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DOCTOR OF PHILOSOPHY

This is for the record:

A case for video recording as part of a unified method of data collection for the academic study of PC games

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This is for the record:

A case for video recording as part of a unified method of data collection for the academic study of PC games



Isamar Carrillo Masso

2018

Thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in Game Research and Research Methods School of Music and Media Bangor University

Abstract

In the past 40 years, computer games have become an overwhelming success in the entertainment industries as well as an established cultural medium. While the video game industry has well-established methods of data collection (in the form of game metrics) to deal with the inherent complexity of video games, the field of game research has not sufficiently addressed its own status as an independent field of inquiry with a unified approach to data collection for game analysis. Instead, individual studies use methodological approaches that start from zero every time, thus creating information silos that provide interesting individual and anecdotal insights, but that do little to advance this field as a whole. This thesis intends to build on such studies to propose a more cohesive approach to data collection for the study of games that also contributes to the field of research methods. A unified method of data collection would ideally be robust enough to be applied to different genres (e.g., adventure, MMORPGs, point-and-click games) and could produce verifiable results, allowing researchers to compare like-with-like and make data sharable across disciplines to encourage the interdisciplinary study of video games. The main contribution of this thesis is a threepart, step-by-step methodology of data collection for the study of PC games using video records as data within a robust framework. The methodology is showcased by means of three case studies as examples of practical applications of the methodology. The aim of this methodology is to make games more systematically analysable, and thus more accessible as objects interdisciplinary study and scholarly critique.

Keywords: game research methodology, game research framework, interdisciplinary game research, systems thinking, video methodologies, research methods

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It is impossible to thank here all the people who have, in different ways, helped me to bring this project to completion, but to all, I want to say that I am grateful for the journey.

Declaration of Conformity

I hereby declare that this thesis is the results of my own investigations, except where otherwise stated. All other sources are acknowledged by bibliographic references. This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree unless, as agreed by the University, for approved dual awards.

Yr wyf drwy hyn yn datgan mai canlyniad fy ymchwil fy hun yw'r thesis hwn, ac eithrio lle nodir yn wahanol. Caiff ffynonellau eraill eu cydnabod gan droednodiadau yn rhoi cyfeiriadau eglur. Nid yw sylwedd y gwaith hwn wedi cael ei dderbyn o'r blaen ar gyfer unrhyw radd, ac nid yw'n cael ei gyflwyno ar yr un pryd mewn ymgeisiaeth am unrhyw radd oni bai ei fod, fel y cytunwyd gan y Brifysgol, am gymwysterau deuol cymeradwy.

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Introduction

In the palm of my hand, I hold *Sid Meier's Civilization VI*. The plastic case that houses the game disc is the same size and shape as a DVD's; only the label indicates that this is a video game to be played and not a film to be watched. The cellophane wrapping is intact—the game was a Christmas present from my husband, and I have not opened it yet. At this point in time, the game that lies inside that disc is more akin to an unsprouted seed, or to a music sheet. It is a set of possibilities. Once I install the software contained in the disc, the playing can commence. By playing the game, the possibilities in the game code will begin to emerge. No matter how often or how skilfully I play, myriad of paths will be left unexplored. Whatever paths I do tread will remain unique, each a single, crystallised example of a vast set of possibilities.

The size and complexity of the video game industry have soared in the last two decades. Ambitious, large-scale games (often referred to as "AAA titles") have budgets of tens of thousands of US dollars, and the production can take from 18 to 36 months, with several more million being spent on marketing afterwards. Like in the movie industry, the rule of thumb is that 10% of the titles generate 90% of the revenue (Egenfeldt-Nielsen, 2016).

Games have not only become a financial success but have also become an object of keen interest across a wide variety of disciplines. This is happening as part of a move towards widespread acceptance of popular culture as a worthy object of study for researchers from many different academic backgrounds, who tend to use methods and approaches from their original fields to study games (Egenfeldt- Nielsen, 2016, p. 9).

Video games are important cultural objects in their own right, but they are also fascinating objects that sit at the intersection of multiple disciplines, including those of game design and development, making games a rare case of a subject where the distance between academics and practitioners can be breached, although the two groups barely speak the same language (Egenfeldt-Nielsen, 2016, p. 158). This is partly due to the "intellectual structure of game research" (Martin 2018, p. 1). Scholars currently doing game research are working on topics ranging from machine learning, to cognitive rehabilitation, or the representation of minorities in games.

Game research is generally defined as a multidisciplinary field of enquiry (Deterding, 2017; Martin, 2018). Martin (2018) identified four main research communities in game research through a scientometric analysis of over 24,000 game research documents: Education/Culture, Technology, Effects, and Medical. In contrast, game studies as an interdiscipline concerns itself almost exclusively with the Education/Culture research community (Deterding, 2017).

Game studies was the original name for the field of video game research, but it now denotes a narrow interdiscipline that studies games from the humanities' and social sciences' perspectives. Deterding (2017), following Jenkins (2006), sees the field's maturation as following a process similar to other interdisciplines. This maturation manifests itself, for example, in the plateau of game definitions observed in the field (see Table 1 below). Post 2007 the literature shows a set of definitions proposed before, or propose modifications to, one or more of these previous definitions, as opposed to proposing new ones. Post 2007 the field has matured enough to be able to build on these established definitions.

Inter- and multidisciplinarity are, however, hard to achieve. Institutional constraints may play a part in hindering or aiding collaboration, but one of the factors is the lack of common ground. This lack of common ground makes each discipline run the risk of focusing on one aspect of games at the expense of the complex whole, thus effectively forming information silos (Martin, 2018). This dissertation attempts to narrow the gap between the interdiscipline of game studies and the wider field of game research.

Video games make for complex objects of study. There is no rigorous definition of the term "complexity." As an ordinary noun, complexity denotes an object or a system comprised of many interconnected parts. In a complex system, the interactions between and among the parts result in an almost infinite set of possible combinations emerging from those interactions. This amount of variety makes complex systems difficult to study. The field of game research is itself just as complex as its object of study. Just as it happened at the beginning of film studies, many academics from different disciplines have entered the field of video games studies, bringing with them their fields' perspectives, as well as their methodologies for data collection and analysis. The result is a field that is fractured and lacks methodological cohesion. This lack of cohesion makes it difficult to compare like with like, which in turn means that

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results of analyses are difficult to evaluate and to verify. The data upon which the results are built is, likewise, hard to validate.

To illustrate the fragmented state of the field of game research, consider the three types of problems proposed by Warren Weaver in his influential paper entitled "Science and Complexity" (Weaver, 1948). Weaver, speaking of the history of the physical sciences (physics, chemistry), divided the history of the previous three and a half centuries as focusing on three distinct types of problem. In Weaver's view, the 17th, 18th, and 19th Centuries were occupied by posing, understanding, and solving problems with a very small (one or two) variable set. These problems he called "problems of organised simplicity." Simplicity here refers to the number of variables in the problem, rather than the problem's intrinsic difficulty. A classic example of a problem of organised simplicity cited by Weaver is mapping the movement of a single ivory ball on a billiards table.

A new type of problem was developed in the early 20th Century. Rather than dealing with one or two variables, the new problems had a need for a method that could deal with one or two million. These new problems could only be solved with statistical methods. These are what Weaver calls "problems of disorganised complexity". Weaver's example is, in contrast with the single-ball problem above, to picture a very large billiards table that has millions of balls rolling on its surface. The problem is relatively easy to solve using statistics. The history of a single ball cannot be traced, but other questions can be answered with precision, such as the average number of balls that hit the rail per second, or the average number of his per second a ball experiences. If a problem of simplicity is a problem capable of dealing with a very few variables, a problem of disorganised complexity is then one in which "the number of variables is very large, and one in which the many variables have a behaviour which is individually erratic, or perhaps unknown" (Weaver, 1948, p. 539).

According to Weaver, scientific methodology went from one extreme of two variables to the other extreme of two billion, ignoring the middle ground: problems with a large number of variables (compared to two) but small compared to the astronomical numbers involved in the second type of problem, problems which, more importantly, show organisation. He called these problems "problems of organised complexity." The variables in this category of problem do not behave randomly; they show, on the contrary, emergent patterns of behaviour. Generally speaking, game research scholars have studied games from their own fields' perspective (e.g. psychology, anthropology, performance), and relied on "field" notes to analyse their own gameplay experience. This can be seen as analogous to Weaver's problems of organised simplicity: these studies deal with few variables, studied through one lens. Game research has also been done from the industry side. In the video game industry, practitioners (video game designers, programmers), have generally relied on methods that can deal with many variables (e.g. data mined from the gameplay of millions of players) to understand player behaviour, like the average time it takes to complete a quest, or the average damage per second a character level can inflict on an opponent, by using statistical methods to deal with the mined data. This can be analogous to Weaver's problems of disorganised complexity, in their scope and ability to deal with millions of data points at the same time.

This dissertation investigates methods for researching the third type of problem involving the ability to deal with a sizeable number of factors that are interrelated and that interact in ways in which the whole is more than the sum of its parts. This is what Weaver called "problems of organised complexity." Problems of organised complexity contain many factors and variables that cannot be easily separated, as they are part of a system. The number of factors is not large enough that statistical methods can always be applied to them meaningfully, but they are too large for methods that deal with problems of organised simplicity.

In complexity theory "only variety can destroy variety" (Ashby, 1957, p. 207). In cybernetics, the term variety denotes the total number of distinct states or possible states of a system. In trying to understand a complex object of study like video games where the game system has the potential for near-infinite variety, it is necessary to expand the capacity of the research method to deal with complexity.

Three pressing methodological questions for game research (adapted from Derry et al. 2010, p. 5) will be addressed in this study:

1. What framework and method can be put in place to systematise the collection, processing, and analysis of video data for the study of games?

2. What expertise does already exist for recording, preparing, transcribing, encoding, analysing, interpreting, and presenting the data? and

3. What are the benefits and limitations of collecting the data this way for the study of video games?

The first two questions are answered in chapters one and two, while the third question is answered through three case studies in chapters three, four, and five. The dissertation begins with a review of current game literature and research methods in the field of video games studies and the need for a robust framework to approach the "third type of problem" of organised complexity.

As a contribution to knowledge in the areas of game research and research methods, this dissertation proposes a step-by-step method of data collection for the study of PC games from a pragmatist research paradigm perspective, and within a new, comprehensive framework for data collection for the study of PC games. It aims to produce a methodology and a framework for the collection of on-screen data for game research and offers three case studies to demonstrate the application of the proposed methodology.

The three case studies follow different research paradigms in order to ascertain the applicability of the resulting methodology within research paradigms other than pragmatism. The ontology of pragmatism is constructive realism, that is, the world is changed for reason and action (Dewey, 1931). Pragmatism's epistemology is a practical one. It objects to the view of knowledge as a copy of reality (Dewey, 1931). Knowledge is constructed in order to better manage existence and action. Dewey (1931, p. 10, in Thayer 1982) writes: "the function of intelligence is therefore not that of copying the objects of the environment, but rather of taking account of the way in which more effective and more profitable relations with these objects may be established in the future."

Gokul (2012) has described three types of pragmatism: functional (knowledge as a basis for action), preferential (knowledge is based on actions), and methodological (concerned with how knowledge is created). In this thesis I am concerned with the third type.

Methodological pragmatism is concerned with how knowledge is created.

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Pragmatism emphasizes the active role of the researcher in creating data on theories and sees experimentation in the world as pivotal. The researcher is participating in practice in order to explore—through action or close observations of others' actions (Gokul 2012, p. 10). In pragmatic research, there is a continual iterative development, application, and evaluation of knowledge and tactics which follows the basic idea of methodological pragmatism. The emphasis is on identifying practical and adequate solutions to problems (Rescher, 2000, p. 175). Another important aspect is the use of different methods. Pragmatism does not take a dogmatic position concerning research methods, but rather it adopts a pluralist attitude (Goldkuhl, 2008). It uses the methods and method combinations that work in relation to the research purpose and current empirical situation. Cronen (2001) has elaborated this notion in a pragmatic spirit based on Dewey's concept of inquiry. Purposes of practical theories are described in the following way: "Practical theories should help us to see things, aspects, properties and relations which otherwise would be missed" (ibid, p. 30).

The main contribution of this thesis is a three-part, practical, step-by-step methodology of data collection for the study of PC games using video records as data within a robust framework. The dissertation is structured as follows:

The first chapter is the literature review, which starts by looking at definitions of video games and the way games are currently studied. I then look at the interdisciplinary nature of game research and the challenges in the field of games studies, before substantiating a systems approach to game research. I look at the possibility of using video as a method of data collection as a potential avenue to create a more cohesive field of study.

Chapter 2 presents the proposed methodology for the study of video games. It begins by discussing the need for an accurate method of data collection, and then presents the idea of using video recording to study complex phenomena. A framework for video data collection for game research is then proposed, to both contextualize and substantiate the method. The framework and the corresponding method are divided into three parts:

1. Creating a valid and reliable data set from video recording

2. Transcribing and encoding the data set; and

3. Conducting the analysis using the data set

Each part of the framework is discussed alongside the corresponding steps of the method for that section of the framework. The chapter then goes on to discuss the potential of the method as a tool for archiving game research data. The chapter ends with an evaluation of the benefits and limitations of the software package used in each case study.

The three case studies that showcase the methodology are then introduced:

Chapter 3, Case Study 1, shows how the methodology copes with the complexity of a massively multiplayer online role-playing game, *World of Warcraft: Warlords of Draenor* (Blizzard Entertainment, 2004-2014), by studying the procedural rhetoric in the progress of three player characters from level one to level seven in *World of Warcraft*. This case study is conducted using a positivist research paradigm.

Chapter 4, Case Study 2, shows how the methodology deals with the variety present in the branching narratives of an episodic interactive graphic adventure game by studying player choices in *The Wolf Among Us* (Telltale Games, 2013-2014) using two secondary 'found' video recorded playthroughs, that is, found online. I conducted this case study under a subjectivist research paradigm.

Chapter 5, Case Study 3, shows how the methodology can be used in a full analysis to study Jewish representation in *The Shivah* (Wadjet Eye Games, 2006). I conducted this case study under a constructivist research paradigm.

Finally, I offer some conclusions on the benefits and limitations of the proposed methodology and framework, as well as some directions for future research.

The main benefits of applying the method and framework of data collection for the study of PC games proposed in this dissertation can be summarised thus:

a) Once collected, data can be examined systematically in a way not possible with other methodologies such as field notes.

b) The data can be shared without loss of fidelity, which allows for fruitful interdisciplinary collaboration where like-with-like can be compared.

c) The data can be archived and revisited after months or years, which allows for analysing the data under different research paradigms and perspectives, as well as permitting others to confirm or challenge the results of previous studies.

d) Data collected using this method can help keep current game research both intelligible and relevant for years, as a reference and record of gameplay that may no longer be possible due to advances in video game technology and computing power.

Chapter 1. Press START: Literature Review

Video games are one of the most potent examples of a novel cultural object. (Egenfeldt-Nielsen, 2016, p. 158)

The purpose of this chapter is to define video games and to canvass the current state of the field of video game studies, explaining relevant historical and contemporary perspectives on the nature of games, to examine the purpose of studying them, and to explore what different proponents of video game studies consider the best methodologies for their study. I then problematize their view and propose the use of systems theory and complexity theory as frameworks for video game research, to inform the selection of and provide a rationale for a new method of data collection.

1.1 What is a Video Game?

In this section, I will first look at the different ways in which relevant game scholars have defined games, from the 1950s until the 21st century, by looking at eight definitions from influencers in the field. It has been said that what we call games, individually, have nothing in common (Wittgenstein, 1958, p. 66), but many definitions of games have been proposed. I look at definitions from different epistemological perspectives to see how they inform our current understanding of games. I have chosen to examine these definitions in chronological order, as I believe this can shed light on the evolution of the field.

Prominent play theorist Johan Huizinga praised play as pitted against Protestant ethics, which focused mainly on work. Huizinga (1955, p. 28) defined a game as a

voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy, and the consciousness that it is "different" from ordinary life.

Huizinga's definition predates video games but applies to games in general. It can be

seen that many of these elements also apply to video games in their present form. The boundaries of space and time delimiting game space seem quite rigid. Huizinga introduces the important concept of rules that are "freely accepted but absolutely binding." This paradox of setting absolutely and fixedly binding rules that are voluntarily adhered to is one of the things that sets games apart from "ordinary life." The boundaries of space and time where a different set of rules applies was crucial to our further understanding of games.

Huizinga's view of play and games had at its centre the idea that play has no real-world consequences. This view is in itself problematic and has been called "unrealistic." Huizinga's work influenced the formalist game analyses of Edward Castronova and Espen Aarseth, but other influential researchers have flagged it as controversial, such as Mia Consalvo, T. L. Taylor, Constance Steinkuehler, or Thomas Malaby.

Sociologist and philosopher Roger Caillois (1961, pp. 10-11) understood a game to be "an activity which is essentially: Free (voluntary), separate [in time and space], uncertain, unproductive, governed by rules, make-believe." Caillois, possibly because of his native language (French), conflated the terms 'game' and 'play' (*jouer, jeu*) and did not differentiate between the two. He was also less specific regarding the idea of games as "free," although he seems to agree with the Marxist view of play as essentially unproductive. His definition highlighted the time and place boundaries in Huizinga's original definition, and thus introduced the idea of the magic circle, which was influential in our understanding of games until the early 2000s.

Caillois (1955) in his critique of Huizinga, introduced a detailed terminology for kinds of play and play categories. Caillois distinguished two kinds of play: *Ludos* ("rule-based play") and *Paidia* ("open-ended play" or "spontaneous improvised play"). These two kinds of play categories are further refined into four separate but fully combinable modes of play: Agon (competitive play), Alea (games of chance), Mimicry (games of imitation, or role-play), and Ilinx (games that cause dizziness or vertigo).

This structuralist approach to games and play influenced the work of psychologist and game theoretician Brian Sutton-Smith. In his work with Elliot Avedon (1971), they define games as "an exercise of voluntary control systems in which there

is opposition between forces, confined by a procedure and rules in order to produce a disequilibrial outcome" (p. 7).

The first new element in this definition seems to suggest competition—"an opposition between forces." This could presumably be stretched to mean an opposition not only between two players (or two teams), but also between a player or team and the game they play. Most strikingly, Avedon and Sutton Smith's definition seems to zoom out on what games are, as one gets the feeling that this proposed definition is not written from the point of view of game players, but it seems to capture micro and macro views of a game—more precisely, of the game as a system.

The second element introduced by this definition is that of a procedure something distinct from a set of rules. This could perhaps be understood as "the rules before the rules." This can be seen as the procedure to, for example, choose who gets to play, to choose the game that will be played, and perhaps the roles different players will play in the game.

The next new element is that of a disequilibrial outcome, that is, a win-or-lose result. This is interesting, as neither Huizinga nor Caillois mentioned a win-or-lose scenario, and seemed to focus on the playful disposition of players, and the separateness of play from everyday life, rather than on the outcome of play.

Bernard Suits, in his ingenious 1978 tract on the philosophy of games, defined playing them as "the voluntary attempt to overcome unnecessary obstacles" (1978, p. 55). Let us unpack this definition. Scholars understand playing a game to be a voluntary act. "Play" is, according to Stevens (1980, pp. 316-23) more reliably defined as a mode of human experience, rather than as a human activity. Play as disposition is a departure from 20th century Marxist and Calvinist philosophies that saw play primarily as "non-work," and as "location of pure waste" (Caillois, Man, play, and games, 1961). More recently Scott Eberle (2014) saw the act of playing not as a waste, but certainly is something that "exists for its own sake" with players engaging with it "of their own accord" (p. 215). Forced gameplay is, then, an oxymoron, as it would negate the playfulness element at its core.

The second part of Suits' definition centres on the word "attempt." This word choice highlights the open-endedness of games. Players may, in the words of Thomas

Henricks (2015) anticipate a specific kind of experience, but during the actual gameplay, different kinds of awareness (satisfying or unsatisfying) can be generated.

According to Suits (1978), the function of a game's rules is to forbid the most efficient means to achieve a goal. In a game of golf, for example, the player is banned from merely walking up to each hole and carefully depositing a ball into it. Tracy Fullerton echoes this definition in her understanding of games as experiences designed for players, so that players must voluntarily accept the constraints and rules of the game in order to play (2014, p. 52).

Gonzalo Frasca proposed the first definition of games tailored specifically to video games. He defined games as

[a]ny form of computer-based entertainment software, either textual or image-based, using any electronic platform such as personal computers or consoles and involving one or multiple players in a physical or networked environment. (2003, p. 4)

The first part of the definition (any form of computer-based entertainment software) seems rather vague in 2018, as it could arguably be applied to many types of software applications today, such as social media. However, the idea of game as software is unarguably useful for the field of video game studies. His mention of an electronic platform is important, as it is the first mention of platform among the definitions. The platform, crucially, determines what the software processing capabilities will be.

The last part of the definition, "multiple players in a physical or networked environment" highlights the general player configurations in which the videogame can be played. Frasca's work was influential in starting a debate on the epistemology of video games, and on the best methodological approaches to their study.

