re-enactment of such events. We must not think that video games, by virtue of their capacity for procedural re-enactment, are capable of everything that a written historical work (whether fact, or historical fiction) provides. In particular, where a historian can easily present a series of alternative interpretations of a particular event and weigh the strengths and flaws of each interpretation, even to the point of diverting into a discussion of the relevant characteristics of the historians who put forth those interpretations, a game concentrates on creating the illusion of an interactive reality, and risks losing immersion every time an alternative point of view is presented. An accurate, game-based simulation of an event or a historical system is very capable of allowing players to explore the dynamics of the event, to go through 'what-if' scenarios where an event unfolds differently depending on the player's choices or even the impact of random incidents. But exploring 'what-if' scenarios is not the same as discussing the reasons behind what actually did happen. A historical game can *assist* a historian in developing new interpretations and in gaining a stronger understanding of the historical factors that may have impacted the event, but it will not be an equally valid retelling of the events, because it will most likely fail to incorporate alternative interpretations and considerations. There is also a risk (indeed, a certainty) that the simulation itself will push the player towards particular solutions which need not be the most accurate ones. This is, after all, what Ian Bogost's procedural rhetoric is all about – the idea that game mechanics themselves are a form of rhetoric, i.e. they build an argument. The procedural framework presented in a game will naturally be subjective (but a game potentially could provide multiple procedural frameworks in the same way that a historian provides multiple interpretations – it hasn't happened yet with games, but it's possible), and will present a particular school of historical thought; this is particularly visible with grand strategy games. There are many advantages to confronting such a subjective system, in that an informed player will find themselves meditating on the mechanics of history.

Nonetheless, if there's one thing games have yet to prove, it's their capability to actually re-tell historical events well. The challenges of combining games and narrative are well-documented (though the infamous game vs. narrative debate has abated). In short: no. A historical game will most likely not be just as valid a retelling as a historian's interpretation. However, if well done, it will be infinitely superior as a form of historical re-enactment.

J. Majewski

> *Every once in a while, we read about a cultural heritage game project that uses new technologies to engage additional senses, such as the sense of touch. Archaeology has always been intensively tactile when in the field, dealing physically with artifacts… but would always drop the tactile aspect when transitioning into academic publications. This begs the question: if academic archaeology has always*

managed to make do without the ability to incorporate touch into its publications, can anything truly worthwhile be gained from the integration of touch into archaeology-based game projects, given that any such technology will probably increase the costs of the project and force cuts in other areas? (J. Majewski)

I think that incorporation of further sensorial experiences into archaeology-based game projects (or, indeed, archaeology-based projects of other sorts) could enhance the potential of such projects if executed with strategy and foresight. Certainly budgetary factors would have to play into this. Yes, fieldwork is tactile and academic publications are traditionally visual, but as a person with very poor sight which is not fully correctable ("legally blind" in the States), I have found that experience by touch (sound, smell, and even taste – my introduction to material culture began with a tutorial on potsherd licking) is critical to producing higher quality research because it forces one to interpret the past in a more nuanced way. What did it smell like, turkeys being herded through the muck of 16th century London?

Touch plays a key role in artefact analysis: osteological specialists routinely consider not only the visual aspects of specimens, but also the texture of bony tissue, the feel of morphological features, the density of an element fragment. I recall a moment several years ago when I was explaining my visual limitations to my PhD supervisor, who hesitated awkwardly and said: "I often wonder if I could still identify complete elements to species based on touch alone. It's more important, you know, the feel of things." We are expected to incorporate touch into our work, and translate that into text. I am therefore of the opinion that if archaeological games can offer a way of integrating tactile features, it would be worthwhile indeed.

(Note: if copyright had not been an issue, I would have responded with the song "*Touch*" off of Daft Punk's Random Access Memories album, which I think is a fully appropriate response to the question.)

T. Fothergill

Should games or aspects of games (design, code, etc.) be acceptable forms of archaeological publication? (T. Fothergill)

Yes, depending on the project. As an interactive audiovisual format, a game provides a rich amount of data intuitively that may not easily be translated into a purely textual format, particularly if playing it is an integral part of understanding its conceptualisation. Publishing the aspects of a game's design or its code is equally valid, on par with a methodology I would say, in terms of informing the logic and reasoning behind the game, and potential limitations or sacrifices that were made in order to deliver a working product, given that games are an entertainment product, even when they are educational.

M. Fisher

Many games not only have rich in-game histories and stories, but elements of the former which have been lost within the game universe. Would you consider the discovery of ruins, objects, and history etc. in games like the Fallout and Elder

Scrolls franchises to be a form of archaeology, which could potentially be used in an educational setting to frame discussions on real world archaeological concepts and practices? Side question, do you have a favourite moment of discovery like this in video games? (M. Fisher)

My favorite discovery consisted of piecing together the highly complex and unique story of the god-king Vivec in *Elder Scrolls III: Morrowind*. Whereas most fantasy worlds in RPGs are thinly disguised magical versions of the European Middle Ages, *Morrowind* was one of the first games to make an imaginary world truly alien – and it had an equally outlandish mythology to boot. The excitement of collecting the *36 Lessons of Vivec*, a series of in-game books that read like a mash-up of the Gilgamesh epic and the *Mahabharata*, is definitely the highlight of my long RPG career when it comes to world immersion.

I'm not entirely sure whether the discovery of fictional objects, ruins, and histories in a game should count as a form of archaeology. The only kind of 'archaeology' that usually takes place in games is of the grave-robbing variety you so often find in dime novels and Hollywood films. Objects are no more than loot to be sold off or used as equipment; ruins serve as exotic backdrops for exciting battles; and fictional history is only intended to shore up the game's plot and make the game world more coherent. In short, players are never required to study material culture in order to arrive at conclusions about fictional societies.

I could, however, very well conceive of a game that takes its inspiration from the puzzle-like aspect of archaeological practice. Rather than by action or role-playing, such a game would be propelled by a sense of discovery. The player has to find material clues and interpret them to the best of their ability. Such a game, which would resemble the *Myst* series in that it revolves around the player's interaction with objects and the pursuit of a fictional history, might then also have real educational value.