Katie Salen and Eric Zimmerman (2004) defined games as "systems in which players engage in an artificial conflict, defined by rules, that result in a quantifiable outcome" (p. 80). Like Avedon and Sutton-Smith (1971), Salen and Zimmerman see games as systems "defined by rules." The "artificial conflict" seems to echo the spirit of the "opposition between forces" in Avedon and Sutton Smith's definition. Jesper Juul (2005) defined video games as a

rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are optional and negotiable.

Like Avedon and Sutton-Smith, and Salen and Zimmerman, Jules sees games as systems. However, Juul specified that they are rule-based. This means that the system's different states are based on specific rules. The product of these rules is a "variable and quantifiable outcome." This variable outcome can be linked to the openendedness of games mentioned above by Caillois (1961) and Suits (1978). The fact that the outcomes cannot be predetermined before the game is played is part of the great appeal of games. The quantifiability of the outcome itself can be disputed, however. Not all games include, for example, point trackers or other quantitative measures available to the player. Despite this, an outcome can be assigned a value (say, emotionally) that is not necessarily numerical. If an outcome is perceived as desirable, the player might have an emotional attachment to it, and thus she may attempt to influence it. The actual gameplay is different from everyday life, as the consequences are "optional and negotiable." This last item takes us back to the definitions proposed by Huizinga and Caillois.

The final definition to consider here is lan Bogost's (2007), who defines a video game as a persuasive medium that represents how real and imagined systems work. Bogost is the first in the series of game researchers discussed here to include the word "medium" in his definition. This is an interesting word choice, as it seems to align video games with other media (radio, TV, newspapers) for the first time. Bogost also speaks of "representation" but not necessarily in the semiotic sense. I believe the word "simulation" is closer to his original meaning.

Representation is, simply put, the description or portrayal of someone or something using a sign that stands in its place. A simulation, on the other hand, is an imitation of the operation of a real world, abstract, or imaginary process or system using a computerised model. The model shows the characteristics, and the simulation executes the behaviour.

Author(s):	Johan Huizinga (1955)	Roger Caillois (1961)	Avedon & Sutton-Smith (1971)	Bernard Suits (1978)	Gonzalo Frasca (2003)	Salen and Zimmerman (2004)	Jesper Juul (2005)	lan Bogost (2007)
Games are	[A] voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy, and the consciousness that it is "different" from ordinary life. (Huizinga 1955:28).	" [] an activity which is essentially: Free (voluntary), separate [in time and space], uncertain, unproductive, governed by rules, make- believe."	"At its most elementary level then we can define game as an exercise of voluntary control systems in which there is an opposition between forces, confined by a procedure and rules in order to produce a disequilibrial outcome."	"To play a game is to engage in activity directed towards bringing about a specific state of affairs, using only means permitted by rules, where the rules prohibit more efficient in favor of less efficient means, and where such rules are accepted just because they make possible such activity."	Any form of computer-based entertainment software, either textual or image- based, using any electronic platform such as personal computers or consoles and involving one or multiple players in a physical or networked environment	"A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome."	"A game is a rule- based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are optional and negotiable."	A persuasive medium that represents how real and imagined systems work.
Influence d by	History	Sociology	Psychology	Philosophy	Sociology	Semiotics (Salen)	Information Technology	Design
Influencin g	Play Theory	Play Theory	Play Theory	Play Theory	Ludology and Narratology	Play Theory	Ludology	Ludology
Original field	History	Philosophy	Education	Philosophy	Game design	Game Design	Literature	Comparative Literature

Table 1. Game definitions in chronological order.

As can be seen, different academics, coming from the perspective of their different background fields, have defined games in very different ways, emphasizing different aspects of them in each definition. The multiple definitions and shifting emphasis on different aspects of games and the "right" approaches to their study are inspired by two distinct and often opposing forces, which have been described as narratology and ludology (Dovey & Kennedy, 2006). These two philosophical positions used very different paradigms to approach the subject of video games. Although dated, the distinction between narratology and ludology continues to have historical significance in the field, and also continues to influence current perspectives on video game studies and informs our understanding of differing perspectives before this 'rift' was healed (Dovey & Kennedy, 2006). I will briefly canvass both of these forces in broad strokes, including their approach to understanding video games, and their influence on existing methods to study games in the next section.

1.2 Narratological Perspectives on Video Games

Narratology, in video game studies, is defined as the branch of knowledge or criticism that deals with the structure and function of narrative in video games and its themes, conventions and symbols (Murray, 2005-2013). The main tenet of narratology is that video games are primarily storytelling devices and that they can be studied through the application of methods for text analysis used in the Humanities, especially in literary analysis and the social sciences (Moulthrop, 2004). Narratology seeks to understand the stories that games tell and how they tell them. It provides engaging and foundational investigations into the nature of games and their stories. Narratologists are also interested in the effects video games have on players, the types of audience participation that the medium offers, how players interpret game stories, the representation of different social groups in games, and the economic relationships between consumers and producers of video games.

Brenda Laurel's (1991) *Computers as Theatre* positions the computer as a medium, and she compares the theatre and the computer as two parallel media that allow humans to take on roles for the purpose of narrating a story. Following her example, Jane Murray's (1997) seminal book, *Hamlet in the Holodeck*, sees the video game itself, rather than the computer, as a new medium for the practice of storytelling.

In Henry Jenkins' view (1992, 2006), video games are part of a wider context of texts that include other storytelling media, such as television, film, novels and comic books, in what he terms 'transmedia storytelling'.

1.3 Ludological Perspectives on Video Games

Ludology is defined as the study of video games in general and of the playing of games as an activity (Csikszentmihalyi, 1982). The main tenet of ludology is that video games should be studied on their own terms, with tools devised specially for the challenge. Ludology seeks to understand the relationship between society and technology, the element of interactivity in user experience, the phenomena of immersion and simulation in games (as opposed to representation), the epistemology of play, and the role of players and designers as participants/co-creators of games (Aarseth, 2007).

Ludologists believe that the linchpin of the field of Video Game Studies should be the rules of games, and not aspects related to representation or storytelling, which they see as attempts by other fields to colonize video games (Aarseth, 2001).

Games are not a kind of cinema, or literature, but colonizing attempts from both these fields have already happened, and no doubt will happen again and again, until computer game studies emerges as a clearly self-sustained academic field.

Jesper Juul (2003) offered a list of elements that define games: rules, variables, quantifiable outcomes, a value assigned to the possible outcomes, player effort and player attachment to outcome, and negotiable consequences. To Juul (2003, p. 43) the basic departure in video games from the classical model of games is that in video games "it is the computer that upholds the rules." This means that video games as media allows for much more structural flexibility as they can uphold more complex rules while freeing the players from the "responsibility" of enforcing them.

1.4 A Working Definition of Games

All of the above definitions have merit. For the purpose of this thesis, I will merge the definitions given by Suits (1978) and Salen and Zimmerman (2004), by defining a video game as a rule-based system in which players voluntarily engage in artificial conflict to overcome unnecessary obstacles.

In this thesis, I use "video games" as a general term that encompasses all platforms, including PC games, and use the term "PC games" to refer to video games played on a personal computer, regardless of the operating system it uses (whether Windows, Mac's OX, or Linux, for example).

To illustrate what I mean by a game as a *system*, consider the analogy of a video game as a sport such as baseball. If we wanted to study baseball as a game, one would not focus purely on either the "hardware" (the bat, ball, gloves, the field) or the "software" (a written, internationally accepted, and consistent set of rules), or purely on the gameplay (the experience of a game by the players), without reference to the two elements. Those three elements, their relationship to each other, and how they interact in order to understand the game would be necessary to understand the game. It is the union of those three macro elements that one would call *baseball*.



1.5 How Are Games Currently Studied?

In *Understanding Video Games*, Simon Egenfeldt-Nielsen, Jonas Heide Smith, and Susana Pajares Tosca (2016) summarized the current landscape of video games studies thus:

Most researchers, at least at present, choose to adopt methods and approaches from their primary fields. Ethnographers tend to observe players. Those trained in film studies tend to analyze the games themselves and communication scholars tend to analyze interactions between players. There is nothing inherently wrong with this tendency as long as one acknowledges the more general idea that one should use the methodology best suited to answer the question at hand. (p. 9)

In this section, I provide an overview of how video games are studied from different methodological perspectives, both in academia and in the video game industry, before critically evaluating the role of video game studies within the larger context of game research.

1.5.1 The Evolution of Video Game Analysis

According to Simon Egenfeldt-Nielsen, Jonas Heide Smith, and Susana Pajares Tosca (2016), to date, there have been five main types of analyses conducted when studying video games: culture, content, metrics, ontology, and player. They based their assertion on a meta-analysis of the literature, and on the typology compiled by Salen and Zimmerman (2004). I have adapted this typology from Egenfeldt-Nielsen, Heide Smith, and Tosca (2016) (see Table 2) but have shifted the emphasis to the methods employed in each kird of analysis.

Culture analyses are usually done within the academic fields of sociology or cultural studies. Researchers in these areas tend to study games within a larger media ecology and to be interested in games as cultural objects or products. Cultural analyses usually employ textual analyses of secondary texts about games, such as press releases, adverts, or magazine articles, rather than looking at the games themselves. Two important contributors to this type of analysis are Dmitri Williams (2002, 2003) and Mia Consalvo (2003).

One example of cultural analyses can be found in Ow (2000). Ow analysed *Shadow Warrior* (Realms, 1997) as an example of gendered and racialized cyborg body politics. After playing four free "demo" levels of the game, and reading interviews

with the developers, Ow offered different "levels" of analysis of the discourses at play inside the game, focusing on theories of the body and game economies. In another example, Heintz- Knowles and Henderson (2002) studied the representation of female characters in video games using the Cultivation Hypothesis and Social Learning Theory to explain how females are underrepresented in games, and when they do appear, they are often seen as props, bystanders, or victims of crime.

Game content analyses are usually done within the academic fields of film studies or comparative literature. These analyses tend to look at design choices and meaning-making in games. Game content analyses tend to use textual analysis using field notes. Two significant contributors to this type of analysis are Susana Tosca (2003) and Barry Atkins (2003).

An example of game content analysis can be found in Banks (1988). Banks produced a critique of various games, including *The Legend of Zelda* (Nintendo, 1986-2018), in which he concludes the medium falls "flat" as a storytelling device. In his study, he problematizes games in general and the portrayal of masculinities in particular. Another example is found in Kennedy (2002) who performed an examination of Lara Croft from *Tomb Raider* (Interactive, 1996-2018) and existing feminist frameworks as applied to transmedia products and game analysis. She did this by contextualizing the character and examining her evolution using a Film Studies approach. She concluded that Lara as a subject/object is more complex than her representation and defies traditional feminist binaries.

Metrics analyses are usually done by software developers and commissioned by video game companies. Metrics analyses focus on game design and employ a variety of tools for statistical analysis of logged user data. This is commonly done using the MDA (Mechanics, Dynamics, Aesthetics) framework (see next section). Two important contributions to this type of analysis are Drachen and Canossa (2009) and Nacke et al. (2010)

Ontological analyses of games are often done within the academic disciplines of philosophy, cultural history, or literary criticism. Ontological analyses tend to focus on the internal logic of games, as well as the philosophical foundations of games and play. The analyses commonly use methods of philosophical enquiry, using field notes made during gameplay. Two important contributors to this type of analysis are Espen Aarseth (1997) and Jesper Juul (2003).

Pobłocki's (2002) analysis of Sid Meier's *Civilization* (2016), as history and as imperialist narrative, examines operations of power in-game and contrasts these to current theories in the social sciences, and to the idea of globalization. He provides a critique of in-game discourses that sees the game narrative as the game's agenda. Machin and Van Leeuwen (2007) examines discourses present in war games (especially *Delta Force*, Nova Logic, 1998) and compared them to war films (particularly *Black Hawk Down*, Columbia Pictures, 2001) using multimodal discourse analysis to link the games content to a transmediated discourse on war. Their chapter helps contextualize war games across a similar media landscape.

Player-centric analyses are usually carried out within the academic fields of Sociology, Ethnography, Education, Anthropology, and Cultural Studies. These analyses focus on gamer communities, player behaviour, and the social role of games within the wider social context. The results of these studies are achieved by using player interviews, surveys, participant observation, and textual analysis of secondary player-focused texts, such as forum posts. Two important contributors to this type of analysis are Taylor (2003) and Kerr (2003).

Some notable examples of player-centric video game analyses include Kinder (1991). Kinder explored the operations of power in children's media, including television, films and video games, focusing on the effects of media, audience response, and issues of identity in narratives explored through cognitive theory. Her results hold a view of children as passive viewers/consumers of media and problematizes the study of what she termed "transmedia" phenomena, both regarding representation and user consumption. Provenzo (1991) looked at the way video games effect on the life and values of children and young people by performing a content analysis of Nintendo games on the themes of gender tropes, aggressiveness, and violence. In his results, Provenzo challenges the general consensus that downplays the negative effects of video games and calls for a more positive use of the medium as a learning tool in the classroom.

Type of analysis conducted	Common methodologies to conduct analysis	Theoretical inspiration/original field	Common interest/object of study
Culture	Textual analysis (esp. of secondary texts, like newspaper articles)	Sociology, Cultural Studies, Sociolinguistics, Corpus Linguistics	Games in a larger media ecology, games as cultural objects/products
Game Content	Textual analysis using field notes	Film studies, comparative literature	Design choices, meaning-making in games
Metrics	Statistical analysis of logged data	Software development (esp. the MDA framework), behavioural psychology	Game design
Ontology	Philosophical enquiry using field notes	Philosophy, cultural history, literary criticism	Logic of games, philosophical foundation of games and play
Player	Interviews, surveys, participant observation, textual analysis (esp. of secondary texts, like forum posts), gamer as co-researcher	Sociology, ethnography, anthropology, cultural studies	Game communities, player behaviour, social role of games

Table 2.Typologies of video game studies, based on Egenfeldt-Nielsen, Heide Smith, and Pajares Tosca (2016).

Type of analysis conducted	Common methodologies to conduct analysis	Theoretical inspiration/original field	Common interest/object of study
Structuralist	Qualitative methods focusing on game elements (e.g. 'layers' Konzack, 2002; 'areas' Consalvo & Dutton, 2006)	Sociology, Cultural Studies, Play Theory	Design choices, meaning-making in games
Procedural	Field notes, participant observation	Software development, theory of affordances, assemblage theory	Game design
Aesthetic	Field notes, participant observation	Aesthetics	Video games as art

Table 3.Additional typologies of current video game studies methods.

I want to add three more categories to Egenfeldt-Nielsen, Heide Smith, an Tosca's (2016) proposed typology of currently done game analyses: structuralist, procedural, and aesthetic (see Table 3).

Structuralist analyses select areas of study that are considered important for understanding games. Each of these areas is then analysed separately, using an assortment of qualitative approaches on methods from different fields to suit each area. These analyses are typically carried out with game studies or cultural studies as the primary field. These analyses tend to focus on game design choices and the way game content is interpreted by the player. Two important contributors to this kind of analysis are Lars Konzack (2002) and Mia Consalvo and Nathan Dutton (2006). Some notable examples of structuralist video game analyses have looked at the content of games and have studied the portrayal of violence (Kinder, 1991), the representation of racial minorities (Ensslin, 2010; Machin & Van Leeuwen, 2007; Ow, 2000), the representation of female characters in games (Carrillo Masso, 2009, 2010; Kennedy, 2002), and ideological assumptions (Machin & Van Leeuwen, 2007; Miklaucic, 2001)

Procedural analyses tend to focus on the way game design choices guide the player inside a game, and on the procedure as a unique rhetorical tool for meaning-making. These analyses rely on field notes and participant observation, and proponents tend to have an understanding of software development and video game design. Two influential proponents of this approach are Gonzalo Frasca (2003) and lan Bogost (2007).

Aesthetic game analyses tend to focus on analyses of the visual elements of games, particularly characters and landscapes. They tend to apply aesthetic theories usually reserved for art to video games and argue for the appreciation of the expressiveness of the medium. This type of analysis tends to use field notes and promotional materials. Two influential proponents of this approach are Espen Aarseth (2003) and Simon Niedenthal (2009)

1.5.2 Eight Ways to Study Games

I will now critically examine eight influential methodologies of video game analysis. The eight methodologies are summarised in Table 4 below. These methods were chosen using three criteria:

- that they be published in peer-reviewed journals or books,
- that they be methods proposed specifically for video game analysis, and
- that they be general methods proposed, as opposed to project-specific methods

The first method I will examine here is the one proposed by Lars Konzack (2002). Kozak describes a novel approach to video game analysis designed specifically to deal with video games unique features as understood by Konzack. His

approach divides games into seven layers, and he suggests that each layer be analysed separately and individually. The layers Kozak proposes are hardware, program code, functionality, gameplay meaning, referentiality, and socio-culture.
Table 4.Summary table of influential methodologies for the analysis of video games.

Author(s)	Lars Konzack (2002)	Jesper Juul (2002)	Espen Aarseth (2003)	Gonzalo Frasca (2003)	Consalvo and Dutton (2006)	Steven Malliet (2007)	lan Bogost (2007)	Kristine Jørgensen (2012)
Purpose	Proposing a method for video game analysis and case study.	Attempts to create a basic model of video games and proposes an eclectic method of game analysis.	Proposing a method for the aesthetic study of games (building on Konzack 2002).	Contrast to approaches to video game studies (building on our Aarseth).	Proposing a methodological toolkit for the study of video games.	Complement previous methods; illustrate methods step- by-step.	Analysing the 2,500- year history of rhetoric and proposing a broad conceptualisation of it to use this as a starting point for the study of procedural rhetoric.	Argue for the use of expert players as co-researchers.
Approach	Bottom up look at video game players, example.	Proposing a game model based the idea of games of emergence and games of progression.	Focus on three dimensions/ general elements of a game: gameplay, game-rules, and game- world.	Show the rhetorical possibilities of videogames as media, contrasting them with traditional narratives. (Look at procedural rhetoric in relation to this).	Empirical look at games as text.	(Media sociology plus media theory) study video game content. (Based on Konzack 2002, and Consalvo and Dutton 2006).	Developing the concepts of 'procedurality' and 'procedural rhetoric' and using the latter to examine what he terms 'persuasive games'.	Usability testing adapted to academic research.
Method	Looking at each layer in turn and describing it separately. 1.hardware 2. program code 3. functionality 4. gameplay 5. meaning 6. referentiality 7. socio-culture	Defining the two types of game, and using one game (<i>EverQuest</i>) as a case study.	Play the game. Depending on the game played and on the research interest, choose a method that matches the dimension of interest.	Provide a nuanced view of neurology versus narrative elegy in support of the formalist to the logical approach.	 offer for areas to consider during game analysis (object inventory, interface study, interaction map, gameplay log). mentioned a few ways these could be analyzed. 	Qualitative content analysis of video games scheme for analysis.	Analysing educational, political, and advertising games by identifying their procedural features and affordances.	Social studies approach to game scratch that social studies approach to games.

Although Kozak terms it a "methodology," I would contend it is rather an approach to video game studies. It is a theoretical framework that suggests *what* aspects of a game need to be considered during analysis, rather than a set of steps detailing *how* to do this. Konzack also neglects to explain how to deal with the layers beyond describing each. Konzack's paper is certainly very useful as an approach, was considered ground-breaking at the time of publication, and, 16 years on, it continues to influence our understanding of games. It does lack methodological clarity, however, and offers no guidance on dealing with the uniqueness of each instance of gameplay for the purpose of analysis.

Jesper Juul's (2002) conference paper, *The Open and Closed: Games of Immersions and Games of Progression,* proposes a conceptual framework to analyse computer game structure. Juul offers a clear two-part videogame typology dividing videogames into games of emergence and games of progression. What he calls 'games of emergence' are games where simple rule combinations yield a large number of game variations from the game, and of strategies from the players. Emergence games tend to be replayable, and to have strategy guides.

Games of progression, on the other hand, are games in which players are presented with a series of challenges in a particular sequence. The resulting game structure is simpler (and, in Juul's view, less interesting) than in games of emergence, as the sequence is predetermined by the game's designers, often in the form of a branching narrative. Games of progression tend to be less replayable and to have walkthroughs.

The framework proposed by Juul is both simple and effective, but his paper offers very little in terms of a method to understand games beyond the binary classification system he proposed. Moreover, the sample "analysis" of *EverQuest* offered by Juul does not go beyond offering a classification of the game as a game of emergence.

Espen Aarseth's (2003) influential conference paper entitled *Playing Research: Methodological Approaches to Game Analysis* had, as its stated purpose, to outline and promote an empirical methodology for the aesthetic study of what he calls "games in virtual environments." He proposes three dimensions that are part of every such game to form a tripartite model:

- Gameplay (the player's actions, strategies, and motives)
- Game structure (the rules of the game, including the simulation rules)
- Game world (fictional content, topology/level design, textures, etc.)

Aarseth proposed various examples of how to break down each of these dimensions. More importantly, he suggests that each of these can be linked to a particular research perspective. In his view the Gameplay dimension favours sociological, ethnological, and psychological perspectives; the game-structure dimension favours game design, business, law, computer science, and AI perspectives, and the game-world dimension favours art, aesthetics, history, cultural/media studies, and economics perspectives. Aarseth does not explain how he paired each of these dimensions with the research perspective quoted, beyond mentioning the fact that the pairing was done in a somewhat intuitive fashion.

Aarseth's paper was ground-breaking at the time because he was proposing an idea that, incredibly, was new to most video game scholars: that for the researcher to truly understand the video game, she needs to play it. This is the extent of the method proposed in his paper, as much of the rest of it seems to be taken with a series of rhetorical questions on research design. Regardless of the paper's shortcomings, it made an important and necessary point: that watching someone play a game does not automatically put the observer in the position of the audience. Aarseth's approach, commonly called playing research, has influenced the way video games are studied. It would have been interesting to see a description of a step-by-step methodology to match this intriguing research design approach, and to see how his tripartite model translates into a framework for the method.

Gonzalo Frasca's lucid (2003) *Simulation Versus Narrative: An Introduction To Ludology* is both a nuanced introduction to the narratology versus ludology debate that was, at the time, very much at the forefront of the field, and a clear introduction to a theoretical toolkit for the study of games that includes the importance of the concept of simulation for the understanding of games and an introduction to game rhetoric and its relation to freedom of speech.

Frasca's chapter provides an illuminating set of concepts that expand the way ludologists understand games and their rhetorical capabilities. The chapter falls short when providing actual tools for game analysis, however. It works as a solid foundation for a theoretical framework, but it does not offer a method that can be directly applied empirically.

In 2006, Mia Consalvo and Nathan Dutton published *Game Analysis: Developing a Methodological Toolkit for the Quality of the Qualitative Study of Games.* They offered a qualitative framework for the analysis of video games as (broadly defined) texts. They offer four areas of interest that they believe game researchers should consider when studying a video game: object inventory, interface study, interaction map, and gameplay log. Consalvo and Dutton proceed to describe what each of those areas is and to illustrate it with the affordances of each area using *The Sims* as a running example.

Consalvo and Dutton's paper was very well received, and their proposed areas opened up the field further by calling for more detailed descriptions of the way these elements manifest themselves in different games. The paper, however, offers only a template for areas to examine when analysing video games, without explaining in a step-by-step fashion a method *how* to perform such an analysis, and without offering a way to deal with the multiple and varied character of the areas proposed.

In his 2007 article Adapting the Principles of Ludology to the Method of Video Game Content Analysis, Steven Malliet offers a methodology based on the ones proposed by Kozak (2002) and Consalvo and Dutton (2006). Malliet's article illustrates the "phases" of his method by using eleven mature-rated games to look at the way violence is expressed in them. Malliet constructs a scheme for analysis structured around the following topics: audiovisual style, narration, complexity of controls, game goals, character and object structure, balance between user input and pre- programmed tools, and spatial properties of the game world. Following Frasca (2003) the first two he calls "elements of representation" and the last five "elements of simulation."

Malliet's article offers a detailed step-by-step method of data collection and processing, involving a group of "coders" playing the game and frequently pausing the game to make notes. These notes are then structured around the scheme for analysis and summarized into presentations that were done by each in front of other coders.

Malliet's methodology is detailed enough to be followed by anyone attempting

similar content analysis of a video game with similar resources. It also, following Aarseth, demands the playing of the game by subjects making field notes. Although the method is clear and Malliet's analysis is succinct, I believe there are problems. First, the fact that the subjects had to pause the game to take frequent notes is in itself problematic. This means that the choice of games to be analysed is precluded by the need to select exclusively games that can be paused during gameplay. Second, the fact that the subjects had to continually pause the game must have had an effect on their play strategies and style and can even be questioned as "real" play, as frequent pausing must necessitate the interruption of immersion and flow.

In his book *Persuasive Games*, Ian Bogost (2007) looks at the 2500-year long history of rhetoric, including visual rhetoric, and situates his approach to video games studies within this context. Bogost develops a very broad concept of rhetoric before defining "procedurality" and then combines the two ideas. Bogost defines procedural rhetoric as "the practice of using processes persuasively [...] a general name for the practice of authoring arguments through processes [...] through the authorship of rules of behaviour [and] the construction of dynamic models" (pp. 28-29) in video games as computational artifacts.

Bogost makes a compelling case for his framework but does not clarify what such an analysis would entail in any great detail, which seems like a missed opportunity. Despite this drawback, Bogost's idea of procedural rhetoric has been influential in video games studies in the last decade. Procedural rhetoric is an influential approach to understanding video games that highlights the uniqueness of video games as media in terms of their expressive capabilities.

Kristine Jørgensen's (2012) paper on *Players as Coresearchers: Expert Player Perspective as an Aid to Understanding Games* argues for the use of players as coresearchers when studying video games as emergent systems, and to help understand the design choices that were made when creating them. Jørgensen's approach involves the use of usability testing in combination with game studies, interpretive phenomenological analysis, and reader response theory.

Jørgensen describes in detail a methodology that uses as input "self-play" by the core researcher, group interviews with UI designers, player focus groups (who discussed screenshots from selected games), and an extensive series of observations and semi-structured conversations with players.

Jørgensen's method is detailed enough for researchers in the social sciences with similar resources at their disposal to follow. This method of data collection is problematic in my view. First, the data collected is all from second-hand sources. This means that it relies on accounts by players, their diaries, and field notes, and on the main researchers notes from observations and interviews. This seems to be not only labour-intensive, but also challenging in terms of getting participants to verbalize their interpretation of the game's UI.

Jørgensen partially addresses problems of referentiality, that is, of setting an agreed topic of conversation in her semi-structured interviews, by using screen captures and game clips as discussion points in the interviews and conversations. She does not, however, explain how these were chosen, obtained, shared, or stored. It is unclear whether the screen captures were from her own, her participants', or thirdparty's gameplay. She does not state how they were chosen (e.g. were they related to the interview's structure or were they meant to disrupt it?), or how the interviewees saw these (e.g. on a large shared screen, as printouts in the case of the screenshotsor on individual screens?). This latter point could affect the level of detail available to subjects during the interviews, for example. Lastly, Jørgensen's methodology provides intriguing possibilities, but also missed opportunities. The actual gameplay by her participants would have been invaluable not only as a source to verify the secondhand interpretations provided by the participants during interviews and giving a more solid foundation to any follow-up studies, but also allowing her more confidence when reporting findings and allowing her to re-interrogate the data at a later stage, after such an intensive information-gathering process.

1.5.3 Industry Approaches

The video game industry has turned to collecting and using big data in the last few years as a way to understand and create games, and to understand and affect player behaviour (Shieh, 2016). Big data incorporates every interaction and move that players make inside a game, storing streams of pure data ready to be studied. For the video game industry, the challenge does not lie in data collection but in how to analyse it. Jocelyn Shieh explains that: [g]ame developers, the market researchers and analysts of their field, utilize [custom event] analytics to understand consumer behavior, demographics, and cause-and-effect trends in both gameplay and sales. [...] [C]ustom event analytics are entirely action-based, devoid of guesswork, estimations, psychological biases, etc. Thus, custom event analytics lead to an extremely clear idea of customer sentiment and preferences. (Shieh, 2016)

Custom event analytics use data collected at every stage of gameplay and triggered by players' actions. The raw data is processed and then interrogated to understand how video games are being played. In the industry, generally speaking, once collected the player data tends to be processed under frameworks that largely fall within the GMF (game metrics framework) or the MDA (mechanics dynamics aesthetics framework), as two large umbrellas for different analyses.¹

1.1.1.1 The Game Metrics Framework

Game metrics is what raw data collected remotely from game servers is transformed into and what provides the direct value to development and monetization. Game metrics start with raw data, which can be stored in various database formats, organized in such a way that it is possible to transform the data into variously interpretable measures, such as average game completion time per game level. These measures are called "game metrics." Game metrics are interpretable measures of raw game data. Metrics can be complex aggregates or calculated values (McCalmont, 2015). As a broad definition, a game metric is a quantitative measure of one or more attributes of one or more objects that operate in the context of games, derived from raw game data. For example, a measure of how many daily active users an online game has; a measure of how many units a game sold last week; a measure of the number of player complaints in the past year; and task completion rates in a production team for a specific game title—these are all game metrics because they relate directly to some aspect of one or more games (Drachen, 2012).

The basic concept of analytics in game metrics is based on five broad types of measurements of user behaviour (known as "AARRR") (Oltmans, 2016):

• Acquisition – where / what channels do users come from?

¹ I will not cover here the data processing that falls exclusively under market research and economics but focus on the types of analysis done to understand gameplay processes and player behaviour.

- Activation do users have a great first experience?
- Retention do they come back and revisit over time?
- Referral do they like it enough to tell their friends?
- Revenue can you monetize any of this behaviour?

Game metrics are often used to determine the viability of a new game project, game feature, a new sequel, or an expansion pack for an existing game.

1.1.1.2 The MDA (Mechanics, Dynamics, Aesthetics) Framework

The MDA framework is a formal approach to understanding games—one which attempts to bridge the gap between game design and game development, as a form of technical game research. This method of game analysis was proposed by Robin Hunicke, Marc Leblanc, and Robert Zubek in (2004) in order to clarify and strengthen the iterative processes of game development to (industry) game researchers to enable them to deconstruct, analyse, and design "a broad class of game designs and game artefacts".

In game design, the MDA framework is a tool used to analyse games formally by breaking them down into three main components: Mechanics, Dynamics and Aesthetics. The MDA framework provides precise definitions for these terms and seeks to explain how they relate to each other and influence the player's experience. The framework defines the terms thus:

Mechanics are the most basic components of the game—its rules, the algorithms and data structures in the game engine. This aspect can be linked to game affordances (see below).

Dynamics are the complex actions that unfold as a result of applying mechanics. Their record is also referred to as 'game metrics'.

Aesthetics are the emotional responses evoked in the player. The MDA model zeroes in on this aspect by proposing "8 Kinds of Fun", a taxonomy introduced to

explain different types of "fun" by relating them to experiences such as problem-solving ("Fun as Challenge") or role-playing ("Fun as Fantasy") (Hunicke, et al., 2004).



Figure 2. The MDA framework.

Where the MDA framework concerns itself more with game design, the system of game metrics uses raw data to analyse actual gameplay as a tool to assess a game project's viability (LeBlanc, 2004).

1.6 The Interdisciplinarity of Game Research

Game research is a multidisciplinary field of inquiry. As such, an academic database will yield hundreds or thousands of results across a wide variety of journals, research papers, and edited collections, all revolving around the topic of videogames. Across different disciplines researchers are examining games and their roles from points of view ranging from cognitive rehabilitation to representations of minorities in character design. This variety of foci makes the field an exciting one, but the diffuse nature of video game research makes a comprehensive literature review challenging (Martin, 2018). In this section I provide an overview of the field of game research by reviewing the results of two key sources: *The Intellectual Structure of Game Research*,

by Paul Martin (2018), and *The Pyrrhic Victory of Game Studies*, by Sebastian Deterding (2017).

Martin analysed keyword co-occurrence patterns and co-citations in 24,128 videogame research documents published between 1966 and 2016. Keyword co-occurrence analysis uses as data the keywords the author or publisher has attached to a document, while co-citation analysis uses the citation patterns in a particular discipline to understand the intellectual structure of the field.

These data were analysed using an invisible colleges approach to game research. Invisible colleges are communities of inquiry representing a topic or field and detected by a large-scale analysis of the field's output (in the form of publications, conferences, etc.) (De Solla Price, 1965). "Communities" in this case are data clusters that suggest a common topic, or a common methodological or theoretical approach or framework. For the purpose of this chapter, I am particularly interested in what Martin's results reveal about the structure of game research as a field.

Martin found that the topics reflected by the keywords loosely correspond to Juul's (2009, p. 53) two categories of game research: game-centric and player-centric. The former is concerned with videogame production and artefacts, while the latter deals with players' actions and behaviours. Each of the communities can and does concern itself with both of these types of research, as the distinctions that emerged are porous and they do overlap. The four video game research communities that emerged from Martin's bibliometric analysis are Education/Culture, Technology, Effects, and Medical. Each of the main research communities has a further four or five sub-groups depending on their keywords and the frequency. Martin's work highlights the interdisciplinary nature of video game research, and it points to potential future directions. The theories and methods of today's game research are informed by other disciplines (Mäyrä, 2009, p. 313). As Aarseth (2001) put it, "we all enter this field from somewhere else" (n.p.).

Game studies was originally conceived as an umbrella term for the interdiscipline of digital game research, but it has become a subset within game research as a whole. What remains is an increasingly narrow interdiscipline (Klein, 2010), with an increasingly homogeneous scope that is almost exclusively focused on the perspective of the humanities and social sciences. In "The Pyrrhic Victory of Game Studies" (2017) Sebastian Deterding reads scientometric data on video game studies to assess the field's status as interdisciplinary. Deterding starts by clarifying what the terms 'multidisciplinary', 'interdisciplinary', and 'transdisciplinary' mean. To do this Deterding draws on current taxonomies in interdisciplinary studies, before assessing the status of the field through the lens of interdisciplinarity.

Multidisciplinarity is, according to Klein (2010, p. 17), the juxtaposition of different disciplines that still retain their individual disciplinary identity. Deterding distinguishes between three types of multidisciplinarity: contextualizing, pseudo-, composite, and encyclopaedic. *Interdisciplinarity* is the intentional interaction and integration of disciplinary viewpoints (Klein, 2010, p. 18). Huutomiemi et al. (2010) differentiated it into three types: empirical, methodological, and theoretical interdisciplinarities. *Transdisciplinarity* is an overarching synthesis that transcends individual disciplines (Klein, 2010, p. 24).

Game studies can be seen as a typical "young" interdiscipline that has attempted to make popular culture respectable through academic research (Railton, 1999). Dyer-Witheford and de Peuter (2009, pp. xxiv-xxviii) chart the field's journey to maturity in three stages or "generations" that they call *condemnation, celebration*, and *emancipated critique*. The earlier position of games studies scholars (voiced in Espen Aarseth's well-known 2001 article, where he proclaims it to be "year one of games studies"), decried the "colonizing attempts" of games studies by other fields, and complained that they "threatened" the existence of an independent field for the study of digital or computer games (Aarseth, 2001). Eventually, with the institutionalization of game studies, scholars in this field have become more flexible about engaging with related fields, such as the philosophy of sport (Reid, 2012), or game studies, or new media studies (Wardrip-Fruin & Montfort, 2003). This gradual acceptance of interdisciplinary collaboration culminated in Espen Aarseth's 2018 editorial post welcoming articles on any type of game or play in the same Journal that in 2001 had so firmly set boundaries for the field around the subject of computer games.

Game studies had indeed defined its identity against existing fields. Many of the same scholars that in the early 2000's claimed that computer games could only be studied separately from other fields, now want to open the field to the study of nondigital

games and to the study of other forms of play (Aarseth 2018, 2001; Bjork et al., 2015; Mayra et al., 2015).

In this transition, game studies show a process of maturation similar to what other interdisciplines have experienced. Deterding links this process of maturation to the "generations of cultural studies" as outlined by Jenkins (2006, pp. 11-12) thus:

- A group of scholars wish to establish an aspect of pop culture as worthy of academic inquiry, by distancing themselves from other disciplines and from the object of study itself. The subject matter of interdiscipline does not yet have theory-based legitimacy within established disciplines.
- 2. The same scholars then embrace and celebrate the aspect of pop culture they study. As a new subject, it attracts the attention of young scholars, who feel that young field offers opportunities to break new research ground and offering a relative lack of competition (Pfirman & Martin, 2010)
- 3. Finally, scholars perform informed critiques of popular culture "from within" established fields. Indeed, the very success of games studies as an interdiscipline in legitimizing the importance of games as objects of study has led to its beginning to disintegrate as an interdiscipline as more established disciplines begin to increase their interest in the study of games. This phenomenon is common to maturing disciplines (Van Rijnsoever & Hessels, 2011).

The 2014 cytometric analysis of two journals, *Game Studies* and *Games and Culture*, determined that 22% of their papers came from communication research, 15% from social sciences, 4% from computer science, and 49% from the humanities. In a study on the identity of game researchers Quandt et al. (2015) found that 75% of DiGRA and ECR EA respondent had a background in the humanities, art, design, media studies, and communication research.

This is a relatively narrow focus of games as cultural expression that is often multidisciplinary, juxtaposing different epistemologies, rhetorics, paradigms, methods, and theories (c.f. Linderoth, Björk, & Olsson, 2014), but without new methodologies that help integrate research objectives, game studies will remain and narrow and only partially integrated interdiscipline (Deterding, 2017, p. 14), one that makes it difficult for

the dialogic collaboration between researchers from different disciplinary backgrounds, and one where their routine integration and scrutiny of multiple forms of evidence is still close to impossible.

1.7 Challenges to the Current Landscape of Games Studies

What the approaches and methods discussed above have in common is that each one leaves several key aspects of game content unexplored, and, although they all suggest some useful questions around which to organize a piece of research around, most of them offer little in the way of an actual step-by-step methodology. They do zero in on a number of problems with approaches to games studies that ignore distinctive aspects of games as games and emphasize the importance of the researcher playing the game herself. They suggest *what* to look at, but not necessarily *how*. Importantly, none of these approaches have suggested a systematic methodology for data collection, which makes direct comparisons between game studies very difficult.

One possible scenario for the future game studies is to accept game research fragmenting into smaller subfields, and games studies embracing its role as a cultural study of playing games alone. A different scenario would be for the field to seek and embrace the interdisciplinarity of game studies by creating and adopting a set of tools designed for interdisciplinary carbon collaboration, and to widen the scope of the field as game research has done.

1.8 A Systems' Approach to the Study of Video Games

The objective of Systems Theory is to point out similarities between different disciplines and to develop inter- and trans-disciplinary models (Wilby, 2006). Systems theory is a discipline about disciplines. It is a meta-discipline that can be applied to virtually any field or set of fields. A systems approach is one that takes into consideration all, or as many as possible, aspects of a problem, including how the parts interact with each other (Checkland, 1981).

What distinguishes systemic approaches from other approaches to data gathering is that systems theory is a subject which can talk *about* other subjects. It is

not a discipline *per se*, but rather, it is a meta-discipline in the scientific tradition whose subject matter can be applied to any other discipline. The motivation to treat a system as a complex system is, largely, to get at questions that would otherwise remain unanswered. In this section I will provide a brief overview of two important concepts within the systems thinking framework: complexity and requisite variety.

There is no rigorous definition of the term "complexity," but the ordinary noun's definition can be useful: an object comprised of many interconnected parts (Holland, 2014). A characteristic that can identify a system as complex is emergence. Emergence is a non-linear, non-aggregate quality that defines the interactions between the parts of a complex system as more than the sum of its parts (Simon, 1962). Systems theory concerns itself with "organized complexity," which lies between "organized simplicity" and "chaotic complexity" (Rapoport & Horvath, 1959; Weaver, 1948). A systems approach to a problem is an approach that takes a "broad view," which tries to take into account all aspects of a problem, and of how the parts interact together (Rapoport & Horvath, 1959; Weaver, 1948). A system is treated as complex largely in order to be able to answer questions that have not been addressed in the past.

Complex Adaptive Systems (CAS) are composed of elements called agents, that learn and adapt in response to interactions with other agents. The changing interaction between these agents shows emergent behaviour. The variety that results from continuous interactive adaptation is a hallmark of CAS, and it presents a difficulty hard to overcome to study these systems.

The difficulty in studying video games as CAS is compounded because, in most disciplines involving emergent behaviour there is no standard language for describing or analyzing the interactions of agents, and no standard way of collecting data to study CAS (Holland, 2014). This lack is surprising because other kinds of complex human interactions do have a standard language and method, such as the scores used in music or the choreographic notation (Labanotation) used to transcribe dance moves (Holland, 2014).

To discover all the possibilities for analysis depends upon methods for discovering and exploiting recurring patterns found in complex systems (Holland, Complexity, 2014, p. 10) and on the methods employed to deal with the complexity and

variety of the data present within the system itself. This suggests an interesting perspective to study video games and a way to deal with their variety.

The approach I suggest for addressing such variety is based on Ashby's Law of Requisite Variety. This law states that "only variety can destroy variety" (Ashby, 1956, p. 207). It means that a system survives to the extent that its range of responses to adapt to change successfully matches the range of situations – such as threats and opportunities – confronting it.

Ross Ashby proposed the law of requisite variety in 1968 to elaborate on Shannon's Theorem 10, which states that if noise appears in a message, the amount of noise that can be removed by a regulator is limited to the amount of information that can be processed by the regulator, through a channel of communication.