S. van der Lecq

For some reason, it has become something of a trope in many recent video games: an ancient civilization that has disappeared long ago is presented as immensely more advanced than those currently in existence in the game world. This once all-powerful civilization possessed sophisticated technology or great magical capability that was subsequently lost to the ages because of some mysterious catastrophe. Examples would be the Protheans in the Mass Effect series, the ancient elves in the Dragon Age series, the Dwemer in the Elder Scrolls series, the Engwithans in Pillars of Eternity, and the inhabitants of the previous eight worlds in the forthcoming Torment: Numenéra game. 'Archaeologists' in these games always try to recover advanced knowledge that their own societies no longer possess. The trope is a very curious one, since a real-world archaeologist always belongs to a society that is technologically superior to the one they are studying. Can you think of a reason why video game designers are so fond of turning the idea of historical and technological progress on its head? (S. van der Lecq)

I think this trope, which is indeed widespread, comes from a mixture of a couple of key genre trends. In part, it is a descendent of Medieval (and earlier) ideas of a regressive direction for humanity (often in a religious context) and/or for Europe (in relation to Roman civilisation), which is then recreated in faux-Medieval fantasy fiction. In other cases, it is an extension of the logic of dystopian science fiction, which often arrives at roughly the same place. The former case is well-illustrated in Tolkien's Middle Earth wherein the setting of *The Lord of the Rings* is clearly an ancient and diminished world, emphasised through the dwindling of the Elves, the status of the Men (sic) of Gondor compared to their forebears the Númenóreans, and the actual ruins of the Kingdom of Arnor and its successor states that the Fellowship encounter (most prominently Weathertop). The latter is illustrated by the almost hybrid fantasy/sci-fi setting of *The Book of the New Sun* series by Gene Wolfe, which is set in the far future but features both futuristic and 'dark age' elements, as well as 'archaeological' themes – with the main character Severian encountering deep stratigraphy of vanished ages of higher technology. Another sci-fi setting with a similar sort of theme is the (tabletop and computer-) game world of *Warhammer 40,000*, in which the Dark Age of Technology is a previous era of lost wonders. The prevalence of these themes across imaginative genre work from the mid-20th century onwards (and perhaps particularly between the 1960s-1980s) is probably sufficient explanation for their recurrence even in recent video games, though there is undoubtedly scope for a deeper analysis of why they continue to resonate in political and cultural terms; there has been some discussion on this in media/cultural studies and journalism.

A. Gardner

> *What makes a computer/video game set in a past context more or less 'authentic,' and to what extent is this important to your enjoyment of the game?* (A. Gardner)

One thing is certain about games set in a past context, whether the players realise it or not, such games have a psychological impact or expectation on the part of the player. As living, breathing, conscious beings, we are seemingly enveloped in the constant passage of time (although it may not always feel constant). For us, time flows in a single direction, from the distant past to the current present and then onto the expected future. Our entire lives are spent living in this flow of the arrow of time, which is so ingrained into our minds that we not only accept it, we expect it.

When a game is based in the past, this seemingly irrelevant detail tugs on our perception of the setting. Even though the game may be completely fictional, with no factual or historical basis at all, our minds suddenly adapt to this and we can feel like the game has happened in the past.

Consider the 1985 game by Origin Systems entitled, *Ultima IV: Quest of the Avatar*. This is a completely fictional game and although it is set in another land, it is also placed in a time that feels like it is in the past. This is reflected in the general style and design of the game, with objects and implements we would recognise as mostly historical (such as the various weapons and modes of transport) and by the

Figure 13.1: Ultima IV: Quest of the Avatar.

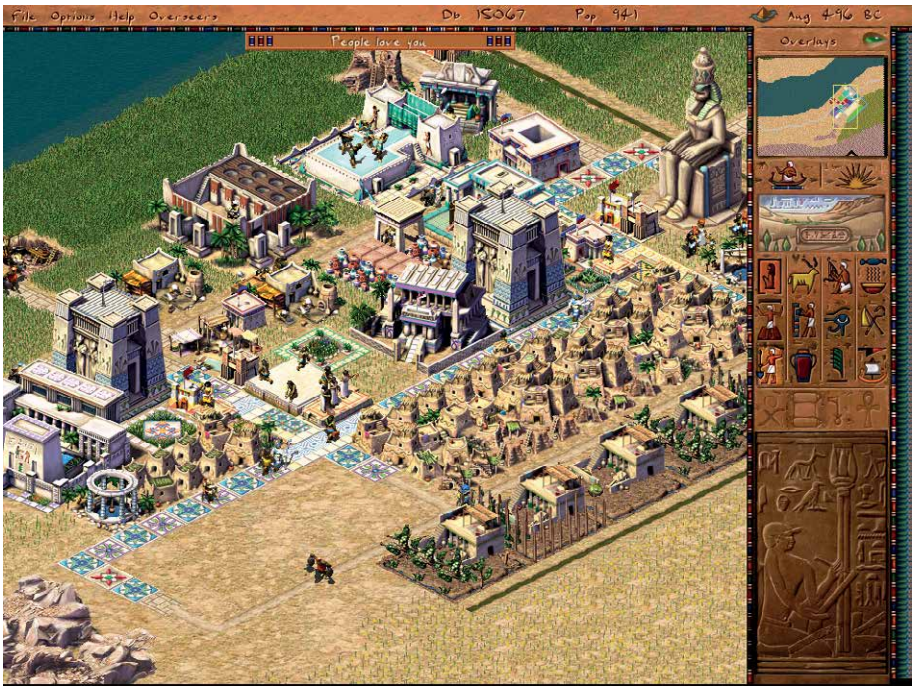

Figure 13.2: Pharaoh.

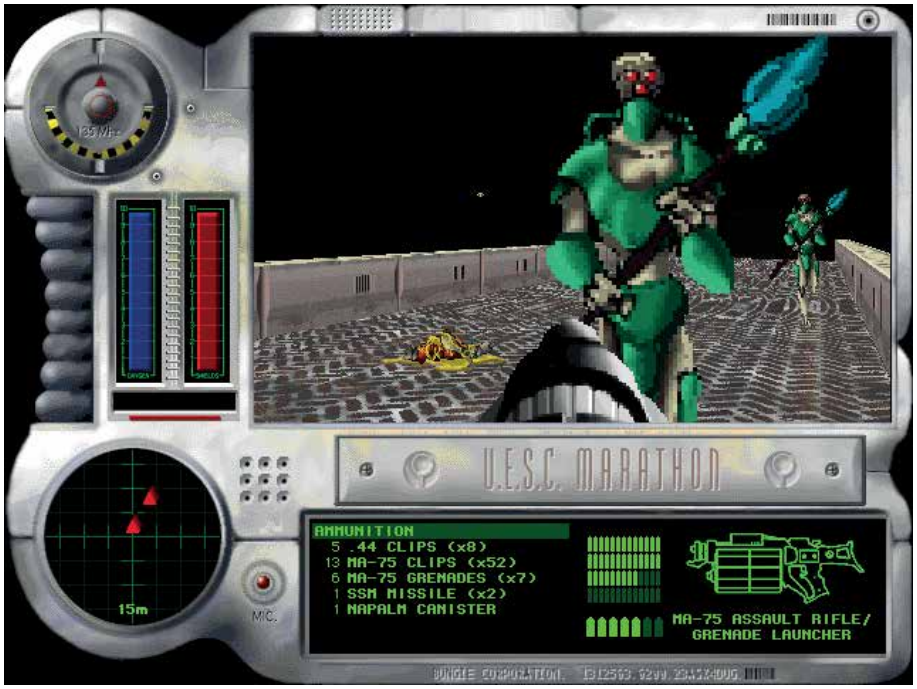

Figure 13.3: Marathon.

clever use of language. This adds to the atmosphere of the game, making it feel more realistic in our minds.

A more tangible example is the 1999 Impressions Games title called, *Pharaoh*. This is a city-building game where the player must progress up through the levels of ancient Egyptian society, all while building towns, cities and balancing elements such economy, governance, military, health and social aspects. The music and graphics are lovingly crafted to heavily remind us of the land of ancient Egypt. Language is also very well utilised in this title, with the in-game help system not only instructing how to play the game, but also including educational and informative facts relating to Egypt, again cementing this as a game of realism. When we are playing this game, we are experiencing something from our very own human past.

With games that are set in a past context, we are merely replaying a snapshot of a certain history. This historical mindset can become a completely immersive environment and give us an impression or feeling of realism. If we are so used to being a part of the flow of time and if we comprehend a game in a past context, then it is almost as though we can fleetingly convince ourselves that this is something that has actually happened. This makes the experience feel very much like a genuine one; one that we have been a part of.

Does this mean that games not set in the past can feel less authentic? Certainly not and there are undoubtedly countless examples of futuristic titles that feel just as authentic within their own contexts.

Figure 13.4: Homeworld.

The 1994 to 1996 Bungie Software *Marathon* trilogy is a futuristic first-person shooter. Containing elements such as faster-than-light travel, multitudes of alien species, artificial intelligences and lost advanced civilisations, this is a story that is by no means based in the past. However right from the very start of this trilogy, the player genuinely feels as though they are a part of the game. An excellent storyline filled with a rich and thick level of lore has resulted in this series seeming realistic to the player.

Equally believable is the 1999 Relic Entertainment title, *Homeworld*. This is a wonderful title in which an advanced civilisation (that has lost its own history), discovers a stone inscribed with a map of their interstellar origins. Well coordinated game progression is mixed with quality storytelling. The player feels genuinely a part of the experience, with the belief that their own mothership contains the last of their own civilisation. The game manual also includes a significant amount of lore, which is not particularly helpful in the game but certainly adds to its realism. Altogether, these factors combine to result in a title feeling as authentic as any historically based title.

In some sense, game designers that are writing for a futuristic context have a slightly more difficult job ahead of themselves. They do not have much of a benefit from our own human past on which to draw from for expectations and therefore need to be much more inventive and creative in their storytelling. Those that succeed in this can create something that is as (and perhaps even more so) believable as any historically based title.

The array of game genres is as wide as the range of gamers. Some examples include:

- Turn-based games laden with statistics on weapons or moves
- Platform or music games where something can be achieved by mashing buttons together in precise timing
- Thought-intensive puzzle, strategic or simulation games
- Fighting, sports and racing games (with varying levels of realism)
- Interactive stories and text adventures
- Realistic three-dimensional and first-person shooters

Most of these require some degree of mental thought and stimulation. People play the games that they feel comfortable playing with; something that they feel is engaging, worthwhile and rewarding. Most of these games will have some sort of story supporting them with some being tenuous at best, while for others the story is an integral and the critical component of the game. While more obvious factors such as mechanics, graphics and audio are an important aspect of many games and indeed can be a significant factor to some players, they do not necessarily need to be of high standard for all games (and sometimes are largely ignored to great effect). I feel that the story is or should be a significant factor of most games and that the player should not only gain satisfaction from the challenge of finishing a game, but also from the reflection on the journey, lessons and moral dilemmas presented by the game. To me, this means that a game doesn't necessarily need to be set in a past context to be authentic, but it does need to be of a reasonable standard and highly thought-provoking.

S. Spagnolo

> *Archaeologists deduce our human life and history by studying and seeking out the remains of objects like settlements and artifacts. Throughout our human history we have left physical clues for them to find, such as building foundations, pieces of pottery or clay tablets. In our more recent electronic age, we are still leaving behind physical evidence, however we have also tended to transition towards virtual information contained within those devices, including emails, photos and computer code itself. Older computer games are generally no longer commercially viable, are usually more simplistic and might not even be available on modern equipment. If we can always write software better than it was in the past, should we even try to preserve these older games exactly as they were written? Will the distant future archaeologist even care about our electronic video games given that the equipment itself is unlikely to be functional for them?* (S. Spagnolo)

Yes, I strongly believe that electronic devices and storage should be preserved. As history unfolds, human beings have developed various forms of artifacts, that today's archaeologists and scientists have managed to recover and study in order to explore possible scenarios of how life looked like in the past.

The interesting fact is that probably an ordinary man using a clay pot to store his wine in Egypt, 10,000 years ago, wouldn't pay attention to the vessel he was using, the purpose of the clay pot was only utilitarian for him. Nowadays an archaeologist would

probably be fascinated by such a find. Returning back to the 21st century one can make the same comparison with the devices we use every day. We see our laptops, mobile phones and gaming consoles as something we use now and when they stop functioning they won't be of any use. However if we try to catch a glimpse of the future these devices will be part of humanity's heritage as important as an ancient scroll or vessel. Future generations will be able to recover information about how landscapes, cities and countries looked like in the 21st century.

There are two notable things in this topic though: a) technology evolves in such a rapid pace that every year more and more devices and software become outdated and old-fashioned, this makes the volume of collected data almost immense for someone to study and b) information will not always be extracted through tangible artifacts such as tablets written in ancient languages or sculptures, but through data storage devices. These two characteristics may make the future archaeologist look a lot more different than we picture them today, excavating sites under the burning sun!

Preserving today's devices, games and software is crucial for the future of archaeology. Every aspect of daily life is important to feed the curiosity of the distant future generations, about how life used to be back then…!

N. Kautsky

> *In terms of technological advancement, one generation has enjoyed playing video games with pixel graphics on an Atari, and now 30 years later the same generation can play games in virtual reality environment. How will the future gamer develop? Will some forms of games that require physical and tangible equipment (such as chess or board games) be replaced by video games in the future?* (N. Kautsky)

Let's answer the first question first, although it's not easy for me to answer. I have lived through the evolution, but for me it started later with the Sega Master System II and as it stands now, I have not yet experienced a proper gaming session in VR. The latter is due to the fact that it's not yet omnipresent, and because I just haven't really been into it that much to be honest.

On that Sega Master System II I spent quite some time playing various games in 8bit like *Alex Kidd* and *Michael Jackson's Moonwalker*. Back then graphics didn't really have an impact on me, as I was only 5-6 years old. What I do remember is how well they portrayed MJ's dance moves and how recognizable the 8 bit music actually sounded. Slowly but surely the graphics part of video games started peaking my interest though, as I played games like *Tomb Raider II*, where I learned about the polygons. Mind you, and this some people will find hard to believe, but polygons have been around in video games since before I was born! Namely in 1983 a game called *I, Robot* was released, which was built up of Polygons for 3D effect. Amazing.