Boisot and McKelvey (2011) recast Ashby's law as the Law of Requisite Complexity, (in Allen, Maguire, and McKelvey, 2009), which holds that to be effective in adapting to a variety of stimuli, the internal complexity of a system must match the external complexity it confronts. They proposed the conceptual framework of the Ashley space to illustrate the idea of requisite variety/complexity (see Figure 7. The adaptive frontier, from Boisot and McKelvey (2011, p. 284)., p. 284). On the vertical axis they placed the range of variety (from low to high) that would in pain on an organism. A low-variety stimulus might be a photograph of a bee, while a high variety stimulus might be the patterns formed in the air by a swarm of bees. On the horizontal axis they placed the variety of responses to that stimulus. A low-variety response to the picture of the bee might be to just look at it and do nothing. A high variety response to the bees' swarm might be to chase after each individual insect. The space contained by angles ABO is what Boisot and McKelvey called 'Ashby space'. Ashby had stressed the need to reduce the flow of information in order to make it manageable for the systems regulator. The capacity of the regulator to deal with the system's complexity is a regulator's adaptive frontier, represented in *Figure* 3 by arc AB.



Figure 3. The adaptive frontier, from Boisot and McKelvey (2011, p. 284).

In this example, I equate the researcher with the regulator. *Figure* 4, shows an expansion of this adaptive frontier using technology. In my model, I suggest the use of video recording as a method of data collection to help researchers deal with the variety and complexity of video games. In my model, the 'adaptive frontier' of the researcher, that is, the capacity of the researcher and her methodology to deal with the complexity of a video game is enhanced through the use of video recordings of the object of her study; in this case, on-screen video game capture.

In order for the system's regulator to be able to process a higher level of variety from the system, then the variety of responses must also be extended. To deal with a large amount of complexity then there are two options. One option is to diminish or control the amount of variety the regulator needs to process, thus effectively diminishing than the noise in the signal. Another option is to increase the amount of information complexity that the regulator can respond to. I believe that both options can be achieved by a systematic method of data collection and processing: video recording.

In trying to understand a complex object of study like video games, it is

necessary to expand the capacity of the research method to deal with complexity. Figure 4 illustrates the expanded adaptive frontier, that is, the expanded capacity of a system's regulator to respond to a variety of stimuli.



frontier, from Boisot and McKelvey (2011, p. 286).

1.9 Video Recording as a Method of Data Collection

Video recording of actual gameplay footage can be used as models are used in complexity theory. Video records would help bridge the gap between disciplines, as well as helping to close the gap between inductive and deductive approaches to game research. Like inductive approaches, gameplay starts with an explicit set of rules and assumptions. Unlike the deductive approach, the use of video record as a model would not prove theorems that would generate data that can be analysed inductively. In this thesis, I propose using video recording, especially (but not limited to) screen capture, as the central tool for data collection that would allow the researcher to expand her adaptive frontier to cope with the amount of information in video games.

Video records are proliferating and evolving as practical tools for researchers in almost every discipline (Spencer, 2011), although not yet a standard part of video game research. Currently, video recording technology is cheap, widely accessible, and reliable. It enables users to record activities as they arise in their ordinary contexts. These records can be subjected to detailed scrutiny in a variety of ways. They can repeatedly be analysed in a manner that is unavailable to other methods that rely on the more traditional pen-and-paper notes. Unlike many forms of qualitative data, videos can build a corpus of data that can be subject to a range of analytical techniques, providing flexible resources for future research and collaboration.



Figure 5.How the researcher's adaptive frontier is expanded by using video as a record.

These video records can also be shown and shared with others, not only fellow researchers, but the participants themselves, or with the general public. This can help to both construct and disseminate research. Video recording can also enable researchers to reconsider the ways in which they present the findings of research, making games more accessible to scrutiny, and aiding collaboration. This would certainly be beneficial as an addition to the current landscape of game research. As expressed by Anne Harris:

Perhaps the greatest strength in choosing video as the method is its flexible and almost limitless potential for gathering, analyzing, writing up, and disseminating the research findings. Understanding the rich potential of video as the method is a process inextricably linked to epistemological, design, analysis, and dissemination choices. (2016, p. 5)

These are powerful opportunities for a researcher, as they allow for multiple takes on the data—to explore different issues on different occasions or to consider the same issue from multiple perspectives. These opportunities are the ones I intend to harness in my proposed method of data collection.

In the next chapter, I will explain in more depth what video recording can bring to the table in terms of methodology. I will also provide a framework for data collection, and a step-by-step method to collect data for the interdisciplinary study of video games.

Chapter 2. Select Difficulty Mode: A Proposed Methodology for Data Collection for the Study of PC Games³

You think that because you understand "one" that you must therefore understand "two" because one and one make two. But you forget that you must also understand "and". (Sufi teaching story, in Meadows 2008:12)

The purpose of this chapter is to explain a proposed methodology of data collection for the study of video games as complex systems developed under a pragmatic research paradigm. A framework around this methodology is also explained. The chapter will start by explaining the importance of a unified method of data collection for the study of games that would be able to cope with the complexity of games as systems. The next section will involve attempting to map out the evolution of video game research is then put forward before proposing a methodology of data collection for the study of games. An evaluation of the strengths and weaknesses of the method follows before introducing the three case studies will showcase the methodology and show how it can work with different research paradigms. The more complex steps of the method will be illustrated using examples from different PC games, such as *Inner World* (Studio Fizbin, 2013) and *Plants Vs. Zombies* (Fan, 2009- 2016).

2.1 The Importance of Accurate Data Collection

It is important to make explicit the various theoretical and methodological foundations when conducting research. Many of the qualitative studies of games seem to be done using participant observation. The word "seems" has been deliberately chosen as these studies often do not make the method of data collection explicit (Deterding, 2017). The Responsible Conduct of Research (RCR) website at Northern Illinois University defines data collection as:

³ Portions of this chapter were published in Carrillo Masso (2014).

the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes. The data collection component of research is common to all fields of study including physical and social sciences, humanities, business, etc. While methods vary by discipline, the emphasis on ensuring accurate and honest collection remains the same. (Responsible Conduct of Research (RCR), 2005)

Regardless of the field of inquiry, accurate data collection is an essential component of research to ensure its integrity. Improperly or inaccurately collected data can compromise the researcher's ability to answer research questions accurately, and the ability to repeat and validate the results of the study. Data that are inaccurately collected can also lead to distorted findings that waste resources and can mislead other researchers into fruitless avenues of investigation. Data integrity's key role in research is to aid in the detection of errors in data processing or data analysis, both deliberate, and those that are systematic or random.

The range of qualitative and quantitative research strategies and frameworks is vast, which makes it difficult to generalizing for a research protocol that would help prevent problems with data collection. A mixed methods approach bridges the gap between qualitative and quantitative approaches. Mixed methods approaches allow for increased validity and reliability of research by allowing for collaborative data analysis, data triangulation, conversions, and to corroborate findings.

Lankoski and Björk (2015) think that it would be beneficial for game researchers to have methods specifically described and explained for game research. Up until now, each new researcher has to invent a new method for each piece of research (Ibid, p. 1), or adapt the ones they bring from their original fields. A good method of data collection, regardless of the field, needs to offer reliability and validity. Reliability in qualitative methods can be described as that which ensures that the method measures the same thing the same way each time it is deployed, while it can be described as consistency of approach over time in qualitative research (Ibid, p. 2). Validity can be described as factual accuracy between the data gathered and the researcher's account of the event. The issues of methodological validity and reliability in a given research field tend to become settled as the field matures and different approaches are tested in some cases. However, the phenomena under scrutiny can be approached from different

perspectives, as the analysis can be informed by different approaches (Ibid, p. 3).

Quality activities can be proposed, however, to correct faulty data collection practices. This includes extensive and comprehensive documentation of the data collection process before, during, and after, as well as ensuring that the process of data collection is clear, and that it can be followed by third parties—such as funding bodies—wishing to validate the findings.

A solid methodology of data collection is crucial for any branch of scholarship because an unreliable method of data collection will produce unreliable results of analysis and, therefore, undermines the value of both individual research findings, and, potentially, of the field of inquiry.

In the social and behavioural sciences, and in the humanities, it is important to provide clear information on the methodology to allow replication, particularly when a new methodology has been developed or when applying an old method to a new field. In theory, the methodology section in qualitative analyses tends to require a more extensive description of the methods used to gather and analyse the data than in the physical sciences. In practice, this is not always the case.

Video game research is not a linear set of steps (Derry et al., 2010; Pauwels et al., 2011; Pea & Hoffert, 2007). The process can, however, be conceived as moving along a number of phases and addressing recursive issues such as data management and titrated coding.

There are three main parts to the methodology of data collection for video game analysis proposed here:

- 1. Create valid, reliable data set through video recording
- 2. Transcribe and encode the data set
- 3. Conduct analysis using the data set

I will describe these three parts in the next section, integrated as part of a proposed framework for the data collection for the study of games (see Table 5 below). This integrated framework for video data collection for game studies is based on Luc Pauwels's (2010) integrated framework for visual social research as well as, on Pea

and Hoffert's (2007) diagram of video research workflow, and on the literature review presented in the previous chapter. The framework in this section is an attempt to offer an integrated sketch of the research opportunities in the field of game research when collecting video data. The framework revolves around each of the parts of the method proposed, as mentioned above. A discussion of each part of the framework follows within each section of the method below.

IN <u>TEGRATE</u>	D FRAMEWORK FOR VIDEO DA	ATA COLLECTION FOR GAME RE	SEARCH
RECORD (COLLECT)	ENCODE	DECODE (ANALYSE)	
 A.1 ORIGIN/PRODUCTION CONTEXT Primary Video Data Researcher 'Instigated' Video Researcher-produced video Researcher-produced video in collaboration with other specialists Secondary Video Data 'Found' video – public sources/archives/online Material produced for other purposes or by other researchers 	B.1 ANALYTICAL FOCUS Procedural Interactional/transactional Representational Visual Haptic Interactional Computational B.2.CODIMO.C	 B.2 THEORETICAL FOUNDATION Game theories Theory of affordances Visual theories Choice of theories related to specific research questions Research Paradigm Inductive/deductive approaches 	C.1 TYPES OF ANALYSIS By Research Paradigm Inductive vs Deductive By 'host' field By focus Iterative Annotation Primary vs Secondary Data
 A.2 REFERENT/SOBJECT On-screen video capture Offscreen video capture Player (Individual/Group) Behaviour (researcher-elicited) Behaviour (spontaneous) 	Technical Competencies Appropriate operationalisation of Transcription, tagging, and codir Choice of recording devices and epistemological consequences Choice of CAQDAS concerning to Active knowledge of the game m Collaboration/expertise issues/skil Preliminary investigation of the set	i theory ng choices software concerning their he epistemological consequences echanics and context ls: technical, normative, creative specific features of the game	 Determining the unit of analysis Defining granularity Storing, sharing, and archiving data Sampling strategies Explorative/opportunistic Systematic (snapshot, time series, or longitudinal/repeat)
A.3 DEGREE OF RESEARCHER INVOLVEMENT No awareness Unacknowledged Reactive Interactive Participatory Joint production <u>A.4 DATA PRODUCTION STRATEGIES</u> Explorative/opportunistic	 B.4 PROVISION OF N Provide game-internal conterrelationships within the visual Provide game-external conterrelationships of data and findi Reflexivity and transparency chosen methodology and the circumstances, including the 	NECESSARY CONTEXT ext: establish part-whole al record and the video game itself ext: compare/ supplement with ngs (e.g. paratexts) y issues: document and justify the e recording and coding researcher's position.	C.3 INTENDED USE OF DATA Research input Exemplar Unusual behaviour Dissemination of results

Table 5. Framework for data collection for game studies, based on Pauwel (2010).

2.2 Video Research Methodologies to Study Complex Phenomena

The affordances of audio-visual data have been employed by the social sciences since the middle of the 20th century, especially in cultural anthropology and ethnography (Schnettler et al., 2008). Visual technologies, such as photographs and daguerreotypes, started to take the place hitherto occupied by the illustrations that accompanied social scientific texts (Theye, 1989). The field of visual anthropology was quickly established as a media supported field and thus emerged widely known methods, like those proposed by Margaret Mead (Bateson & Mead, 1942; Mead, 1975), or Collier (1967, 1979, 1986). Visual documents started being used in sociology to illustrate ideas and analysis as early as 1903, but despite to these early attempts, visual sociology was not well established until the 1970s (Stumberger, 2007). For the first time in history visual data, its production, analysis, and its use to present results were being seen as core tasks within the social sciences.

The 1980s saw a sharp increase in video technologies' affordability and availability, and an increase in their use in research (Schnettler et al., 2008) under different paradigms. For example, video research in psychology established predominately quantitative methods using statistical analysis of video data, whereas video technologies in sociological research favoured qualitative analytical methods. Video research approaches in classical fields expanded to research topics that had been studied with acoustic means only, such as Goodwin's seminal studies (1981, 1986) or Christian Heath's work (1986). In the 1990s and early 2000's the advancement of video research methods was spearheaded by methods derived from semiotics, communication, and social linguistics (Schnettler et al., 2008), much of it focusing on interaction research (Bergman & Luckmann 1993; Raab & Tanzler, 2006).

Long-distance video communications (Korschen et al., 2002), video content in social media, and the proliferation of video surveillance and subsisting the systems have all contributed to the popularization of video research methods (Secrist et al., 2002), much like the popularization of audio recording technologies gave rise and popularized new methodological studies in conversation analysis (Sacks & Schegloff, 1973).

The scientific study of games, play, and related phenomena must be able to address the complex and multidimensional character of games. To study such a complex topic, accurate methods of data collection must be described and employed. In order to collect accurate data for the study of video games, it is essential to keep accurate records. Most game scholars in the humanities and social sciences keep field notes as a form of data collection as records, but notes are not enough. There are several reasons why:

1. Each instance of gameplay has an element of built-in complexity. This complexity means that even very detailed notes are unlikely to capture all relevant information.

2. Field notes themselves are problematic—if they are done during gameplay, then the process can arguably no longer be construed as 'play.' If they are done *a posteriori,* then the researcher is relying on their (or the players') memory; on their ability to remember all salient facts after the play session.

3. Field notes make collaboration difficult, or at least difficult the verification and validation of results and conclusions.

Video recording as a method of data collection eliminates these problems. Margaret Mead, who spearheaded the use of visual media in the social sciences, decried to the "criminal neglect" of the use of video records thus:

... research project after research project fail to include filming and insist on continuing the hopelessly inadequate note-taking of an earlier age, while the behaviour that film could have caught and preserved for centuries ... (... for illumination of future generations of human scientists) disappears. (1995, pp. 4-5)

Nowadays video recording—including screen capture video recording—is cheap and reliable technology that enables researchers everywhere to use records that can be scrutinised, repeatedly analysed, shown and shared with others. Video records can be archived and formed into "a corpus of data that can be subject to a range of analytical interests and theoretical commitments, providing flexible resources for future research and collaboration" (Heath, Hindmarsh, & Luff, 2010, p. 3).

Video has become a medium that pervades everyday life and the usefulness of 50

video records as data cannot be denied. The detailed methodological discussion of the use of video records and scholarly studies has been neglected, however. Few scholars address the question of *how* to perform an empirical analysis with video records as a data source (Derry et al. 2010).

Early on, the advantages of video as an observational technique proved to be "quite obvious" (Knoblauch et al., 2006). "Compared to observations made by the naked human eye, video recordings appear more detailed, more complete, and more accurate" (Ibid, p. 10). Digital video records allow data to be shared with colleagues, as well as making their analysis open to being done using one of the many CAQDAS² software packages that allow moving images to be easily juxtaposed with text, enhanced, zoomed into, and coded in ways that allow for clarity and transparency in their analysis.

Video records as data also preserve the original record for repeated scrutiny. They allow the researcher to re-evaluate their analysis, to consider the same data under different analytic perspectives, or on different occasions. It can support collaborative work, as well as providing others with the opportunity to assess one's findings. As DuFon (2002) phrased it, video recording technology has made it possible to record "denser information" in the form of multimodal data. The replayability of video records allows researchers to transcribe and code to a high level of detail. The possibility of repeated viewings also allows researchers to add layers of perception in a way no other type of data collected can achieve. The technical ease of replayable video has made the analytics process potentially even more multi-layered and multi- dimensional. This can also generate a wider basis for validity claims.

The use of video recording as a method of data collection "gives greater flexibility than observations done by hand" (Smith, 1981). This flexibility includes the ability to replay the recording for later analysis—what Edwards and Westgate (1987) termed "retrospective analysis," which Bowman (1994) explains "can be 'done at leisure and a much greater depth than would have been possible even using techniques involving life coding" (p.3).

While video records have been used in many disciplines to test and demonstrate

² CAQDAS stands for Computer Assisted Qualitative Data Analysis (Fielding & Lee, 1991). Despite their name, they can be used for quantitative analysis as well.

theories, they can also provide an explicit and systematic way of understanding the implications of theories under specific circumstances. This particular use of video recorded data has the possible use of helping researchers check the robustness and replicability on their theoretical models by "exhaustive research parameter space" (Conte, 1998). Such replication is, currently, seldom attempted.

Video research methods and the use of video data have been growing but the development of adequate and convenient methods for video research remains in its initial phase (Schnettler et al., 2008). Despite the fact that there are already a wide array of existing methodological approaches for visual data in general (cf. Banks & Murphy, 1997; Davies, 1999; Emmison & Smith, 2000; Hessler, 2005; Pink, 2001), "there is considerably less methodological debate about the specifics of video data" (Schnettler et al., 2008, p. 7). For example, in visual ethnography, video analysis plays only a secondary role (Pink, 2007) or is altogether neglected (Rose, 2007).

2.2.1 On the Nature of Video Clips and Selecting Units of Analysis

A useful way to conceptualize video clips comes from the behavioural sciences, and it is the view that video clips represent events (Zacks & Tversky, 2001), while video corpus represents many events, the segmentation of the video record tends to determine which events will be the focus of analysis, and what the events boundaries are (Derry et al., 2010). Each event has an underlying structure both reflecting part to whole relationships and timescales (Lemke, 2000). Consider an in-game event during which players collaborate to fight the same opponent, or "boss." This event could be parsed in terms of various sub events: the turns taken by players attacking the boss, the time taken between attacks, the various weapons or spells used, and the negotiation on the division of loot or rewards obtained from the fight. The sub events can be further analysed as being made up of smaller events on smaller timescales (e.g. individual attacks) or seen as part of a chain of events to analyse a micro event on a larger timescale (e.g. the development of a character over a period of months).

Both the researcher's perception of events and what is actually recorded will influence the ability to take apart a complex recorded video event and select particular elements for analysis (Goldman-Sigall 1998; Leacock 1973), as events will then be understood in terms of their causal, behavioural, procedural, and semantic structures (Goodwin, 1995; Stevens & Hall 1998). The research questions— and the researcher's

individual interests—will determine the events and timescales that will be the object of the more intensive analysis and what the unit of analysis will be for a particular project.

The video records can be understood as boundary objects as conceptualized by Star (1989) as an object, idea, tool, or concept that "sits in the middle of a group of social actors with divergent viewpoints" (p. 46). Boundary objects play crucial roles in the communication and building of knowledge across different research communities (Derry et al., 2010). I advocate here the use of video records as boundary objects in game research as it would help us to build collaboratively a more robust knowledge base for games studies. As Derry (2007) states of video records:

[W]e recognize that [our] progress as a research community will depend on moving towards standardization and widespread use of agreed-upon boundary objects, because agility to communicate and share across research groups require some degree of commonality among practices and tools (Derry 2007 in Derry et al., 2010:5).

Derry et al. (2010) draw an analogy between words used for communication and standard boundary objects that aid scientific knowledge building through video research. The case is made that the same can be applied to game research, where video recordings can be used as boundary objects to build a cumulative knowledge base from working with video records. The records are the type of boundary object that game research communities can agree to with relatively little controversy, in an attempt at standardization that is unlikely to stifle game research innovation. Unlike Derry et al. who find boundary objects inside of video records, the case is made here for the video record itself becoming the boundary object. This chapter focuses on the creation and processing of such video records for analysis of complex in game phenomena.

2.2.2 Variety of Applications

Video research methods have been applied in a wide variety of settings and within the boundaries of a wide array of research areas (Schneller et al., 2008), such as medical interactions (Schubert, 2006), visual ethnographies of technology and work (Knoblauch, 2000), workplace studies (Knoblauch, 2004), video analysis of religion (Bergman & Luckmann, 1993) qualitative market studies (Schmidt, 2006), to name a few.

Despite growing popularity in video research applications, there are a number of methodological questions on its use that emerged and whose answers have not adequately been produced by the social sciences, the humanities, or the life sciences (Schneller 2008). Methodologies using video research as applied to game research have not been discussed at length, and thus many of these questions remain unanswered in the field. Among the most pressing methodological questions (adapted from Derry et al., 2010, p. 5, and adapted to video tools applied to game research):

- 1. What framework and method can be put in place to systematise the collection, processing, and analysis of video data for the study of games?
- 2.What expertise does already exist for recording, preparing, transcribing, encoding, analysing, interpreting, and presenting the data? and
- 3. What are the benefits and limitations of collecting the data this way for the study of video games?