Fast forward to now, where graphics are VERY important to me in a video game. They are the entire reason that I maybe cannot even be called a true gamer, because I find it hard to fully appreciate a game that does not look the part. Granted, I play *World of Warcraft*, which graphically doesn't even come close to an *Elder Scrolls Online*, or any big AAA title. However it has evolved quite a bit since I

started playing, and with the launch of *Legion*, you need quite a machine to play it at max settings. But to really get my attention, a game needs to look like the NEW Tomb Raider games, like *Rise of the Tomb Raider*, or for example *Doom* or *The Witcher III*. You know, games that really make my PC flex its muscles and make me stop once in a while to appreciate a nice sunset or the attention to detail. I also recently started playing around with *GTA:V* and modding, and I think I played about 5 hours so far, with completing a total of 3 missions. The rest is being in awe at how good everything looks with the right shader mods. There is only one place where I don't care about graphics that much, and that is in online first person shooters, because of the edge a higher fps gives you with regards to latency.

All of the previous is pretty funny when you think about it. I actually gave *Tomb Raider II* another go a while back and even though nostalgia hit like a monster truck, I couldn't help but being frustrated about how bulky everything felt and more importantly, how bad it looked. Yet back then it looked AMAZING. It did make me appreciate how far we have come in what is in fact not such a long time now, is it? So I guess if things continue to evolve as they are, maybe at some point in the future I'll think today's AAA titles looked *meh*? Maybe. Or maybe not. Time will tell, one can only guess.

To get back to the topic of VR, I don't think it will be the future of gaming, as I don't think it's an appropriate replacement for a regular monitor display. I also think the gaming industry agrees with me on this. They are perhaps now offering support for VR in many games, the majority of video games are still focused on regular displays and their resolutions. The manufacturers of those displays are in fact also still going all in on development and future proofing, always being one or even a couple of steps ahead of the technology that can power their products.

Like for example at the time of writing this (February 2017), they recently announced HDMI 2.1, which will support up to 10K (!!) resolution in 60fps, gaming displays that offer up to 240hz (that's the screen refreshing 240 times per SECOND) like ASUS' latest gaming display and even 8K displays like Dell's new UltraSharp 32", while the majority of the people doesn't even have 4K or 144hz at home. And like I said, the displays will always be well ahead of the tech that powers them. For example to be able to power one of those 8K displays at a constant 60fps in today's AAA titles, you would need two Titan X Pascal cards in your rig, retailing at $1200 per piece. And then you still might need to tweak some things…

So it's clear that the industry is still focusing very hard on regular display technology, and it makes sense too. VR might be cool and all, but it's just not applicable absolutely everywhere. And for something to be a true successor, like the DVD was to the VCR, there has to be a use case for everything. Just imagine wearing one of those bulky (even if they'd slim it down a bit) VR sets at work all day? Or doing a hardcore gaming session of over 6 hours?

Which brings me to another fact I've encountered regarding VR. Only very few people I have spoken to say they can stomach more than a couple of hours in VR. Stomach, literally, because some people don't even get past half an hour or even fifteen minutes without getting sick. This is obviously because of the way VR is built, where you put on the goggles and a good pair of headphones, and you are completely out of this world and into another. For immersion it is clear that

there is no clear competitor to that. But it also means your brain has some serious adapting to do, and that's exactly where a lot of people's brains (and stomachs) throw in the towel.

What in my opinion will not have this issue, is mixed reality. A lot of you will have already dabbled in this, albeit in a very rudimentary form with *Pokémon Go*. The more advanced form of mixed reality, the Microsoft HoloLens is in fact very close to becoming accessible to the public. The first developer kits were already released last year, but with a very hefty $3000 price tag only actual developers were part of the early adopters of this tech. Recently, however, at CES (Consumer Electronics Show, Las Vegas), Microsoft announced partnerships with hardware developers like Dell, Acer, HP, Lenovo and 3Glasses. These partners will focus on making third party HoloLens headsets, retailing at prices of a mere $299, a fraction of the first dev kits of the HoloLens. Very important side note though: these headsets will have to be paired with a computer, whereas the actual HoloLens has its own soft-and hardware to power it, making the HoloLens experience fully untethered. Still, this, to me, is VERY promising news, because it means that you can use it as a display, powered by your own technology. You will still get the full experience of mixed reality, but you can do so on your own terms.

And that is where I think we might be headed. You see, mixed reality eliminates that whole brain recalibration your brain has to suffer through when going into VR, because you don't **actually** leave reality rather than adding some objects to it. Just have a look at the demonstration of what the HoloLens does,[1] and you'll see what I mean. This means you can actually replace your physical displays by digital ones that you can touch, manipulate, basically freeing up a ton of physical space and granting you unlimited possibilities in return.

This is all very exciting for making Skype calls, working, writing, watching things, but it is of course also insanely cool for gamers. Just imagine playing *Overwatch* at 144hz on a display as big as your eyes can handle, where you want it and how you want it. Or just have a look at this demonstration of *Minecraft* [2] with the HoloLens. The crowd's reaction at 1min40 says enough about how exciting all of this is. Or maybe this demonstration[3] of the alien invasion game the HoloLens developers created. As you can see, this tech is still in its infancy, but it's very, VERY promising.

And of course let's not forget the readers and creators of this book, and what the HoloLens technology has to offer for them: the archaeologists! I myself may not be one of you, but I do understand how potent this technology may be in your field. Can you imagine physically visiting a site of the past, like an old ruin or dig site, and with the help of 3D modelling being able to witness where you are in its full historical glory, including the people that were there? Or what this

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1 The Verge. 2016. *Microsoft HoloLens: What It's Really Like*. YouTube, 1 April 2016. Electronic resource <https://www.youtube.com/watch?v=4p0BDw4VHNo>.

2 CNET. 2015. *CNET News – Minecraft + HoloLens = Whoa!* YouTube, 15 June 2015. Electronic resource <https://www.youtube.com/watch?v=kbg2PLkIaDY>.

3 Gizmodo. 2015. *Holy Crap, This New HoloLens Demo Is Freaking Crazy*. YouTube, 6 October 2015. Electronic resource <https://www.youtube.com/watch?v=29xnzxgCx6I>.

tech could mean to get people and more importantly young people excited about archaeology? That's amazing, right?!

This is all very futuristic of course, but I was asked to give my ideas of where we're headed, and I think this tech is definitely the one to keep an eye on. To finally apply the mixed reality idea to your example with the chess pieces on a chess board, it's already been done by testing developers, and I'm sure it will be possible in the near future for us all to try at home. And once they simplify the other beautiful piece of tech called Haptic Feedback into say, an elegant simple glove to wear, instead of a bulky controller, you will even be able to feel the pieces you pick up.