Video research is a complex task that benefits from the selection of adequate tools to answer the research question and focus at hand. To understand the requirements for the tools used for video recording and processing, it would be useful to examine what these interconnected processes entail. *Figure* 6 below, based on Pea and Hoffert (2007) presents a general game research workflow. Most current available video technologies only support segments of this workflow, but the workflow itself is useful to contextualise technical, epistemological, and methodological decisions.



Figure 6. Game research workflow based on Pea and Hoffert's video research workflow (2007).

"Video data is the most complex multimodal data used in qualitative studies so far" (Schnettler et al. 2008: n.p.). Even when CAQDAS software is deployed, interpretations of video data still require sophisticated methods of analysis. The use of video data seems to foster the fusion of video data collection with data analysis and interpretation, as well as with the presentation of results (Schneller 2008). For this reason, each stage of the process of video data collection within the context of game research is discussed below.

Visual methods have enjoyed renewed popularity in recent years as expressed in a number of scholarly journals such as *Visual Studies* (formerly *Visual Sociology*), *Visual Anthropology, Visual Anthropology Review*, and *Visual Communication* and the *Journal of Visual Culture*. There have also been a number of dedicated handbooks to visual methodologies:

Unfortunately, there is little integration with respect to the findings and practices of visual methods, especially between the social sciences and the humanities and behavioral sciences. Visual methods therefore seem to be reinvented over and over again without gaining much methodological depth and often without consideration of long existing classics in the field. (Pauwels 2011, p. 3)

Even the classics of visual sociology and anthropology mentioned above have paid little attention to detailed methodological development and ideas of research rigor for data collection and analysis.

Video recordings produce data with a high degree of complexity (Schnetler et al., 2008). This is a challenge for the social sciences practices of analysis, interpretation, and understanding. The relative neglect of the use of video methodologies in the social sciences and humanities research is sometimes attributed to this complexity and to the abundance of data that video yields. A video record is certainly among the most complex data in social, humanistic, or scientific empirical research. It is multimodal but sequentially ordered, enclosing both diachronic and synchronic elements such as movement colour sound, signs, and symbols (Baldry & Thibault, P. J, 2006). This confronts the researcher with the problems of data management, retrieval, selection, and exclusion. It also raises the question of how to select sequences appropriate for microanalysis (Bazeley, 2013). Apart from practical

restrictions, the methodological problem of what constitutes the unit of analysis and how to assure a balance between time-consuming microanalysis and an overview of the whole data corpus remain open questions for future methodological debates (Schneller et al., 2008).

The enormous advantage of video data records consists in their inherent sequential order (Schneller, 2008). Gameplay video records capture players' actions in the game and allow researchers to subject their activities to repeated scrutiny. Such details are unavailable to data collection methods such as field notes. The affordances of this technology, especially through the possibility of pausing, rewinding, and fast-forwarding video, enables repeated investigation of scenes and interactive sequences in great detail and without loss of quality or details which would be unavailable to methods like observation or interviewing relying on field notes.

2.3 Methodology and Framework Discussion

This section is organized as follows: Part I examines the creation of video records explaining the first column of Table 5 and exploring the methodological considerations of this part of the framework, before listing the first steps of the method (Steps 1–5). Part II will deal with the transcription and encoding of the data set, following the second column of Figure 10, and explore the methodological considerations of this part of the framework, before listing the next steps of the method (Steps 6–8). Finally, Part III will deal with the analysis of the data and data management, the third column of Figure 10, and explore the methodological considerations of this part of the framework, before listing the last steps of the method (Steps 9 and 10).

2.3.1 Part One: Creating a valid, reliable data set from video recording

A.1 Origin/Production context of the data

Video data, in broad strokes, can be divided into two aspects: primary video data, and secondary video data (Pauwels, 2011). Primary video data is a type that has been recorded by the researcher, alone, or in collaboration with third parties (other

researchers or players), but always instigated by the researcher and for the express purpose of the study. Primary video data allows for more control over the process of video recording and the whole data collection procedure (Pauwels, 2011). This would, in theory, produce better insights into the limitations and context of the resulting video record.

Secondary video data is data that was not produced expressly for the purpose of a given study, but that was either "found" (say, online) or used for other purposes. "Found" video records can be from known provenance (e.g. promotional materials shown online as part of an advertising campaign), or unknown provenance (e.g. gameplay footage shared online anonymously on social media). In both cases the record has been found to answer a particular research question. The difference is in the first case information on the production context can (relatively) easily be obtained, and in the second case the author has little or no context on the production of the video record.

The case studies in the following chapters illustrate these differences in the following ways: Case Study 1 uses primary video data (video data produced by the researcher for the express purpose of said case study. Case Study 2 uses secondary— "found"—video data posted anonymously on YouTube. Case Study 3 uses secondary video data originally produced for other purposes.

A.2 Referent/subject

This section of the framework lists behavior that can be video recorded for game research. Broadly, this distinguishes between on-screen and offscreen behavior (the latter with different possible foci, such as facial expressions, body language, posture, or ease of interaction with the interface). It also distinguishes between recording individuals or groups (say, such as at a LAN party). The behavior can be further distinguished between behavior elicited by the researcher and spontaneous behavior. All of these distinctions are fuzzy and lie in more of a continuing continuum rather than as a sharp differentiation.

A.3 Degree of Researcher Involvement

The options listed can be seen as part of a continuum, from the subject being unaware of the video recording taking place (problematic in itself) or whether the record will be used for research purposes, to a video created as a joint production. The data used in Case Study 2, for example, would fall between "no awareness" and "unacknowledged," as the video record was created and posted online by the anonymous poster TealhollowGaming, but they are not aware of the researcher using that found game footage for academic purposes.

A.4 Data Production Strategies

Different types of research questions will demand different sampling techniques. Some research questions can be satisfactorily explored with a relatively small sample (see Case Study 1), whereas others require larger portions of or the entirety of the game to be played to be answered (see Case Studies 2 and 3). Preliminary or more exploratory research can benefit from "opportunistic sampling" (Sorenson & Jablonski 1975). These approaches can and do have a place in a systematic methodology (Collier 1967).

The elements of the framework contextualize a step of creating a valid, reliable data set for video recording. Once a researcher has selected and obtaining the game, they should document the game version and platform. This along with Section A of the framework provides the context for the video record to be made.

Step 1: Selection of the Game or Games to be Studied

This is an important step as it is closely linked to deciding on the purpose and scope of one's study and designing the research questions. The questions could emerge also from the selected game, but a rationale for this selection should be clear from the start. This is where the decision needs to be made of how much to record and why it needs to be recorded.

Step 2: Obtaining the Game

Checking the system specifications will help determine whether the computer is compatible with the game's system requirements. The system requirements provide the first constraint. If the PC you are using has the wrong operating system, the game will not run at all. For example, if the game was written for Windows and you have a Mac, it will not run. Conversely, if the game was written to run on Windows 10 and your PC system is Windows XP, the game will also fail to run. It is therefore important to ensure in advance that the game you want to study can run in your available system.

Due to concerns extraneous to academia, certain games are banned in certain regions. The researcher must be able to obtain legal access to playing the game in their country of residence and become aware of any other versions of the game that might be available, making a record of the one downloaded for research to avoid data or reference confusion. Two such potentially problematic situations could arise, for example, if someone wanted to study Jewish themes in games like *Mitzvah Hunt* (JI Team, 2016) while living in Kuwait (where such games are illegal). Any game that has any known connection with Israel, for example, be that in the design or production process, or in terms of content, is legally banned in the Arab world. A researcher wanting to examine the operationalization of rape in the Japanese game, $\nu \uparrow \mathcal{I} \nu \uparrow / Rape-Lay$ (Illusion, 2006-2016) in the UK, where the game is banned. Studying such games would then incur in additional hurdles of a very material nature, and caution and discretion should be exercised when choosing the relevant line of research to ensure access to the games can be safely granted.

Step 3: Pre-play Preparation

Having selected the game, avoid playing it at first, until you are ready. The reason to avoid playing the game is that "[p]eople tend to focus more on information [or phenomena] they encounter at the beginning of an activity (the *primacy effect*)" (Baker, 2006, p. 11). Rather, play games of the same genre in preparation for your project. The reason is twofold: the first is gaining confidence in using the game interface (which is especially important if one is unfamiliar with this kind of game or with games in general). If the researcher is unfamiliar with how the interface of the
game works, they can become frustrated during analysis, or miss crucial information. The subject, if different from the researcher, can likewise become unnecessarily frustrated with the game mechanics, halting the process repeatedly during gameplay. This, in turn, makes observation more difficult, as the researcher is busy trying to move around the game world, and might miss part of the experience because there is no flow.

By following this step, one will then see the commonalities in the genre that will provide a template for the target game design. This means that one can quickly gain insight on the game's mechanics as to what is part of a genre, and what is unique about the chosen game when one eventually plays it. Both will provide a degree of transparency for the medium, which should aid one's immersion in the game by removing some potential initial obstacles, and also inform the researcher's analysis by giving at least some context on games in general and this genre in particular. This step would be skipped when the subject and researcher are two different individuals and if the study was a usability study to see how the subject interacts with an unfamiliar interface.

Step 4: Selection and Installation of one's computer-assisted software for analysis

One will need good quality software for this, and a quick review of the most commonly used packages is provided. These should include 1) a program for recording gameplay, such as FRAPS; 2) a piece of software that will let one process video and audio data, with a time stamping function for ease of transcription⁵; and, *potentially*, 3) a program such as Sketch Engine (Kilgarriff & Rychly, 2003-2016) that will allow one to look at the language used in the game in some detail. The selection of the software will be determined by both the game you have chosen to analyse and answer the research questions.

⁵ This does not need to be a software package specifically designed for academic analysis. At the time of editing this dissertation, I am exploring the potential of Final Cut Pro for Macintosh computers for this purpose, although the software is designed for video editing in the media industry.

Step 5: Play (and Record Gameplay)

Play the game to completion (if it is a close-ended game). If it has multiple pre- encoded endings, all of them must be played. If the chosen game is open-ended, such as a MMORPG, it would be necessary to play for at least a pre-determined number of hours or levels. Projects heavily focused on reactions to the game should also record facial expressions or posture as part of the data set, and to crossreference the timestamps on the screen capture with the ones on the facial expression video record.

What should be recorded will depend on the research question and focus (e.g. you may need to go beyond the screen, and capture facial expressions, body movements, etc.). The bare minimum for game research is, however, the screen capture of the full gameplay session. This leads to a point that should be obvious but is not—especially to those coming from other disciplines, which forms the majority of the researchers in game studies: researchers of games should play games. Scientist should not make claims about content they have not experienced (Williams, 2005, p. 459). This is why the method proposed below insists on playing the game as a crucial step in the data collection process—even when the data collected for study is played by a third party.

It is important to decide in advance how to break up the video record into clips based on the research question. Case Study 1 shows how this can be done per level, per character and per quest. Case Study 2 shows how this can be done episodically, that is, following the story arc. Case Study 3 shows an example of analysis with unbroken playthroughs. This is useful if you are studying the more physical aspects of playing or the attention and focus required to play.

2.3.2 Part Two: Preparing the Data for Analysis

B.1 Theoretical Foundation

Theory will often, but not always, be the driving force behind data collection and analysis, giving direction and grounding those processes, and delineating the scope of the study. The examples listed in B.1 are each more or less rigorous, and each comes with its own field's tools and traditions for analysis that can be more or less

flexibly adapted to video data. Theoretical grounding is not only relevant to the ways data can be processed, but to the somatic focus of the analysis itself as different theories will provide different definitions of what games are and what they can do.

B.2 Analytical Focus

The analytical focus of video data for game studies will always be determined by the particular research questions to be answered. The number of possible foci is vast, but some relevant analytical foci are listed in B.2. The first three are exemplified in the case studies that follow this chapter: Case Study 1 has a procedural analytical focus. Case Study 2 has an interactional analytical focus. Case Study 3 has a representational of analytical focus.

B.3 Coding Considerations

Coding is a useful way of processing data for analysis. Saldaña (2013) offers, in his coding manual, 32 coding methods and their analytic possibilities. "A code... Is most often a word or short phrase that symbolically assigns a summative, salient, essence capturing, and or evocative attribute for a portion of language-based or visual data" (Saldaña, 2013, p. 3).

Coding is a heuristic, "an exploratory problem-solving technique... The initial step towards a more rigorous and evocative analysis" (Saldaña, 2013, p. 8). Simply put, coding is a transitional step between data collection and data analysis. "[C]oding and analysis are not synonymous, but coding is a crucial aspect of analysis" (Basit, 2003, p. 145). Charmaz (2001) describes the coding of data as the "critical link" between data collection and their analysis. Coding is not just labelling, but also linking, making connections "between the data and the idea, and from the idea to all the data pertaining to the idea" (Richards & Morse, 2007, p. 137). A code can, for example, summarize, distil, or condense data. Data are coded for the purposes of pattern detection, categorization, theory building, as well as to validate and verify earlier findings. Madden (2010) notes that such analytic work is not reductionist but adds value to the final analysis (p. 10).

Coding is a heuristic, "an exploratory problem-solving technique... The initial step towards a more rigorous and evocative analysis" (Saldaña, 2013, p. 8). Coffey and Atkinson (1996) describe coding as a "mixture of data [summation] and data complication... [b]reaking the data apart in analytically relevant ways in order to lead to further questions about the data" (p. 29-31). This process of breaking the data apart and putting it back together can be described, using Charmaz's (2006, p. 45) analogy, thusly: "coding generates the bones of your analysis," while integration assembles those bones into the "working skeleton" of a full-fledged analysis.

Once researchers code the data, they can be split into categories, and linked in new ways during data processing "in order to consolidate meaning and explanation" (Grbich, 2007, p. 21). Thus, analysing coded data is "the search for patterns in data and for ideas that help explain why those patterns are there in the first place" (Bernard, 2011, p. 338).

Working toward a more systematic method of data collection for the study of games centred around video recording requires a particular set of technical competencies since all technical decisions have epistemological consequences. The first concern is for the researcher to select an item of theory that can be studied with video data—selecting the right tool for the right job. Next is a need for knowledge of media conversion and compatibility—particularly when considering the use of software analytical tools, such as CAQDAS. This knowledge needs to be applied in a different way in collaborative projects.

Technically competent game researchers working under this framework will have a sufficient degree of technical knowledge, allowing them to play record video data containing the required amount of information (data richness or saturation). This knowledge will manifest itself in a way of thinking and doing research (systematic thinking and thinking in systems) throughout the entire process of data collection.

B.4 Provision of Necessary Context

Game researchers need to make every effort to contextualize the games they analyze, and to situate their specific analysis within its broader context. For reasons of transparency epistemological decisions and choices must be ready to be shared. Significant contextual information should, whenever possible, be part of the video record as this helps with determining open quotes part two hole" relationships and units of analysis. Some screen capture software packages offer, for example, the ability to timestamp the video record, or to attach metadata of different degrees of detail.

The relative meaning of the video record can also be related to and contrasted against information obtained from other sources, such a secondary video data (see Case Study 2), or paratexts (see Case Study 3). The context provided for the video record answers a call for transparency and reflexivity in academia for the study of complex systems such as games.

Additionally, questions of how game researchers can study and learn from games in a way that will not harm subjects—especially when their likeness is on camera. Issues such as authorship, copyright law, and fair use are also relevant (Wells, 2006) and worth bearing in mind.

Step 6: Preparing Video Data

Video game research data may exist in many different forms: textual, numerical, databases, geospatial, images, audio-visual recordings, and data generated by machines or instruments. Digital data exists in specific file formats that are coded so that a software programme can read and interpret these data. Using standard and interchangeable or open lossless data formats ensures longer-term usability of data. For long-term preservation, digital data is converted to such formats. It may be necessary to convert video files in preparation for the software one uses. There are many free online converters that can be used for this purpose. One must also name files carefully and keep a record of the metadata in an organized manner.

In real life "social interaction does not occur in neat, isolated units" (Glesne, 2011, p. 192). The process of creating data in the form of codes, categories, analytic memos, charts, graphs, tables, and graphical summaries are "metadata activities" (MacQueen & Guest, 2008, p. 14).

Step 7: Transcription and Coding

One must budget one's time, as this step can be very time-consuming, depending on the granularity of the project. One may also decide on coding multiple transcripts to run simultaneously; one, for example, recording all verbal aspects of the game (such as dialogue or narration), while other transcripts add layers of complexity by transcribing visual elements (such as signs or other on-screen text), or elements of gameplay, such as explicit rules and language-based interactions with the interface. Alternatively, a single transcript can be edited iteratively to add all these elements in what could be termed "layering." Ultimately, what one chooses to transcribe and how to transcribe it and code it will be inextricably linked to the associated analysis.

As an example, a question can be asked as to how the Start Screen of a PC game organizes potential meanings and their relations for their target users. Below are show two examples from the start screens of *Plants Vs Zombies* (Fan, 2009-2016).





The process of transcribing and coding these images from the recorded gameplay allowed both minute and systematic analysis, which was a whole new perspective from the cursory glance at the screen during gameplay. By looking at the recorded gameplay, the researcher was able to fully notice for the first time some of the semiotic resources deployed by the game makers, which had escaped attention through many hours of gameplay.



Figure 8. Second start screen of Plants Vs Zombies. The lower right-hand corner shows the episode clips tab open, including the keywords assigned to particular clips.

By transcribing and coding the image in Figure 8, the relevance of the positioning of the house was uncovered. The observation reads, "From this viewing angle, the house sits squarely between the tree on the left, and the tombstone on the right, reminding the viewer of the game title, and suggesting, perhaps, the battleground where the struggle will take place" (Figure 9).

Verbatim Transcript	Visual Transcript
(0:00:01.2)[SCREEN 1]	(0:00:01.2)A still image appears, chromatically divided into a
PLANTS vs ZOMBIES	rough diagonal (left to right) line, formed by the road curving
Loading	into the horizon. On the left-hand side, in the foreground,
(0:00:08.0)CLICK TO START!	anthropomorphosised plants with child-like features (large eyes
(0:00:10.7)[SCREEN 2]	and 'faces') with aesthetics that look very cartoonish, pile on a
WELCOME BACK, 'SABIH'	lawn by a payed road in what looks like a suburban area. On the
IF THIS IS NOT YOUL CLICK HERE	right-hand side three zombies can be seen, two walking towards
ZOMBATARI MAKE YOUR OWN ZOMBIEL	the plants one crawling towards them. One of the walking
LEVEL 1-7	zombies has lost part of its suit trousers, and the other one is
ADVENTURE	wearing a traffic cone on its head. Two more almost indictinct
MINILGAMES	figures of combies seem to be coming from the distant
DITTLE	hackground. On the rembio side of the screen the colour palette
SUDVIVAL	is darker, grow and purples seem to deminate. Two houses
ODTIONS UP DOUNT	is darker, greys and purples seen to dominate. Two houses
ACHIEVENENTS	shaded by trees can be seen in the distance, coding the area as
ACHIEVEIVIENTS	suburban. The fonts and background music (a little reminiscent
(0:00:13.0)[LC>HEREJ[SOPERIMPOSED:]	of a music box tune) used, the color palette, and the features of
WHO ARE YOU?	the characters code the game as not really a norror game,
SABIH	despite the use of zombies as enemies. This is emphasized by
(CREATE NEW USER)	the LOADING bar, which shows a lawn progressively unfurling
RENAME-DELETE-OK-CANCEL	and getting covered with flowers, and a zombie head.
(0:00:15.2)[LC>CREATE NEW USER]	(0:00:10.7) In the second screen, a tombstone dominates the
(0:00:16.1)[SUPERIMPOSED] new user PLEASED	right hand-side of the foreground. On the stone, where an
ENTER YOUR NAME: -OK -CANCEL	epitaph would be written, the game options are displayed: LEVEL
(0:00:22.0)[TYPE] Sammy [LC>OK]	1-7, ADVENTURE, MINI-GAMES, PUZZLE, SURVIVAL. Written on
(0:00:25.1)[SCREEN 2]	three stone/ceramic vases are the options: OPTIONS, HELP,
WELCOME BACK, Sammy!	QUIT. On the bottom left-hand side there is a pedestal with the
IF THIS IS NOT YOU, CLICK HERE.	word ACHIEVEMENTS on it - presumably the statue on the
ZOMBATAR! MAKE YOUR OWN ZOMBIE!	pedestal grows or changes as achievements are unlocked. On
LEVEL 1-7	the left-hand side, there is a sign made of three planks of wood
ADVENTURE	hanging from the tree that shades the tombstone. the signs read
MINI-GAMES	"WELCOME BACK, 'SABIH' -IF THIS IS NOT YOU, CLICK HERE
PUZZLE	ZOMBATAR! MAKE YOUR OWN ZOMBIE!". A Suburban looking
SURVIVAL	house is in the background. From this viewing angle, the house
OPTIONS HELP QUIT	sits squarely between the tree on the left, and the tombstone on
ACHIEVEMENTS	the right, reminding the viewer of the game title, and
(0:00:26.6)[LC>START ADVENTURE]	suggesting, perhaps, the battleground where the struggle will
	take place.
	(0:00:12.6)After clicking on 'here' a stone window, reminding of
	a cross between a tombstone and a computer screen or TV set
	appears superimposed on the screen. Apart from the shades of
	grey and brown, the only bright color is a bright green, a
	reminder of the plants in the game title.
	(0:00:23.4)A new user (Sammy) is created to start a new game.
	(0:00:25.1)The command to create a new user has been
	accepted, as we are back on the previous screen,
	(0:00:26.6)Upon clicking on 'START ADVENTURE' at the top of
	the tombstone, a zombie hand emerges from the ground in the
	foreground. A macabre (male) laughter is heard and dramatic
	music plays. Because of the old-movie style of the sound, and
	the cartoonish fonts and pictures, the general effect is more
	humorous than scary: the added effect is certainly tongue-in-
	cheek

Figure 9. Screen capture of two transcripts of the second START screen of Plants vs Zombies.