We've got a long way to go before it all becomes the standard though. Because let's face it: which of you, who might actually be reading this book in its physical form, are still reading paper books, while tablets and e-readers have already been around for so long? Thought so :)

V. Vandemeulebroucke

Ludography

Alex Kidd in Miracle World. 1986. Sega. Sega. [Master System]

Civilization series. 1991-2016. MicroProse & Firaxis Games. MicroProse, Activision, Infogrames Entertainment & 2K Games. [multiple platforms]

Defense of the Ancients (DotA) [Mod]. 2003. IceFrog, Eul & Steve Feak. [For: *Warcraft III: Reign of Chaos*]

Doom. 2016. Id Software. Bethesda Softworks. [PC, PlayStation 4 and Xbox One]

Dota 2. 2013. Valve Corporation. Valve Corporation. [PC, Linux and MAC]

Dragon Age: Origins. 2009. BioWare. Electronic Arts. [PC, PlayStation 3, Xbox 360 and MAC]

Dragon Age series. 2009-2014. BioWare. Electronic Arts. [multiple platforms]

Dune II: The Building of a Dynasty. 1992. Westwood Studios. Virgin Interactive. [DOS]

The Elder Scrolls 3: Morrowind. 2002. Bethesda Game Studios. Bethesda Softworks. [PC and Xbox]

The Elder Scrolls Online. 2014. ZeniMax Online Studios. Bethesda Softworks. [PC and MAC]

The Elder Scrolls series. 1994-2016. Bethesda Game Studios. Bethesda Softworks. [multiple platforms]

Fallout 3. 2008. Bethesda Game Studios. Bethesda Softworks. [PC, PlayStation 3, Xbox 360 and Xbox One]

Fallout series. 1997-2015. Interplay Entertainment, Black Isle Studios & Bethesda Game Studios. Interplay Entertainment & Bethesda Softworks. [multiple platforms]

Grand Theft Auto V. 2013. Rockstar North. Rockstar Games. [multiple platforms]

Homeworld. 1999. Relic Entertainment. Sierra Studios. [PC]

I, Robot. 1984. Dave Theurer. Atari Inc. [Arcade]

Marathon trilogy. 1994-1996. Bungie Software. Bungie Software. [multiple platforms]

Mass Effect series. 2007-2012. BioWare. Microsoft Game Studios & Electronic Arts. [multiple platforms]

Michael Jackson's Moonwalker. 1990. Sega. Sega. [Master System]
Minecraft. 2011. Mojang. Mojang. [multiple platforms]
Myst series. 1993-2005. Cyan Worlds, Presto Studios & Ubisoft Montréal. Brøderbund & Red Orb Entertainment, Ubisoft. [multiple platforms]
Overwatch. 2016. Blizzard Entertainment. Blizzard Entertainment. [PC, PlayStation 4 and Xbox One]
Pharaoh. 1999. Impressions Games. Sierra Entertainment. [PC]
Pillars of Eternity. 2015. Obsidian Entertainment. Paradox Interactive. [PC, Linux and MAC]
Pokémon Go. 2016. Niantic. Niantic. [iOS and Android]
Rise of the Tomb Raider. 2015. Crystal Dynamics. Microsoft Studios & Square Enix. [Xbox 360, Xbox One, PC and PlayStation 4]
Sid Meier's Colonization. 1994. MicroProse. MicroProse. [DOS]
StarCraft series. 1998-2015. Blizzard Entertainment. Blizzard Entertainment. [PC and MAC]
Tomb Raider II. 1997. Core Design. Eidos Interactive & Aspyr. [PC, PlayStation and MAC]
Torment: Tides of Numenera. 2017 [expected]. inXile Entertainment. Techland Publishing. [multiple platforms]
Ultima IV: Quest of the Avatar. 1985. Origin Systems. Origin Systems. [Apple II]
Warcraft series. 1994-2016. Blizzard Entertainment. Blizzard Entertainment. [multiple platforms]
Warhammer 40,000 series. 1998-2016. Random Games Inc., DreamForge, Kuju Entertainment, Relic Entertainment, Iron Lore Entertainment, Razorback Developments, RedLynx, THQ Digital Studios UK, The Lordz Game Studio, HeroCraft, Roadhouse Interactive, Eutechnyx, Hammerfall Publishing, Rodeo Games & Behaviour Interactive. SSI, THQ, Slitherine, HeroCraft, Roadhouse Interactive, Eutechnyx, Hammerfall Publishing, Rodeo Games & Bandai Namco Entertainment. [multiple platforms]
The Witcher 3: Wild Hunt. 2015. CD Projekt RED. CD Projekt RED. [PC, PlayStation 4 and Xbox One]
World of Warcraft. 2004. Blizzard Entertainment. Blizzard Entertainment. [PC and MAC]

Levelling Up

The playful promise of interactive pasts

Angus A.A. Mol, Csilla E. Ariese-Vandemeulebroucke, Krijn H.J. Boom & Aris Politopoulos

Much like its subject matter, *The Interactive Past* book is a highly diverse collection of expressions, experiments, and explorations. As editors, we were delighted to see that there are so many different takes on this theme and so many routes of entry, from agent based modelling to *Zelda*'s chickens. Indeed, we feel that, for a book with authors from Australia to Alaska, it is fitting to be unified in diversity. Even so, what you found between these covers is not a disjointed collection of pieces, but more like a game with many sub-quests, storylines, and mini-games. It is true that the experiences you found in the previous chapters all have their own content, their ideas and challenges, and exist as part of their own genres that bring with them specific perspectives and interests. However, there is a core belief, a 'gameplay loop' so to speak, that is shared across all the chapters: the past is a playground and video games provide great playgrounds to engage with the past.

Past Playgrounds

In his most recent book, philosopher and video game designer Ian Bogost talks about how we can "play anything," by creating a playground anywhere out of anything (2016). In essence, creating a playground is simple – create a boundary around content – but actually playing in them can be hard work. We have fun in playgrounds not because they are easy and straightforward places, but because they present us with the possibility to have new and genuine experiences, some of which are joyous journeys of (re-)discovery, while others consist of challenging, repetitive, or even unpleasant activities. Regardless of their context and the activities they offer, playgrounds are fun precisely because we take them and what goes on in them seriously. One of a range of examples given by Bogost, is the idea of Big Box Archaeology: the practice of creating an assemblage of things by going around a shopping centre and 'excavating' stuff by picking them up from the shelves and putting them in a cart. A knee-jerk reaction to this might be to reject this playful

form of archaeology as ludicrous, but that would be missing the point of this game: to invite the player-archaeologist to observe and think about the things she picks up through a playful exploration of the seemingly mundane but actually extraordinarily strange setting of the shopping centre.

Like the idea of Big Box Archaeology, the idea of an 'interactive past' may seem ludicrous at first. Yet we believe this book makes a convincing argument for the value of creating playgrounds out of the past as a platform for a variety of interactions with it. For example, in her chapter, Tara Jane Copplestone makes a clear case for how bringing video game thinking into archaeology is not only possible, but can also bring archaeological practice, in particular how we present the past, to unexpectedly fun and productive places. In their chapters, Andrew Reinhard and Erik Malcolm Champion show us how the converse is true as well: even if archaeologists have many tools to engage the past, these cannot straightforwardly be applied to video games, thus engendering a challenging and (therefore) stimulating re-thinking of our most cherished theories and methods. Fortunately, the wonderfully creative approaches to playful pasts exhibited in the chapters by Glas and colleagues, McGraw and colleagues, and Jakub Majewski show us there is no need to re-invent the wheel as we move from our 'trenches' to the realm of the virtual, as there are many toys in existing playgrounds that we could adapt to our needs. Similarly, Rubio-Campillo and his team along with Shawn Graham show us how there is a ton of fun, as well as food for thought, to be had in tapping into the inherent playfulness at the heart of modelling and simulation. The decisions and factors that shaped *Never Alone* and *Herald*, as told by the Cook Inlet Tribal Council and Roy van der Schilden & Bart Heijltjes, provide great examples of how the development of games is itself a journey of discovery, one that can prompt you and others to view and value aspects of the past in new ways. Finally, Gabrielle Hughes and B. Tyr Fothergill & Catherine Flick provide concrete examples of why what goes on in our playgrounds is very much connected to the world beyond their boundaries.

Academic Playgrounds

We feel that the idea of the past as playground should not be constrained to our interactions with video games, but can serve as a template for our many other engagements with it. Of course, there will always be naysayers who may question the basic validity of playful research and outreach in the context of archaeology and heritage, even more so when it targets the 'frivolous' interactive forms of entertainment. One defence to this is to make the field 'more academic,' by showcasing research possibilities and outcomes through paper presentations and publications in so-called high impact journals. However, playful scholarship on the interactive past holds another, perhaps more important, promise: the potential to bring what we do into play as a way to disrupt an encroaching distancing and cynicism – what Bogost calls "Ironoia" – that can now be found in many areas of academic practice. Archaeology, for example, is in its very essence a playful workfield: one that lets its practitioners play out the past in their minds and through discussions, excavate bounded areas – which we call sites – in a playground-like manner, and develop fun and deep relationships with artefacts as subjects of study.

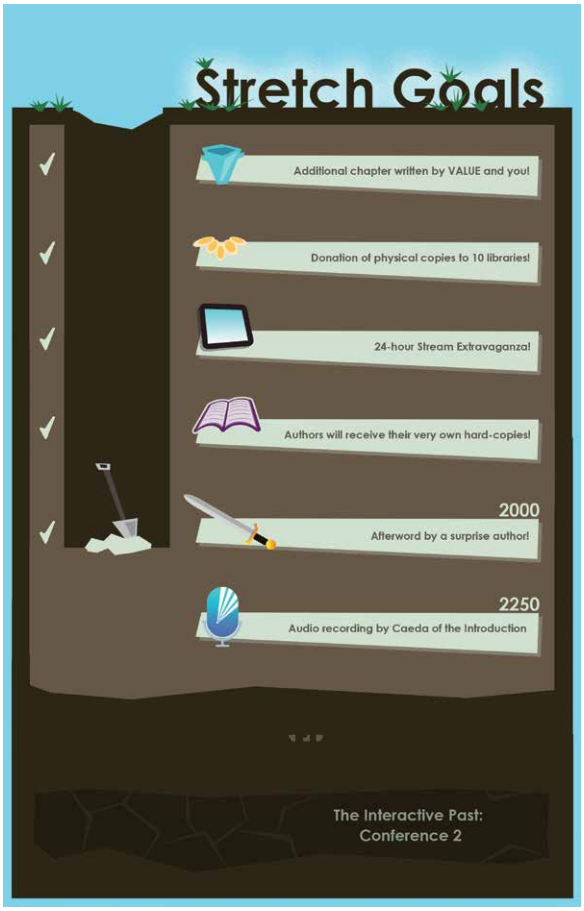

Figure 14.1: Playful initiatives in academic publishing. A visualization of the stretch goals excavated by the end of VALUE's successful The Interactive Past Kickstarter campaign in 2016 (designed by: Krijn Boom).

Yet with all this potential for play, the discipline often takes itself ludicrously serious, even to the point that we no longer recognize that we are or should be having fun. What many of the chapters in this book show is that we can play with and in the past and still produce thoughtful and impactful works.

In a similar vein, this book also seeks to contribute to an interactive past-fuelled re-configuration of what can be said to be 'standard' publishing practices. These are still too focused on creating high profits for publishers through a veritable torrent of 'high impact' papers which only in rare cases reach the public who paid for the research in the first place. It bears repeating that *The Interactive Past* only exists in this form because of a successful Kickstarter campaign (see Figure 14.1). Even for a project with a modest goal like this one, running a crowdfunding project involves a lot of work creating project pitches, videos, texts, images, pledge levels, and stretch goals, as well as reaching out to potential backers and communicating with backers. It can also be quite scary to put your idea out there and hope others will support it – and let's not even speak of the mortal combat we had with Kickstarter's weird project layouting interface. After this, the pressure is on to deliver on the promises that were made. To fulfil one of these, we wanted to incorporate a chapter which would not only be funded by the crowd, but also written by the crowd

(see previous chapter). This was achieved through the chain game in which the Kickstarter backers had the opportunity to ask questions and express their opinions and ideas on the vast field of archaeology and video games, irrespective of their education, age, or gender. Even if crowdfunding and -sourcing an edited volume was a completely new and tough playground for us, it is one that we can heartily recommend as the activities mentioned above are also fun, creatively stimulating, and emotionally rewarding. What's more, the end product is something that still goes against the grain of much of traditional academic publishing: an open access book, free and available to anyone.

These are not the only examples of playful initiatives that are both a source of fun as well as a platform for the discussion of archaeological practice and theory. On Twitter, for example, the Archaeogaming Bot, created by Tara Copplestone, is a generator producing random ideas for video games with archaeological themes based on crowdsourced input. In the blogosphere, several sites, such as *archaeogaming*, *electricarchaeology*, and *playthepast*, continue to provide important platforms for discussion. These blogs, combined with the use of social media, create an open forum where academics and the wider public have the ability to read, comment, argue, and collaboratively explore new playgrounds. In a similar manner, streaming platforms also engender the exploration of new methods and theory, as well as outreach. The first *Archaeogaming Unconference*, organized by Shawn Graham with Tara Copplestone & Andrew Reinhard in 2015, is an excellent example of how academics and non-academics from all over the world can come together in an informal setting, set their own agenda, and discuss topics that interest them. *The Interactive Pasts Conference*, organized by VALUE, was also streamed in its entirety, including one of the workshops, which allowed people who could not be physically present to attend, interact, and even hold presentations.