The above examples illustrate the relevance of the role of transcription in multimodal game analysis and demonstrate the usefulness of having a consistent notation system to use during the project, aiding in systematizing the description and coding of the phenomena, as well as aiding in the reflection and analysis by such systematization.

Treating Raw Data

An unannotated version of the main transcript can be used with a concordance and/or an automated tagger. This would be most useful to projects where the linguistic aspects of a game play a role in the research questions, but this step has the potential to inform all research. It is particularly useful when used with metaludic data as a point of comparison, or to enrich the collected data set.

Carrillo Masso (2009, 2010) created an "image analysis grid" for this purpose, based on Miles and Huberman's (1994) description of a summary table. It can be useful to add a level of abstraction to detach the object of study (e.g., a particular colour or other element in a collection of images) from other possible distracters. Figure 10 presents here two images side by side with an image analysis grid (Figure 11).



Figure 10. The Goblins in World of Warcraft: Cataclysm (Blizzard Entertainment, 2010) and a 1943 film poster for "The Eternal Jew."

IMAGE ANALYSIS GRID – THE ETERNAL JEW: GOBLIN [RACE] – HORDE [FACTION] – WORLD OF WARCRAFT: CATACLYSM (2010) AND 1943 POSTER						
	SKIN	KINETICS & PROXEMICS	MODALITY : BRIGHTNE SS	POINTS OF INTEREST (FACE)	POINTS OF INTEREST (OTHER)	ICONOGRAPHY: SEMIOTIC PARATEXTUAL ASSOCIATIONS OF INTEREST
GOBLIN (GAME _ CHARACTER)	GREEN	SCOWL / SMIRK GAZE AT	LOW / MUTED	EARS	MONKEY ON ARMOUR	The two images are semiotically , related in terms of the symbols they deploy. The general alien
	SHINY / GREASY	VIEWER TURNED TO SIDE		CHIN		 simian appearance of both pictures (seen in the features, expression and drin tone) seems
WWII POSTER	GREEN	SCOWL/SMIRK	LOW / MUTED	EARS	DARK BACKGROUND	deliberately brought to the fore
	LINED	GAZE AT VIEWER		NOSE		by the employment of monkeys on the Goblin's armour. The
	SHINY / GREASY	FRONTAL VIEW		BEARD	TEXT (GERMAN / ENGLISH)	semiotic relationship between Jews and apes has been canvassed before in detail (Chambers 2013, Owen 2014, Abrams 2014) and continues to be of interest to sociologists, art historians and semioticians today.

Figure 11. Example of an image analysis grid. I tend to create fields in these grids as needed, so there is no universal fixed format for them (c.f. Carrillo Masso, 2009, 2010).

The Goblin's monkey-like Machiavellian form of intelligence allows him to pass in society as a neutral trader, innkeeper, and seller to both factions until the start of the game expansion, (i.e., until the lie at the heart of their neutrality is uncovered with the release of *Cataclysm*). This is not merely a power struggle between in-game, diegetic factions—Alliance and Horde—but a struggle between the human and the inhuman, and this particular figure draws upon age-old, anti-Jewish dehumanising stereotypes that 'are not derived from the object of prejudice but are the product and the projection of the majority's prejudice against the Other (Kane, 1999).

Transcribing Playpaths

A playpath may occur over minutes or hours, depending on the length of a play session and the skill and playing style of the player. It may occur over much longer periods of time, as well as being picked up and continued across separate play occasions. "Space is time-based" and constructed around and conditioned by a sequence of events which involves the constant reorganization of the participants' occupancy of space in relation to each other (Baldry & Thibault, 2006, p. 6). Thus, in a communicative event, the perception of space is time-based, based on what happens along a timeline. In a video game, the perception of virtual space will have to do with the actions that take place in that space.³ Transcription of playpaths can take

³ There seems to be a correlation between number of events in a given gamespace and the perception of the size of the gameworld, as seen in *World of Warcraft.*

the form of, for example, flowcharts of different types. For a simple playpath of the first 5 minutes of *Inner World* (Studio Fizbin, 2013), see *Figure* 12 below.



Figure 12. A potential transcript of the playpath of the first five minutes of Inner World (as played by me). This low-granularity transcription only shows actions taken by player with a time stamp for each. Notice how it takes over five minutes to start play

The multimodal transcription and analysis of playpaths can reveal the ways in which these paths incorporate diverse semiotic resources as they develop and unfold. In time, both technological resources (game code, programming language and interface) and semiotic resources of video games afford possible playpaths. By the same token, the recording and analysis of playpaths will provide insights into the way in which players experience games and their possible meanings through actual instances of navigating and negotiating their way through game spaces, and on how these potentials are encoded and function within the original game design. It would also be able to show the extent to which playpaths as trajectories have generic and individual characteristics in their semiotic makeup, as the preferred playing that designers envisioned can be compared to both the potential pathway and the actual one.

Step 8: Parallel Corpus: Compilation of Paratexts

An optional step in this methodology is the creation of a parallel corpus of game paratexts (game reviews, forum posts, walkthroughs, manuals, backstory, and fan fiction) to expand one's understanding of the chosen game. This can be easily accomplished by collecting the texts chosen in the right format (.txt) and keeping a detailed record of their provenance. As the verbal amount of text contained in a short game might be insufficient to answer certain questions, a parallel corpus would bridge that gap and help inform one's analysis. Case Study 3 demonstrates this.

2.3.3 Part Three: Conducting the Analysis Using the Data Set

C.1 Types of Game Analysis

The analytical focus on game research projects may be quite varied, and the use of video data in game analysis may also involve depending on the research question, the process of video game reduction, and materials produced by the players/fanbase (e.g. consumption data, playthroughs and walk-throughs posted on sites like YouTube and Plays.tv, reviews, fan art). The focus may lie on individual features captured by the video record, such as the use of colour to express mood, the representation of gender or religion, or the use of language by players or game characters.

The third column of Figure 10 is divided into three sections. Some of the types of analysis proposed in Figure 10 have been covered in Figures 1, 3 and 4 in the literature review and their attendant discussions. Primary and secondary video data were introduced in part one above. Primary and secondary video data need separate analytical considerations. Primary video data will benefit from first-hand insights into the process, while secondary video data analysis will benefit from an outside perspective. Different types of analysis will make different demands in terms of analytical focus and depth. Coding and annotation tend to be iterative, recursive activities, and as such the time they take needs to be factored in.

C .2 Analytical Considerations

Some important analytical considerations to be included in the discussion are the following:

- Determining the unit of analysis
- Data management
- Defining samples saturation

There is a certain fluidity built into this methodology when defining the unit of analysis. Selection of the unit of analysis tends to be related to the way primary research questions are formulated (Miles & Huberman, 1994; Yin, 2003). Once the questions and conceptual framework are clear, the preliminary unit of analysis can be established, and refined during successive coding iterations.

Regarding saturation, there are several points regarding sampling strategies (Patton, 2002) that would be relevant here. In the context of research in complex systems with emergent qualities such as games, the extent to which the sample chosen is internally homogeneous or diverse will affect its being considered to be saturated or not. If the sample is not sufficiently saturated for the study, then the sample size must be enlarged until saturation is reached. Sample saturation is conceptualised by van Rjinsoever as "reached after all the codes in the population have been observed once in the sample" (van Rijnsoever, 2017). I adapt this concept by refocusing it thus: saturation is reached after all the codes in the study have been observed at least once in the sample.

Data Management

Recording the game will produce large video files, so it is important to decide in advance on where to save them, whether locally in the same computer, on an external drive, or on a cloud service, such as Dropbox. Any solutions need to be documented in the data management plan (Horton, et al. 2011). If you run out of space to save the video files, the program you use for recording the gameplay will simply stop recording without warning, and data will be lost. This is where the firmware capabilities of the computer system used matter. A data management plan or policy has become an important part of research, in view of the upcoming General Data Protection Regulation, which will come into force in May 2018. Early planning of how best to manage research data, including current or future data sharing, is key to ensure optimal handling of research data over the length of a research project and beyond.

Ensuring the security of data requires paying attention to physical security, network security, and security of computer systems and files to prevent unauthorised access or unwanted changes to data, disclosure or destruction of data (ODPM Publications, 2005). Data security arrangements need to be proportionate to the nature of the data and the risks involved. Regular local and centralised backups protect against accidental or malicious data loss or corruption, and this procedure can be easily automated. At the same time, researchers may also need to take responsibility for managing their own data, which might require some flexibility to adapt to both current legislation and to distinct methodological or disciplinary requirements. Data needs to be securely destroyed once it is no longer needed as merely deleting files and reformatting a hard drive will not prevent data recovery.

University research centres and departments can support researchers through a coordinated data management framework of shared best practices (Horton et al., 2011). This can include local guidance, templates and pointers to key policies. Research centres and departments benefit from dedicated central research coordination, which can provide important input into planning and implementing data management and sharing activities. They also benefit from a centralised approach to data management, providing both economies of scale and a lasting framework.

Once data has been collected, it is necessary to think about archiving it. As technology progresses, there is a strong move towards sharing archived data both in industry and academia, including qualitative data (Bishop 2009:256), and there are several nontrivial benefits to doing so (see Table 6). Research data often has a longer lifespan than the research project that generated it. A report produced by CGIAR (CGIAR Internal Audit Unit, 2017). highlights the fact that researchers may continue to work on data after funding has ceased, or degree courses have finished. Follow-up projects may analyse or add to the data, and data may be re-used by other researchers or institutions. Commercial data can be bought and sold to third-

party researchers in-country or abroad.

Tabla 6	Non-trivial	honofite	of archiving	and	charing	data
Table 0.	non-unnai	Dellellio	or archiving	anu	Shanny	uala.

Source	Non-trivial benefits of archiving and sharing data				
Fienberg	Archiving and sharing data				
(1994)	Reinforces open scientific enquiry				
	 Encourages diversity of analysis and opinions 				
	 Promotes new research and allows for the testing of new or alternative methods of analysis 				
	 Improves methods of data collection and measurement by opening the data to others' scrutiny and feedback 				
	Reduces research costs by avoiding duplicate data collection				
	Provides a valuable resource for research training				
King (1995)	Data sharing allows findings to be replicated.				
Fry et al.	making "unmined" data available				
(2008)	avoiding duplication				
	 reduced burden on research participants 				
	 greater transparency of research procedures 				
	 alignment with open access principles 				
	 recognising that outputs of publicly funded research are public assets 				
Bishop	Archiving and sharing data				
(2009)	 Helps verify claims about the benefits of research to knowledge and understanding 				
	 Helps verify claims about research impact on policy 				
	 Make the furthest possible use of publicly funded research data 				
	 Enhances the possibility of transparent scholarly procedures 				
Piento	Shared archived data results in a higher number of publications and raises the				
(2010)	profile of those who generated it.				
ICPSR	Archiving and sharing data				
(2012)	 Enhances the impact and visibility of projects 				
	 Helps funding agencies track value and impact of collected data (traceability) 				
	 Helps with transparency of methods of data collection 				

First, archiving and sharing data reduces research costs by avoiding duplicate data collection (Fienberg 1994, Fry et al. 2008), thus making more effective use of publicly funded data (Bishop 2009), and allowing funding agencies to track the data itself, as well as its impact and value (ICPSR 2012).

Second, archiving and sharing data brings to the fore the need for transparency in methods of data collection and analysis by opening the data collected to scrutiny and feedback (Finberg 1994), bringing research in alignment with open access principles (Fry et al. 2008, ICPSR 2012), and enhancing transparency in scholarly procedures (Bishop 2009).

Third, by making the original "unmined" data available – a benefit in itself (Fry et al. 2008) – researchers are also fostering new research and allowing for new alternative explanations to be proposed for phenomena found in the data, or for new analytical methods to be applied to the same data (Fienberg 1994), or for the same data to be used to answer a different research question (as done in case studies one and three above).

Fourth, archiving and sharing data can help verify claims of research impact to knowledge or understanding of particular phenomena, and to examine claims of the extent of research impact on public policy (Bishop 2009).

Finally, archive data provides a valuable resource for research training (Fienberg 1994).

Much research data can be shared ethically and legally if researchers employ strategies of ethics approval, anonymization of entries (where applicable), and controlling access to data, as per most current university policies. Researchers obtaining data from individuals are expected to maintain high ethical standards and comply with the relevant legislation, especially in view of the upcoming General Data Protection Regulation coming into force in May 2018. Carrying out a risk assessment at the start of a research project can help to apply best practices of gaining consent, anonymising data and regulating access to enable data to be shared.

A crucial part of ensuring that research data can be used, shared, and reused by a wide-range of researchers, for a variety of purposes, is by taking care that data is collected systematically, and that it is maintained while remaining accessible, understandable, and usable (CGIAR Internal Audit Unit, 2017). This requires clear metadata, including data description, annotation, contextual information, and documentation that explains how data were created or digitised, what data mean, what their content and structure are, and any manipulations that may have taken place (Gordon, 2007).

Sampling Strategies

Video analysis can range from top-down systematic approaches that use video recordings to code and identify events that have already been defined and conceptualized prior to explore explorative/opportunistic (Sorenson & Jablonko, 1975) discovery – oriented approaches that hope to unveil unanticipated phenomena (Derry et al., 2010). Video used in game research can be amenable to both, and indeed both can happen during multiple cycles of coding and analysis.

Game research based on hypotheses testing may require random or stratified sampling (e.g. every other quest or a set of quests from an area only). More opportunistic sampling is done when focusing analysis on whatever captures the researcher's interest in an ad hoc basis. The sampling technique code determines the possible inferences drawn from the record (Pauwels, 2011). Thus, a clear methodology does not rule out exploratory approaches to research, which are well suited for use when starting in the field of game research, or when exploring a new type of game (be it a mechanically or for anyone).

C.3 Intended Use of Data

Video records, in and of themselves, have no "intrinsic" value. Their value to researchers is the result of a given purpose, a research question with a valid and representative set of data collected using a robust method or purposefully selected from found footage, and a well-reasoned processing of the data to a set of substantiated conclusions. Video records thus provide useful research input for game research. Segments or "clips" from a larger data corpus can be selected to demonstrate typical or unusual examples of phenomena, as well as for disseminating results. It is always important in these cases to document and provide the context of the clips were extracted from, especially when using them to make claims of generalizability.

Considering Quality

Matthew Miles once famously asked: "how can we be sure that [an]... 'undeniable'... finding is not, in fact, wrong?" (1979, p. 591). This section will address questions of robustness and quality in the proposed method of data collection. A claim of absolute truth may not be necessary for research to be useful, but as Maxwell (1992) noted, research must strive to be credible.

The question of credibility is an important one when studying fleeting phenomena using only field notes, and it is one that is addressed by the use of video record as a boundary object, as the analysis produced can be based on, supported by, and substantiated by the video data. This section addresses three varieties of epistemic considerations, as conceptualized in the framework in Figure 1, namely: quality of data recording, processing, and analysis. Each of these types of consideration are tied to each of the column headings in Figure 1.

Quality of Data Recording

When performing the first set of steps from the methodology the size of the sample must be validated by asking the question "is the data enough to answer the research questions?" This includes making sure that enough metadata is documented to allow future researchers to perform validation or comparative analysis using the data in question. "Enough" in this context refers to the concept of sample saturation, as explained above.

Quality of Data Processing

When processing video data for game research, it is important to ensure that the sample contains enough contextual data (in the video record itself or as metadata) to draw conclusions and for others to explore the validity of the conclusions drawn from the data. It is likewise important to document the coding process to understand the selection of codes and how the unit of analysis was determined. The process documentation should also contain information on emergent categories and how they are grounded in the data.

Quality of Analysis

When analysing processed video data, clear links must be established between the collected evidence and the conclusions. The question is "can the research questions be answered with the collected evidence?" This includes the question of whether triangulation (be it a theoretical triangulation or more data-driven approaches) is possible with the available evidence.

These three sets of epistemic considerations highlight the need for transparency of process and productivity research methods. Transparency involves clearly articulating the procedures followed so that others can assess their adequate notice, and so that the results can potentially be replicated. In studying complex phenomena such as video games, it is imperative to describe—not just name—the methodology followed for collecting and processing a sample (expect specs).

Transparency of methodology requires critical self-reflection and can only be achieved by keeping adequate records of the method followed and the analytical process (Derry et al., 2010). After all, the capacity for transferability of conclusions from a single case will depend on the level of detail recorded, and whether the record reflects the full complexity of the context, to theoretically conceptualize the lessons learned from the data (Firestone, 1993).

1.1.1.3 Step 9: Conduct Analysis Using the Data Set

Once the data has been taken apart, so to speak, by means of transcription, coding and tagging, it is time to put it back together to perform an analysis. Video game analysis is hermeneutic in nature, that is, it seems to necessitate the understanding of the parts in order to understand the whole and vice-versa. What one transcribes, tags, and annotates will largely depend on the research questions and goals, but the essential aspects of corpus-assisted analysis will remain the same. With the help of the computer, one will find patterns. These patterns, whether linguistic, visual or thematic, tend to remain largely hidden to the naked eye, because of the vast amount of multimodal information to be processed. Researchers should exercise discretion in choosing what is necessary for their individual projects.

2.4 Summary of Strengths and Weaknesses of the Proposed Methodology

Having acknowledged the reality of the fragmented nature of current game research as a field in the previous chapter, and having shown the stark contrast between the surge of interest in video game research and the relatively weak methodological basis for realizing this interest in a more widely accepted manner, this chapter has argued for a more integrated framework for data collection that provides a clear and robust methodology of data collection for game research. There are three main parts to this methodology:

- 1. Create valid, reliable data set through video recording
- 2. Transcribe and encode the data set

3. Conduct analysis using the data set

This chapter integrated the three parts of the method into a unified framework and provided a detailed methodology of data collection under the proposed framework. This chapter was devoted to the systematic presentation of an integrated framework for the study of games, and to the clear presentation of the steps of the method proposed. The method steps are summarized here under each of the framework's three sections (see Table 7).

INTEGRATED FRAMEWORK FOR VIDEO DATA COLLECTION FOR GAME RESEARCH (INCLUDING STEPS OF THE METHOD FOR EACH SECTION)				
RECORD (COLLECT)	ENCODE (PROCESS)	DECODE (ANALYSE)		
Part One: Creating A Valid, Reliable Data Set from Video Recording	Part Two: Preparing the Data for Analysis	Part Three: Conducting the Analysis Using the Data Set		
 Selection of the Game or Games to be Studied Obtaining the Game Pre-play Preparation Selection and Installation of One's Computer-assisted Software for Analysis Play (and record gameplay) 	 6. Preparing video data 7. Transcription and Coding 8. Parallel corpus: Compilation of paratexts. 	9. Conduct analysis using the data set.		

Table 7. Proposed framework with steps of the method for each phase.

This chapter presented a methodology for video game analysis using video recording and data processing as effective tools within a unified framework. The proposed method shows several advantages. First, using video records affords the researcher the possibility of repeatedly returning to the gameplay video record to examine in-game phenomena of interest. This methodology is a more robust approach than field notes alone for game analysis, because, as established above, the complexity of games must necessitate capturing details that would otherwise be missed or forgotten.

The second advantage is that video records can be shared, which affords researchers the opportunity of reproducing, validating, and challenging each other's research, as well as assurances when collaborating (especially across disciplines) they can identify patterns and compare like with like.

The third advantage is linked to the second one, and it has to do with the systematic dissemination of research results. To illustrate complex dynamic phenomena, it makes sense to capture and show examples of it (e.g. at conferences or in classrooms) to provide enough context for fruitful discussion. This means that the field can establish common ground from which to mature and move forward.

The method also presents disadvantages. The process of recording and saving files requires careful consideration and can be a cumbersome one. Choosing the right tools or CAQDAS for video processing can be daunting as well, and their use requires time to learn. Coding is a time-consuming activity as well, even without manual transcription being added to the task. Coding produces, in turn, large amounts of processed data that needs to be combed through (see, for example, Appendix 3 Contents (See accompanying USB drive). Selecting what parts of the data processed are relevant to answer the research question is, therefore, a necessary task.

Despite these technical difficulties for using the methodology described in this chapter, the advantages stated above provide a stronger case in favour of using the method.

2.5 Introducing the Three Case Studies

Three case studies showcase the methodology of data collection described above, and to help show its compatibility with a range of analytical perspectives. Here is a brief summary of their contents:

PARADIGM	ONTOLOGY	EPISTEMOLOGY	THEORETICAL PERSPECTIVE	METHODOLOGY	CASE STUDY
POSITIVISM	There is a single reality or 'Truth'.	Reality can be measured, and hence the focus is on reliable tools to do that.	Positivism, Post- positivism.	Experimental Research - Sampling	Case Study 1: Procedural Rhetoric <i>World of Warcraft</i>
SUBJECTIVISM	Reality is what we perceive it to be.	Reality and knowledge are both a matter of perspective.	Postmodernism, post- structuralism.	Discourse theory, deconstruction, semiotics, autoethnography	Case Study 2: Player Choices in <i>The Wolf</i> <i>Among Us</i>
CONSTRUCTIVIM INTERPRETATIVISM	There is no single reality or 'Truth'. Reality is created by individuals and groups.	Reality needs to be interpreted to discover the underlying meaning of events and activities.	Interpretivism, phenomenology, Hermeneutics	Phenomenology, hermeneutic analysis, discourse analysis	Case Study 3: Jewish Representation in <i>The Shivah</i>

Table 8. Research paradigms reflected in each case study.

2.5.1 Case Study 1

The purpose of Case Study 1 in this dissertation is to show the complexity of a Massively Multiplayer Online Role-Playing Game, and how this method deals with this complexity. This is done by analysing three characters' progress from one zone to the next using quantitative and qualitative analyses of their procedural rhetoric. This case study was written under the Positivist research paradigm. The ontology of positivism is one of realism, that is, the idea that that objects have an existence independent of the knower (Cohen, 2007, p. 7). The epistemology of positivism is objectivism. Meaning resides in the objects themselves. The aim of the researcher is to find the meaning residing in objects. Positivist methodology is directed at explaining relationships, especially those of causality (Creswell, 2009, p. 7). A deductive approach is undertaken. Research is deemed good if the results have internal validity, and different researchers can record the same data in the same way and arrive at the same conclusion (replicable and reliable), and is robust to empirical refutation (Scotland, 2012, p. 11).

2.5.2 Case Study 2

The purpose of Case Study 2 in this dissertation is to show the narrative choices available in a Fantasy Role-Playing Game, and how this method deals with the narrative focus. This was done by analysing the way female characters are represented and the tropes that appear in this game. This case study was written under the critical research paradigm. The critical paradigm's ontological position is historical realism, that is, the idea that reality has been shaped by social, political, cultural, gender, economic, ethnic, and religious values (Guba & Lincoln, 1994, p. 110). Language shapes and moulds reality (Frowe, 2001, p. 185). Critical epistemology is subjectivist, i.e. knowledge is socially constructed and influenced by power relations in society (Scotland, 2012, p. 13). "We come to inhabit a pre-existing system and then to be inhabited by it" (Crotty, 1998, p. 53). Critical methodology attempts to interrogate values and assumptions, exposing hegemony and injustice (Crotty, 1998, p. 157) close paren. There is an emergent, recursive relationship between theory, data, research questions, and analysis open quote (Talmy, 2010, p. 130). Critical methodologies include CDA and ideology critique. Critical methods and able realities to be culturally examined

from the cultural, historical, and political point of view (Scotland, 2012, p. 14).

2.5.3 Case Study 3

The purpose of case study 3 in this dissertation is to show the way this method could be applied to a Point-and-click Adventure Game, and how this method deals with both procedurality and representation. Unlike the two previous case studies, in this chapter I take the analysis all the way to its conclusion. I do this by analysing the two main characters and both their representation and their procedural rhetoric. This case study was written under the Interpretive research paradigm. The ontological position of interpretivism is relativism, that is, the idea that reality is subjective and different for each person (Guba & Lincoln, 1994). Reality is constructed through the language-mediated interactions between consciousness and the world (Frowe, 2001, p. 18). Constructivist epistemology is objectivism. Meaning is not discovered but constructed. Truth is a consensus (Pring, 2000), and knowledge is culturally-derived and historically situated (Scotland, 2012, p. 12). Interpretive methodology investigates the interactions among individuals as well as their cultural and historical contexts (Creswell, 2009, p. 8). Methods include case studies and hermeneutics. Layers of understanding are uncovered as phenomena are densely described (Scotland, 2012, p. 12).

2.6 Evaluation of software packages used

The three software packages used for this methodology are as follows (see Table 9):

Case study one used Atlas.ti version 7. Atlas.ti supports a wide variety of file formats and provides the ability to build visual models from the data, which includes the ability to hyperlink directly to the data source. Atlas.ti allows for coding on different data types. I found Atlas to Atlas.ti particularly useful to establish links between individual procedural features of the game. Atlas.ti exhibited three weaknesses; however: first, the program crashes with videos longer than 18 minutes, which affects the ways the data can be processed. Second, the interfaces' many functions are not intuitive, and there is a steep learning curve to use the program correctly. Third, the many places to store notes

and memos become confusing after a while, which can difficult efficiency in collaborative work. However, the visual model building is a useful tool for ontological explorations in game research, and its geo-tagging function can make in the future tool of choice for augmented reality games, such as Pokémon GO (The Pokémon Company, 2016-2019).

Case study two used MAXQDA version 2018.1, which supports the most common multimedia file formats out of the three packages used. It allows the user to build visual models as mind maps and to import data automatically. MAXQDA can automatically import data from a variety of social media platforms and survey host providers. Coding can be done on text, video, image, or audio files. The MaxApp smartphone application allows for simple visual coding to be done, using the Emoticode [™] function. These characteristics make MAXQDA the potential CAQDAS of choice to study players and player communities, with the app adding the possible dimension of having players self-code their own or each other's gameplay.

MAXQDA has three main disadvantages, however: first, the program crashes if more than two functionalities are opened at the same time. Second, the interface offers many ways to import data, but fewer for manual data processing, which limits the way the software can be customized for different applications or projects. Finally, many of the functions require a transcript of some sort to be added, which can be cumbersome and would not be not essential for many research projects.

Transana 2.5.3 was used in case study three. Transana offers several advantages. With Transana, coding can be done directly on video and audio files. The software facilitates transcription and automatically creates a video clip every time a code is deployed. Transana automatically creates reports for each keyword used during coding and offers different ways to search the data files. In Transana the interface can show multiple video screens simultaneously, or a single media file and multiple transcripts.

	ATLAS.TI	MAXQDA	TRANSANA
Version	7	Standard 2018.1	2.5.3
Case Study	1	2	3
Strengths	 Supports a large variety of file formats Visual model building in the form of mind maps Creation and navigation of hyperlinks between resources Coding can be done to text, image, video, audio files, and geotags Useful to establish links between features of the game to be analysed 	 Supports the most common file format types Visual model building in the form of mind maps Can import data from surveys Coding can be done to text, image, video, audio files Can automatically import data from social media platforms Twitter and YouTube, and from webpages in Google Chrome Useful for spotting patterns in transcripts The MAXApp can be used for data collection and coding using a smartphone 	 Coding can be done to video and audio files Transcription is facilitated When a code is deployed, a video clip is automatically created Automated reports are done for each keyword Search capabilities within transcripts, collections, and keywords Can show several video screens simultaneously, or videos and their transcripts Useful for spotting patterns directly on video files Can synchronise up to four videos, each with multiple transcripts. Useful for looking at the same phenomenon from different points of view
Weaknesses	 The programme crashes with videos longer than 18 minutes long The interface has many functionalities, but these are not intuitive The many places to store notes and memos can make keeping track of things difficult, especially in collaborative projects 	 The programme crashes when more than two functionalities are opened at the same time The interface has many functionalities for data import and export, but fewer for manual data processing Many functions require the use of a transcript of some sort 	 Media need to be converted using the internal media conversion tool The interface is complex and takes time to learn Many functions require the use of a transcript of some sort
Useful for	Atlas.ti could be the CAQDAS of choice for augmented reality games, as the geotagging function can be useful to follow physical player movement. The visual model building functionality can be useful when performing ontological explorations in game research.	MAXQDA could be the CAQDAS of choice to study player communities online, thanks to the functionalities that enable the researcher to import YouTube video comments and tweets on Twitter. Emoticode is a function that allows researchers to code data using 300 symbols and could potentially be used to allow players to code their own data simply.	Transana could be the CAQDAS of choice for detailed game analysis that focuses on semantic or linguistic elements, and for game analysis that looks at different video perspectives (e.g. facial expressions, on-screen events, hand movements, full body posture). Given the clear structure of the processed data, Transana is particularly suited to collaborative analyses, especially those of an interdisciplinary nature.

Table 9. Benefits and Limitations of Software Packages employed.

Transana proved useful for spotting and coding patterns directly in video files home. The software allows for up to four videos with multiple transcripts each to be used simultaneously, which can prove useful in analysing a phenomenon from different perspectives, or for comparative coding, where different people produce codes for the same video segment. For these characteristics, Transana can be the CAQDAS of choice for hermeneutic or semantic game analysis and is particularly suitable for interdisciplinary collaborative analysis.

Transana did show three disadvantages, however. First, media files need to be converted to a format the software can handle. Second, like with Atlas.ti the interface is complex and takes time to learn. Finally, like in MAXQDA, many of the software functions require a transcript of some sort.

Chapter 3. CASE STUDY 1: Studying Procedurality in World of Warcraft⁴

3.1 Introduction

The purpose of this chapter is to show how the methodology proposed in the previous chapter copes with the complexity of an MMORPG, and how the methodology can be applied within a positivist research paradigm, within a postpositivist theoretical perspective, while applying a sampling method as part of an experimental methodology. The purpose of this case study is to examine three characters' progress in the game using an experimental mixed-methods approach to analyse the procedurality present in the recorded gameplay. The data were collected using FRAPS and processed using Atlas.ti, a commercially available CAQDAS package.

In this chapter, I highlight the method of data collection and demonstrate its use, strengths and weaknesses, within the context of a Massively Multiplayer Online Role-Playing Game (MMORPG), *World of Warcraft: Warlords of Draenor* (Blizzard Entertainment, 2004-2016). *World of Warcraft* was the fourth game set in the Warcraft universe by Blizzard Entertainment, which started with *Warcraft: Orcs and Humans* in 1994. The objective of this application of the method is to present a means of systematically examining what happens onscreen in a complex game; that is, how to capture it, and how to describe it.

This chapter will start by giving a brief overview of the positivist research paradigm, and by contextualising the study by briefly introducing Massively Multiplayer Online Role-Playing Games, and the premise behind *World of Warcraft: Warlords of Draenor.* The application of the method of data collection will be described. The chapter will end with a summary of the methodology's strengths and weaknesses when applied to this context.

The ontology of positivism is one of realism, that is, that objects have an existence independent of the knower (Cohen, Manion, & Morrison, 2007, p. 7). The

⁴ Portions of this chapter were published in Carrillo Masso, (2015a, 2015b), (See Appendix 1 at the end of this thesis).

epistemology of positivism is objectivism. Meaning resides in the objects themselves. The aim of the researcher is to find the meaning residing in objects. This paradigm applied to game research assumes that there is a game that can be known beyond what can be individually perceived. This data can be captured (sampled) and recorded for analysis as part of an experimental research methodology to "measure" the reality of this game.

Positivist methodology is directed at explaining relationships, especially those of causality (Creswell, 2009, p. 7). A deductive approach is generally used under the positivist paradigm. Research is considered good if the results have internal validity, and if different researchers can record the same data in the same way and arrive at the same conclusion (replicable and reliable) and if the research is robust to empirical refutation (Scotland, 2012, p. 11).

3.2 What is a Massively Multiplayer Online Role-Playing Game?

Massively Multiplayer Online Role-Playing Games, or MMORPGs for short, are very complex games to analyse. As mentioned above, *WoW* is part of the larger Warcraft franchise that started in 1994, but *WoW* differs from the three preceding franchise's games in several important ways. The previous games in the *Warcraft* franchise were Real-Time Strategy games (RTS). RTS games can be played in single- player mode and involve commanding large armies to control a map to protect resources in an area. Famous and still popular examples of this type of game are *Age of Empires* (Ensemble Studios, 1997), *Command and Conquer* (Westwood Studios, 1995), and *Warhammer* (Games Workshop, 1998) franchises. These games can be played off-line or over a local LAN connection with a small group of players. RTS games have an endpoint: a point of win-or-lose. Once the player logs off, the game world stops.

An MMORPG such as *WoW* functions in a very different way. From 1,000 to 15,000 players play on each server at any one time, interacting with each other and with the environment. MMORPGs are played on persistent environments or game worlds, which means that the action continues after players log out, so a MMORPG's game world continues to function while players are off-line, which

means you can miss an in-game event, such as a raid, a battle, or an in-game Festival. Players can role-play a character for an afternoon or for years. There is usually no end goal and no way to win.

Every time a player character heals a friend, vanquishes an enemy, or casts a new spell, she gains experience points or XP. Accumulated XP determines the player character's level in the game. One of the most attractive features of MMORPGs is that XP changes and develops the character, so that the player character is constantly moving forward and growing, and that growth cannot be lost or taken away. In an MMORPG, fortunes can never be reversed, and even death is not permanent. A method of data collection needs to be robust enough to cope with these characteristics, by either amplifying the amount of variety the researcher can deal with, or by reducing the variety of data without compromising its integrity.

The main way to gain XP in MMORPGs is by completing quests. A quest is a task set for a player character that produces a reward (usually, at least partially, in the form of experience points, or XP). The tasks have varying levels of difficulty and time demands and are rewarded accordingly. In *WoW*, quests are usually shown as available in the form of a yellow question mark floating above the head of a quest giver. The quest giver is usually an NPC (non-playing character), but it can also be a poster or notice on a wall. Once a quest's task is completed, the player can hand in the quest, meaning returning to the quest giver to claim the reward. 'Questing' is a verb commonly used in the context of MMORPGs and RPGs in general to mean participating on, or accepting, such a task. There are currently over 15,000 quests available in *WoW* (WoW Wiki, 2018).

"Players on an MMORPG quest always feel *impelled* to finish the quest because they get rewarded if they do, but rarely feel *compelled* to finish because there is seldom any serious punishment for failure" (Kelly, 2004). The most common types of quest are as follows: Fetch quests or mail runs in which of the player character has to deliver an item to, or collect an item from, a non-player character (NPC). Slaughter quests ask player characters to kill a predetermined number of creatures or mobile objects ("mobs"). Scavenger Hunts ask player characters to collect objects (such as fruit, crystals, or crates) from an area in the game world. Treasure quests require the player to vanquish enemies and overcome challenges in order to face a final enemy, called a "boss" and retrieve a valuable item. MMORPGs tend to reward the process of play, making the gameplay experience highly satisfying, and even "addictive" (Kelly, 2004).

MMORPGs evolved principally from the MUD (multi-user dungeons) of the 1980s, which in turn evolved from *Dungeons and Dragons* (Gygax & Arneson, 1974- 2014). MUDs are textual games that helped players to experience virtual worlds in a limited fashion, characterised by simple interactions with the computer. In the mid- 1980s, a type of MUD emerged in which, every few days, timesheets were emailed to all players, updating them over 20 pages or more on the state of the game universe. Players responded with instructions to the computer, which acted as a Dungeon master, and coordinated and executed all actions on behalf of all the players. The players never saw each other, and their identities remained hidden. One single game could last years, and in many cases, no definite ending was reached.

From these email games, real-time strategy (RTS) games like *Age of Empires* (Ensemble Studios, 1997) and *Civilization* (MPS Labs, 1991) evolved, and subsequently, MMORPGs emerged from the one-on-one relationship between player and character brought about by the advent of graphic user interfaces. As a remnant of the old way of interaction, the game's feedback or 'chat spew' on the interface will tell the player of the effects of her actions, like how many points of damage she has inflicted on a target, what her reward is, and how much experience she gains.

Having explained the basics of what an MMORPG is, I will now proceed to describe the game that is central to this study: *World of Warcraft.*

3.3 About World of Warcraft

World of Warcraft (henceforth '*WoW*) is an MMORPG designed and produced by Blizzard Entertainment (2004-2016). *WoW* can only be played online over an Internet connection on a server, with each server averaging some 4,000 players at any given time moving around the game world and interacting with each other. Servers are designated for different geographical regions and run in different languages. *WoW* is available in English, German, European and Latin American Spanish, Italian, French, Russian, Brazilian Portuguese, Simplified and Traditional Chinese, and Korean.

WoW can be played in four types of server or "realm":

- Player vs Environment, in which players fight game-controlled enemies, and other players of the same faction are friendly and cannot attack you,
- 2. Player vs Player, where all players fight all other players as well as the environment,
- Role Playing, similar to Player vs Environment, but with players roleplaying (that is, speaking from the point of view of their characters), and
- 4. Role Playing Player vs Player, which is a role-playing version of the Player vs Player realm.

There were 12 million active accounts in *WoW* when the data were collected for this study (Blizzard Entertainment, 2016). In the European region alone, this translates into over 28 million player characters. Out of these, over 13 million characters are based in Player-versus-Environment servers. The gameplay for this case study was recorded in a server/realm called *Lightbringer*, a European-based Player Vs Environment server, which meant that I only had to defend myself from monsters in the environment and not from other players, whom I could safely ignore.

There are two player factions in *WoW*, Alliance and Horde (Figure 13). In this example, the playable Races available to Horde (top) are, from left to right, Forsaken, Trolls, Orcs, Tauren, Blood Elves, and Goblins. The playable races available to the Alliance faction (bottom), from left to right, are Humans, Dwarves, Night Elves, Gnomes, Draenei, and Worgen. The Pandaren, a newly introduced race, are the only playable Race that has no faction and is considered Neutral. Each Race has specific character classes available to them (e.g. Priest, Warrior, Hunter, Rogue, etc., akin to a character's career path). Character Classes can all be played solo, but in group interactions they take on pre-defined roles, falling roughly under three categories: Healing (like army medics healing those who fight to prevent them from dying), DPS (damage-persecond or attack) and Tanking (defence).



Figure 13. A sample of characters from both factions, Horde (top) and Alliance (bottom) with each faction's shield shown on the right.

One of the key challenges for *WoW* developers is to keep the game balanced. Game balance is generally understood as the fine-tuning of a game's design until all components of the game act in the way the game designer intended. From the *WoW*'s PvE player's perspective, game balance is often equated with "pacing." Pacing is the design practice of fine-tuning the game system in such a way that the challenges coming from the game environment are matched to the player's level and abilities. The objective is that none of these challenges prove to be insurmountable to the player to keep the game enjoyable so that players keep coming back.

WoW remains one of the most played games of all time. *WoW* was recognized at the 2005 Spike TV Video Game Awards where it won Best PC Game, Best Multiplayer Game, Best RPG, and Most Addictive Game (DeMott, 2005). In 2008, *WoW* was recognised at the *59th Annual Technology* &

Engineering Emmy Awards for advancing the art form of MMORPG games (National Academy of Television Arts and Sciences, 2008) . In 2015, *WoW* placed 3rd on *US Gamer's* 'The 15 Best Games Since 2000' list (Rignall, 2015).

According to Coavoux, Boutet, and Zabban's (2017) meta-analysis of game research, *WoW* is also by far the most studied game series. *WoW* has not only received very positive reviews through the years, but it is the highest-grossing video game of all time, earning over 10 billion dollars by 2012. *WoW* has had over 100 million accounts created since the game's release in 2004, and almost six million players are logged on to play it at any one time. *WoW* has had seven expansions since its inception. The study in this chapter refers to the *Warlords of Draenor* (2014) expansion of the game.

3.4 On Procedural Rhetoric

Katie Salen and Eric Zimmerman define "play" as "the free space of movement within a more rigid structure" (2004, p. 304). When a video game is played, players explore the possibility space its rule system affords them (Bogost, 2007, p. 43).

What a game represents is a system of affordances and constraints on behaviour; in essence, a system of possibilities for the player—a possibility space demarcated by affordances. Some of the affordances can be very easy to identify, such as in-game options (e.g. "Do you wish to proceed?," "Save progress?," "Purchase Sword of Valour for 50 gold?"), or the score system (how many points you get for performing certain actions). Others are less visible to the player, such as running, walking or jumping commands, which are performed automatically—especially when the player is familiar with the game format – e.g. jumping to avoid falling in a platform game like Super Mario Bros.(Nintendo, 1985-1987). Other affordances yet are mostly "invisible" to the player—the physics engine in the game, for example, which makes a character able to jump without flying off, the change of colour in the sky when it is "night time." The same holds for "invisible" constraints (e.g. your character can only run or walk at a certain speed or in a straight line; you can only lift up certain items).

Ian Bogost defines procedurality as the way a computer represents

something by constructing a rule-based model of its behaviour (Bogost, 2007, p. 123). Procedural rhetoric is defined as "the practice of authoring arguments through processes as part of rules systems" (Bogost, 2007, p. 125). This means that game makers' choices when designing any one game will produce a rule-based system expressed as processes for the player to experience. To Bogost, processes define the way things work: the logic that drives the operational system, from mechanical systems like windmills to organisational systems like businesses, to conceptual systems like languages (Bogost, 2007, p. 3).