Collaborative Playgrounds

What we have tried to do with this book is break the academic norm through a playful and serious approach that incorporates many of the different facets at the interface of video games and scholarly approaches to the past. At the same time, we need to understand and avoid a number of pitfalls that come with such an undertaking. As stated, while we are trying to break the barriers of academia through playfulness and inclusiveness, it is a very real danger that, if we do not pay close attention, archaeology and video games can end up as a bounded discipline, which might be a lot of fun for its practitioners but ends up being largely disconnected from both scholarly and gaming communities. Just as interactive pasts should be more than 'a niche subfield of a discipline,' we should not become just 'another YouTube channel' or 'another blog' that might offer interesting facts about gaming or archaeology but does not have a substantial impact on either. This is not meant to undermine the importance of blogs or YouTube channels (VALUE has both), but to focus on the wider potential of the past and the disciplines that study it to shape a new, inclusive approach to games as well as academic practice. In a way, for research on video games to make an impact, we have to play in two playgrounds at once. The same applies if we want our insights to have an impact on the types of interactive pasts that are created by the gaming industry.

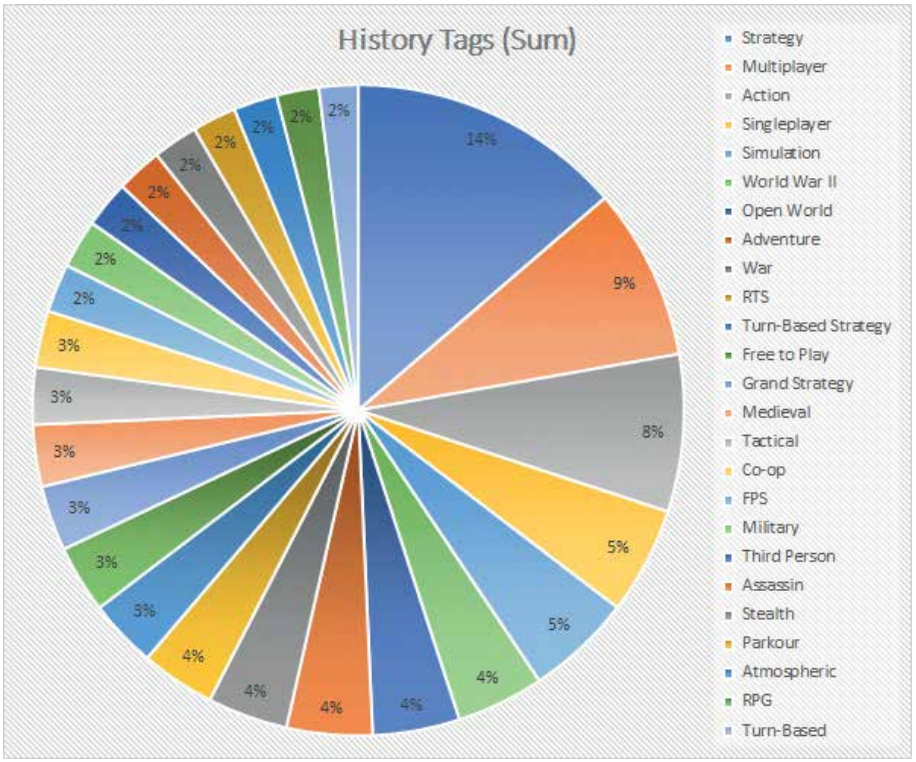

Figure 14.2: Pie chart showing the top 25 tags that have been assigned by players to all games which are also tagged as 'historical' on Steam (image by: Angus Mol).

Unfortunately, games do not always take the past as seriously as it deserves nor make use of all the richness that it can offer as a playground. Frequently, we see (aspects of) the past being used more as a backdrop for a relatively narrow group of interactive experiences instead of as an integral and potentially enriching aspect of a wide range of games. For example, at this point in time on Steam, one of the biggest gaming platforms in the world, there are 266 games that are tagged by players with the 'historical' tag. These games have an 81% median user review score, showing that players do tend to enjoy historical playgrounds. Many of these players are also actively engaged with the histories they play, through forum discussions, wiki pages, and mod development. Yet, despite the popularity of those games, they provide a relatively narrow selection of the plethora of possibilities offered by the interactive past. As an example: 24% percent of games that are tagged by users as historical, are also tagged as strategy games ('Strategy,' 'RTS,' 'Turn Based Strategy,' or 'Grand Strategy'), making these types of God- or commander-like, 'hands-off' engagements with the past the most prevalent category. In addition, a large percentage of these games are violence-based interactives, with 'action' (9%), 'war' (4%), 'World War II' (4%), 'tactical' (4%), 'first-person shooter' (3%), 'assassin' (2%) and 'stealth' (2%) being other frequently applied tags (see Figure 14.2).

This prevalent narrow use of the past has resulted in the production of many historical games which, despite their commercial success, have been rather underwhelming in terms of their appropriation and (mis)representation of the past. As people increasingly engage with the past through games, this can form a real danger to humanity's collective valuation and knowledge of it. For example, we see many cultures being underrepresented while others are essentialized as straightforwardly 'exotic' or 'evil,' because history in video games is still heavily dominated by a Western re-telling of it. We believe game developers in general can and should do better, even with the high pressures that come with being part of the 'gaming industry's' commercial playground. Here, heritage and history professionals can help by putting their passion for the enjoyable complexity of the past to work. In addition, they can create a creative and nuanced contribution by communicating clearly and openly.

Fortunately, this book shows that there is a growing segment of the academic population that would be very interested in collaborating with the (gaming) community to bring fun and genuine games to the world and make both positive commercial and societal impacts. As Tara Copplestone argues in her chapter, academics would have to learn how to speak the developers' language rather than their own jargon. Knowledge dissemination through games would also be a new way of highlighting the impact of our research to funding agencies and bring about a more positive attitude to playfulness in the archaeological and heritage disciplines. The same positive note applies to the gaming industry, where there are many creative and successful initiatives that take the past seriously. For example, *Never Alone* and *Herald,* as well as other entries in this book's ludographies, are prominent examples that deviate from the norm of a violent and top-down experienced past. Indeed, all of the game development, outreach, and research projects discussed here provide not only a real contribution to an academic debate, but also offer clear examples, and in many cases actionable recommendations, for what such a collaborative process would look like. What is more, academics and members of the creative industry have something in common: we do what we do out of a passionate desire to have and create positive, even fun, experiences for ourselves and others – we are certainly not in it for the money. We are hopeful that, with continued effort from all involved, what we are seeing now is just the beginning of academics and game developers frequently visiting and even revelling in each other's playgrounds.

Conclusion: Taking Our Playgrounds to the Next Level

In short, what all the chapters in this book show us is that seriously thinking about, creating, and experiencing the past through video games and vice versa, provides a space for a playful and creative process of discovery and a genuine engagement with almost any topic you can think of. This may well be the true promise of bringing (video) games into academia and specifically into disciplines that study the past.

We hope, dear reader, that you have enjoyed reading about the interactive past as much as you normally enjoy playing it – or if, until now, you were not much of a gamer, we hope these writings have inspired you to try your hand at a video

game or two. We also hope you agree with us in saying that the future of interactive pasts is looking both enjoyably challenging, as well as creatively stimulating. See you in Summoner's Rift, Azeroth, the Protectorate, Hyrule, Mushroom Kingdom or whichever other playground you choose to visit!

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Afterword

Colleen Morgan

West of House
You are standing in an open field west of a white house, with a boarded front door.
There is a small mailbox here.

>open mailbox
Opening the small mailbox reveals an invitation.

>read invitation
"WELCOME TO ARCHAEOGAMING!
ARCHAEOGAMING is a game of adventure, danger, and low cunning. In it you will explore some of the most amazing territory ever seen by mortals. No computer should be without one!"

>|

The blinking cursor at the beginning of an interactive text adventure held all the expectation in the world. A universe of words waited for you, and simple commands propelled you headlong into a maze of spoonerisms, chasing ghosts, solving puzzles; the blinking cursor could lead you to meet Zaphod Beeblebrox or get eaten by a grue. *Zork* – the game referenced above – seemed endlessly complex, sending you to Hades and back for treasure. It is within this breathless anticipation of fun that we find *archaeogaming*, a term usefully coined by Andrew Reinhard. Archaeology's constant collisions with digital media, storytelling, and co-creation made this eventuality inevitable, and archaeologists are rapidly forming the lexicon for understanding how to speak ludology. I find Janet Murray's germinal *Hamlet on the Holodeck* (1997) essential to this discourse; archaeogaming and other expressive forms of digital archaeology are what Murray terms as *incunabula*, an infant medium, untested and unwise in methodology and scope. Perhaps this is why they are so compelling.

This collection of chapters is a move toward formalizing this remit, and there are exciting flashes of the potential of archaeogaming toward meaningful contributions to archaeological discourse. For example, Graham's wholesale slaughter of generations of Romans as informed by stamped bricks and social networks is a joyful exercise in, astonishingly, archaeology informed by agent based modelling. Fothergill & Flick are able to translate the chicken-human interactions in video games into an exemplar for deep zooarchaeological thinking. Majewski's hacky chapter on modding video games for cultural heritage co-creation follows a model of digital *détournement*, of "breaking apart the pieces and putting them together in subversive ways" (Graeber 2009; Morgan 2015).

Détournement is essential to my approach to digital archaeology. This interventionist work is inspired in part by the art of Cory Arcangel who playfully interferes with established modes of expression, removing all but the clouds in *Super Mario Bros* or creating "I Shot Andy Warhol" by modifying the Nintendo game, *Hogan's Alley* (Arcangel 2002). Using *Second Life* to model Çatalhöyük was such an exercise: while much of the content of the Open World was modelled by the staff and students working on the reconstruction, there was extensive borrowing, re-making, and hacking digital materials from other *Second Life* makers and worlds to re-animate the Neolithic (Morgan 2008; Morgan 2009). As part of the Heritage & Play working group at the University of York, Tara Copplestone led a boardgaming session for *Hoyuk*, a game loosely based on Çatalhöyük. She noted that the game was a very capitalistic, antagonistic construction of past lifeways, and wondered if it could be remade to include a cooperative mode, where players could work together to combat common woes. Could the primary heritage discourse derived from archaeogaming be an elaborate form of pop-culture sabotage? The attending question, of course, is can archaeogaming push archaeologists to reimagine the past in productive ways?

The blinking cursor at the beginning of a text adventure is both an invitation to play and a challenge to explore alternative perspectives. This collection of chapters has laden our inventory with useful equipment for this exploration; after all, perhaps this afterword merely echoes advice given to Link in *The Legend of Zelda*: "it's dangerous to go alone! Take this!" In his discussion of virtual heritage and new media, Erik Champion asks if new heritage designers should "augment or replace, or challenge conventional historical means of learning" (2008: 197). This volume would imply an enthusiastic affirmative, but there are further questions to consider. Where are the critical junctures in video games and archaeology that change this conversation into critique? It is for archaeogaming to move from the quotidian inventories of heritage within gaming to reach into the profound. Ethan Watrall (2002), an early protagonist in investigating interactive entertainment in archaeology, has turned from direct interaction with video games and gaming to advocating for what he calls "creating playful moments" (pers. comm., 2017).

This may be the secret genius of archaeogaming: to make room for playful interaction and bring back life to archaeological narrative. In particular, archaeogaming directly comments on current practice in digital archaeology, especially virtual reconstruction. It reveals that it is not enough to make and remake dreadful, empty, virtual constructs of dead houses, you must breathe

life and noise into these heritage ghost towns. Playful action pushes against the deadening effects of neoliberal incursions into archaeology and makes space for creative interventions.

So, what's next is up to you:

> *West of House*
> *You are standing in an open field west of a white house, with a boarded front door.*
> *There is a small mailbox here.*
>
> >|

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THE INTERACTIVE PAST

Video games, even though they are one of the present's quintessential media and cultural forms, also have a surprising and many-sided relation with the past. From seminal series like *Sid Meier's Civilization* or *Assassin's Creed* to innovative indies like *Never Alone* and *Herald*, games have integrated heritages and histories as key components of their design, narrative, and play. This has allowed hundreds of millions of people to experience humanity's diverse heritage through the thrill of interactive and playful discovery, exploration, and (re-)creation. Just as video games have embraced the past, games themselves are also emerging as an exciting new field of inquiry in disciplines that study the past. Games and other interactive media are not only becoming more and more important as tools for knowledge dissemination and heritage communication, but they also provide a creative space for theoretical and methodological innovations.

The Interactive Past brings together a diverse group of thinkers — including archaeologists, heritage scholars, game creators, conservators and more — who explore the interface of video games and the past in a series of unique and engaging writings. They address such topics as how thinking about and creating games can inform on archaeological method and theory, how to leverage games for the communication of powerful and positive narratives, how games can be studied archaeologically and the challenges they present in terms of conservation, and why the deaths of virtual Romans and the treatment of video game chickens matters. The book also includes a crowd-sourced chapter in the form of a question-chain-game, written by the Kickstarter backers whose donations made this book possible. Together, these exciting and enlightening examples provide a convincing case for how interactive play can power the experience of the past and vice versa.

Sidestone Press
ISBN: 978-90-8890-436-3