These processes or procedures can be "read" as a form of language that makes statements about the game world, and, sometimes, about the world in general. Taken further, these resulting models can, in turn, make arguments about physical, social, cultural and political processes within game systems. Complex games, such as MMORPGs, can provide a fertile ground for exploring the concepts of procedurality and procedural rhetoric.



Figure 14. The relationship between procedural rhetoric and procedurality as means of, or lenses for analysing a process.

Bogost uses procedural rhetoric in another sense too, as a technique for unpacking computational arguments that others have authored (Bogost, 2007, p. 3). He writes:

In procedural rhetoric arguments are made not through the

construction of words or images, but through the authorship of rules of behavior, the construction of dynamic models. In computation, those rules are offered through code. (Bogost, 2007, p. 29)

This chapter will use procedural rhetoric as the lens through which to examine the data collected. Bogost does not provide a detailed method of data collection for his analysis, but he rather offers a framework for said analysis. In this study, the application of the technique or framework of procedural rhetoric will be achieved by focusing on transcribing actions taken by the player onscreen. This study will show how the methodology proposed in the previous chapter copes with the complexity of an MMORPG, and how the methodology can be applied within a positivist research paradigm, within a post-positivist theoretical perspective, while applying a sampling method as part of an experimental methodology to look at the procedural rhetoric of the selected game.

The purpose of this case study is to analyse three characters' progress in the game using an experimental approach to analyse the procedural rhetoric present in the recorded gameplay. In order to perform this analysis well within the context of such a complex method, the system of data collection employed needs to be able to cope with an MMORPG's level of complexity. This is achieved by taking samples by recording several sessions of gameplay and using the video record to allow the researcher to compare like with like.

3.5 Method of data collection as followed

3.5.1 Part One: Creating a Valid, Reliable Data Set from Video Recording

2.1.1.1 Step 1: Selecting the Game and Game Elements for Analysis

WoW is, as stated above one of the world's most played and most studied games. It is easily accessible and culturally relevant. This set of data was originally collected for publication to answer a call for papers on religion portrayals in video games.

The Draenei are an Alliance race. They are led by the prophet Velen, who led them from their home world of Argus to flee to Azeroth from the evil and corrupt Burning Legion. The Draenei can be played as the following character classes:
Priest, Monk, Shaman, Warrior, Mage, Hunter, Paladin, and Death Night. In this study I chose to compare the first three classes due to the religious connotations of their names.

2.1.1.2 Step 2: Obtaining the Game

I already owned a copy of *WoW* as well as the previous three expansion packs, so I only had to purchase the *Warlords of Draenor* expansion pack to update the game for this project. The game is available and legal to play in the UK as part of the EU set of servers, and I chose to play in a player-versus-environment server (see above) called Lightbringer. I chose this server from a list of available realms as the realm's population counter showed it to be inhabited but not crowded. This meant I was less likely to have to queue for quests—for example, having to wait for creatures or opponents to respawn for my characters to kill them, and I would have a less crowded screen, with clearer visibility of what my characters were doing and how they were doing it.

Players buy a copy of the game (and each expansion) on CD or as a direct download from Blizzard and pay an additional monthly fee for access to the game world. At the time of writing, the subscription fee for *WoW* is £9.99 per month.

2.1.1.3 Step 3: Pre-play Preparation

As mentioned above, I was already familiar with *WoW* and its mechanics from my MA dissertation. I started playing *WoW* in 2007 for my MA, and for several pilot studies done for conference talks afterwards (See Appendix 1.). This means that I could just quickly re-familiarise myself with the game mechanics and interface, and with the changes that had been made since I had last played it in the subsequent expansions for the purpose of this study.

2.1.1.4 Step 4: Hardware System Used

My system was in good working order, and the game ran smoothly. The game requires no other hardware and offers no other affordances to interface with the hardware than clicking and typing. This means that anyone familiar with a PC interface can have access to the game and quickly learn to play. *WoW* is available

for Windows and Mac computers. As a desktop game, it requires a keyboard and a mouse to play. Blizzard Entertainment suggests using a multi-button mouse with a scroll wheel for optimal playing experience, but I played the game with a standard two-button mouse with a scroll wheel. I used a custom-built 64-bit Windows 7 Home Premium PC running on an Intel Core i7 CPU processor system, with 4 GB RAM, and a NVIDIA video card, with on-mother-board, built-in sound card. This was well above the minimum system requirements for PC of Windows XP / Vista as an OS, Intel® Core ™ 2 Duo E6600 or AMD Phenom ™ X3 8750 processor, 2GB RAM, 3D graphics card compatible with DirectX 9.0c, 35 GB of memory available. I played on a 12-inch screen, in full-screen mode. I also played the game wearing standard headphones, as opposed to a headset optimized for games. By stating these characteristics I make explicit how the game looked and "felt," and the record can help others reproduce or refute my research.

2.1.1.5 Step 5: Selection and Installation of Your Computer-Assisted Software for Analysis (CAQDAS)

For this particular project I used Atlas.ti. Atlas.ti offers multimodal text processing capabilities. Images can be coded directly and video segments can be moved and re-sized. Atlas.ti allows for simultaneous views of different types of data, including audio, video, and document files. There were several advantages and disadvantages to using Atlas.ti, but those shall be discussed below in Step 6 below.



Figure 15. A screenshot of Atlas.ti showing the single quest clip for my Shaman, after cropped from the full gameplay record. On the right-hand side the clip tags/codes (in yellow) and memos (in red) are shown.

2.1.1.6 Step 6: Play (and Record the Gameplay)

For this case study, three characters were played up to level seven: A Monk, a Shaman, and a Priest (see). Seven was chosen for the following reasons:

- It was the lowest arbitrary level number that contained at least one quest that was related to each character class. This meant that I could quickly observe their individual character's class abilities improving. This also meant that I could be sure to have enough in common to make comparison among them meaningful, while each character developed differently enough to be able to contrast them.
- It was the level at which characters leave the first area where they start at level 1, and, by completing quests, arrive at the next area as level 7 characters. An area is a segment of the game world with a central quest theme, and for a particular set of character levels.



Figure 16. The three characters created for this study: a priest, a monk, and a shaman.

The quest chosen for a microanalysis was the individual character class quest, where each character first learns different abilities. The gameplay was recorded using the free version of FRAPS (Beepa Pty, 2005-2018). Fraps is a universal Windows application that can be used with games using DirectX or OpenGL graphic technology to collect screenshots, video data and to benchmark the recorded gameplay, that is, to find out how many frames per second the game is performing at.

Recording the gameplay as video using FRAPS meant that the record could be stored and re-examined at any time. This meant the gameplay for this case study, could be analysed at a later stage under a different light for publication.

The recorded gameplay used for microanalysis can be found in Appendix 3.A *World of Warcraft* (in the accompanying USB drive).

3.5.2 Part Two: Preparing the Data for Analysis

2.1.1.7 Step 7: Data Processing

The process of tagging (coding) videos using Atlas.ti could be explained through the analogy of a server in a café assigning an arbitrary number to a customer to take to his table. Once the food has been cooked (information has been "digested" or understood), the server can locate the customer and deliver the order, regardless of the order in which the customers arrive or where they choose to sit. The assigning of the table number (tag) allows the server (researcher) to go back to the relevant customer (video section) and deliver the correct food (notes, memos, observations), regardless of the order in which the "food" is produced. This standard method for qualitative analysis proved very useful when paired with the video record.

For this case study I decided to use Atlas.ti's quotation function to highlight significant chunks of data in the form of video clips to be coded with tags related to the research questions, and the memo function to connect those to the quests my character accepted and completed during gameplay.

I found using Atlas.ti frustrating. The program offers a convenient way to display video, so several video clips can be played side-by-side, and a clear interface that required minimal training. It was, however, not ideal for my purposes: the large videos (around one hour each) of complete gameplay took a long time to upload into the software package (16 hours to upload), and, once uploaded, they were not very useful. This was because the number of tags and notes I wanted to add to the videos were too numerous for the display to show correctly, which made it difficult to continue with the transcription and tagging process. I then decided to create a clip of a single quest for each character (around 8 minutes) for detailed analysis, and focused the transcription and notation on that particular quest, which seemed to open the interface enough to allow for some space between the tags to make them more readable, making the process of tagging and accessing the tags easier. Thus, I found Atlas.ti difficult to use for a long gameplay record of an MMORPG when tagging for procedurality—too many things were happening on the screen at the same time, and the software interface kept freezing and crashing the

application.

2.1.1.7.1 Transcribing Playpaths

The transcription of each character's playpath was done directly from the video. I did this in the Quest Progression table (see Appendix 2) by pausing the video record every time a quest was accepted or handed in, and what level each character was before they had access to that quest. For the other two playpath transcript types, I paused the video every time an action was taken and recorded the action and the time when it took place.

The playpath was first transcribed from the video data first into an analysis grid that uses the quest as the basic unit of action or procedure. The grid I created to track quest progression contained the following information:

- Quest name
- Quest level
- Quest giver
- Quest Objectives
- Notes

The headings for the Quest Progression Table, as produced for each player character. The table records all 29 quests accepted by each of the player characters from Level 1 to Level 7, in the order they were accepted. The three tables can be found in Appendix 2.

In addition to this tabular transcript of all the quests done in sequential form, I produced a diagram using Atlas.ti's data mapping function, to help me position quests in relation to each other. These diagrams can be seen in Appendix 2. Next, I selected a single quest for further transcription of its playpath (Volatile Mutations, the fourth quest in the Quest Progression Table, see Appendix 2). The table headings transcribing the playpath of each player character within that quest were as follows:

- Action type
- Number of moves
- Damage per second (DPS)

- Target response
- XP gained

In the first column, "Action Type," I recorded the name of the spell or attack used by the player character. In the second column, I recorded the number of moves it took to complete the action, that is, how many times I had to click on the action for it to have the desired effect (e.g. kill the opponent). The third column records the damage per second done by my move, which is calculated by the game engine and shown as vanishing numbers above the opponent's head in every fight. The fourth column records the target's response, especially in terms of damage they cause the player character with their own attacks, and finally, the XP gained per action or per kill, expressed as number of points. The bottom row of the table records the time it took each player character to complete this quest.

Finally, I transcribed the first two kills of this quest for each player character in the form of a tile diagram that shows one timed move per tile. I used these transcripts of the playpaths taken by each of my player characters in order to compare procedural elements among them (see Appendix 2 on page 214).

2.1.1.8 Step 8: Other Sources of Data

For this particular case study, my Paratexts were from three main sources: *WoW*-Wiki (a Wiki devoted to *WoW*), WoWHead.com, and the official Blizzard website for *WoW*. The sources were selected by their connections to Blizzard Entertainment (all three are 'official' or Blizzard-approved sites), and by the type of information they offered (quest transcriptions, lore/backstory of the world as produced by Blizzard, character updates, etc.). These allowed me to crosscheck my transcripts of quest objectives, and to learn information about the game's lore and backstory, which was useful to understand the introduction to the characters' race at the start of the game, and the role of each character class.

3.5.3 Part Three: Conducting the Analysis Using the Data Set

2.1.1.9 Step 9: Results

In this section, I will present the data collected following the method of data collection described above. I will use it to describe the playpaths taken by the three

characters from a procedural point of view, that is, focusing on what and how actions are executed onscreen. I will then briefly comment on the various possible uses for this type of descriptive data processing. I will then examine the pros and cons of using this application of the methodology in the summary section at the end of this chapter.

I will use three types of transcription in this section, as seen on Step 6 above. The first type is shown in the Quest Progression Table, which records every quest accepted by each character and the order in which each quest was acquired. The second type of transcription is shown in the Combat Style Table (Figure 25, 26, 27), which records the playpath within a single quest, which requires the player to level up to Level 3 before learning a new spell individual to each character class (Shaman, Priest, or Monk). The third type of transcription is shown in the Mosaic transcript (see Figures 28, 29, 30), which transcribes the actions taken for the first two kills in a single quest, Volatile Mutations.

The first type of transcription, the Quest Progression Table (see Figures 1, 2, and 3 at the end of this chapter for complete tables) provided a "helicopter view" of each playpath and allowed me to gauge the amount of data I had collected and its potential for analysis. The first thing that surprised me when looking at the result of this wider transcript was the number of quests I had accepted and completed in the game. After playing the same seven levels three times, if I had been asked how many quests it had taken me to reach that level, my answer would have been "about 10." In reality, it had taken 29 quests to reach Level 7, the level I had arbitrarily chosen as my endpoint for playing, as it is the level you reach when leaving the first player zone, Ammen Vale.

The second thing that surprised me was the number of quests that had a violent objective. The Draenei, the race I had chosen to play as, are supposed to be peace- loving humanoids, so I had assumed that their starting quests would be generally more peaceful, and that non-violent behaviour would be rewarded. In reality, out of 29 quests, 11 were of a violent nature, and offered the most XP rewards for killing creatures or NPCs, or for hitting something. Thirteen quests involved simply walking, running or flying to another NPC, usually a quest giver, to deliver something or to obtain a new quest. The remaining five quests involved collecting items from the environment.

Having seen the number of quests in each playthrough, and after an unsuccessful attempt to transcribe the whole playthrough using Atlas.ti (see Step 6 above), I had to reduce the size of the video clip to transcribe. In order to do this, I chose a single quest to look at in all three playthroughs for me to extract by cutting down the length of the clip to a more manageable size for Atlas.ti to use.

The quest I chose to examine is the one where every character learns the first spell for her class (Priest, Monk, or Shaman). Each character needs to reach level three first (through other quests that were previously accepted, in this case, by completing the quests Volatile Mutations and Rescue the Survivors), before the spell becomes available in the tool bar of the interface. Then each character has to practice the spell on a training dummy outside in order to master it.



Figure 17. A volatile mutation, one of the first type of creatures you face in Ammen Vale in WoW.

In order to level up to level three I had to complete two quests. The first quest I used to level up was called Volatile Mutations. The purpose of the quest is to kill eight mutated creatures, called volatile mutations (see Figure 17), to cull their numbers and to stop their spreading harmful radiation through Ammen Vale.

The second quest I completed in order to reach level three was Rescue the Survivors. In this quest, the player character needs to cast a healing spell called the Gift of the Naaru, in order to heal and save one of the casualties lying on the ground from the spaceship crash that brought the Draenei to the world of Azeroth, where *WoW* takes place. Both quests needed to be completed in the same area and roughly at the same time, so it made sense to complete them in parallel and to transcribe them together.

Table 10. Shaman – Combat style. Transcription of the actions taken to complete the quests Volatile Mutations and Rescue the Survivors.

Action Type	Number of Moves	DPS	Target Response	XP Gained
Lightning Bolt	1+(H)+1+1	17+9+17+17	-2 -2	55
Lightning Bolt	1+1	17+17	-1 -1	40
Lightning Bolt	1+1	17+17	-1	40
Lightning Bolt	1+1+1	17+17+17	-2 -2	55
Lightning Bolt	1+1	17+17	-1	40
Lightning Bolt	1+1+1	17+17+17	-1 -1	40
Lightning Bolt	1+1	17+17	-2 -2	55
Gift of the Naaru	1	[7677]	-	-
Lightning Bolt	1+1+1	17+17+18	-1 -1	40
Lightning Bolt	1+1+1	17+17+18	-1	40
Lightning Bolt	1+1+1	17+17+17	-1	40
Total Playtime	08:12			

Table 10, *Table* 11, and *Table* 12 show a transcription of the actions taken to complete the quests Volatile Mutations and Rescue the Survivors, as played by me using each character Class. The first column gives the name of the in-game action executed on the interface, in this case, the name of the spells used. Lightning Bolt is the first spell that a Shaman uses, and it does not have to be "learned," as the Shamans come with it already coded in. There are two instances in this column where the spell Lightning Bolt is written in black rather than white font. This is to differentiate these two kills from the others as in these two the character killed two Vale Moths, which provide experience points (XP), but do not count towards the completion of the Volatile Mutations quest. The other text in black is for the use of the spell Gift of the Naaru, used to complete the overlapping quest⁸ Rescue the Survivors by healing one of the injured Draenei. This does not count towards completing the quest Volatile Mutations.

The second column shows the number of moves it takes to perform each action. Each move is one single click of the mouse. I use the plus signs to show that there is both a pause in between clicks and to show the cumulative effect of each casting of the spell. The (H) in the first row notes that the character used an automated physical attack on the target (a "hit" with a staff) in between instances of spellcasting.

The third column shows the damage per second (DPS) caused by the spell or action. These numbers glow yellow on the screen above the enemy character during the fight before quickly vanishing. The numbers on the next column are the target's response to the attack, which translate as hit points against the player character. These glow red on the screen alongside the DPS and disappear just as quickly. The last column shows the number of XP gained per fight (or heal). The XP glows purple on the screen at the end of the fight before disappearing.

⁸What I call an overlapping quest is a quest that is accepted alongside a primary quest and needs to be done in the same area as the primary quest, but usually yields less XP and fewer rewards.

The last row records the total gameplay time for this quest. It took the Shaman eight minutes and twelve seconds to complete this quest. This is in contrast to the Priest's seven minutes and eight seconds, and the Monk's six minutes and forty-six seconds.

Action Type	Number of Moves	DPS	Target Response	XP Gained
Smite	2	24	-	40
Smite	2	24	-	40
Smite	2	24	-	EE
+Hit	1	1	-2	55
Smite	2	24	-	40
Smite	2+1	24	-3 -2 -2	55
Gift of the	1	[777]		
Naaru	I	[///]	-	-
Smite	2+1	24	-2	55
Smite	2	24	-	40
Smite	2	24	-	40
Smite	2	24	-	40
Smite	1+1	24	-1	40
Smite	2	24	-	40
Total Playtime	07:08			

Table 11. Priest – Combat Style. Transcription of the actions taken to complete the quests Volatile Mutations and Rescue the Survivors.

Table 12. Monk – Combat style.	Transcription of the action	s taken to complete the
quests Volatile N	lutations and rescue the sເ	ırvivors.

Action Type	Number of Moves	DPS	Target Response	XP Gained
Jab	1	7+33+35	-2	55
Gift of the Naaru	1	[767]	-	-
Jab	1	11+ 7+8+18	-1	40
Jab	1	17+ 7+7+16	-2	55
Jab	1	8+17	-	40
Jab	1	16+6	-1	40
Jab	1	18+8	-1	40
Jab	1	7+18	-1 -	40
			1	
Jab	1	7+17+7+17	-3 -	55
			2 -2	
Jab	1	6+16+7+18+7	-2 -	55
			2	
Jab	1	6+18+7	-1	40
Total Playtime	06:46			

It can be seen at a glance how much faster the quest is when playing as a Monk. Each kill consists of a single move, executed via a single click of the mouse (see the second column in *Table* 12, in contrast to the same column in *Table* 11 and *Table* 10). This contributes to the total gameplay time for this quest being also noticeably shorter for the Monk than the Shaman or the Priest.

Each individual move by the Monk thus generates enough DPS to kill the target in one move. The cumulative effect here is that it takes less time to gain the same level playing as a Monk than playing as a Shaman or a Priest. This transcribed playpath also gives a sense of how quickly the actions are executed relative to each other.

Where that information comes into its own is in the third type of playpath transcription I want to show here: The Mosaic. I used the Mosaic playpath transcript to look at the first two kills of the same quest, Volatile Mutations, from a different kind perspective. This type of transcription uses tiles, in contrast to the tables produced above in *Table* 10, *Table* 11, and *Table* 12.



Figure 18.Mosaic transcription of the Shaman's playpath for the first two kills of the quest Volatile Mutations in Ammen Vale.

This is a mosaic transcription. As in the table transcripts above, the transcription was done by stopping the video every time an action was taken and recording each separate action on a different tile. The tiles are connected by arrows to indicate that these events are part of a sequence, and the direction the

sequence follows. A time stamp was added to record when an action takes place in the video clip for easy location, as well as to gain a sense of the time each action took.

Figure 18 shows a Mosaic transcript of the Shaman's playpath for the first two kills of the quest Volatile Mutations. The transcript offers a simple sequential narrative of the events in the playpath in chronological order.



Figure 19. Mosaic transcription of the Monk's playpath for the first two kills of the quest Volatile Mutations in Ammen Vale.

The transcription of the actual playpath created by my gameplay using the Monk is shown above in *Figure* 19, showing the first two kills in the quest. An interesting thing that emerged in this transcript is how few actions are taken to play as the Monk compared to the other two characters (see *Figure* 18 and *Figure* 20). It does seem to take a long time to play with the Monk in this transcript, however, and when I went back to the video record I understood why: The quest giver for the Monk (Mojo) is located farther from the quest area than for the other two, so it takes almost a full minute to reach. That minute is "travelling time," which I had not coded, as opposed to "combat time."



Figure 20.Mosaic transcription of the Priest's playpath for the first two kills of the quest Volatile Mutations in Ammen Vale.

3.5.4 Conclusions of Case Study

Up to this point the discussion has been limited to the level of procedure descriptions, reporting the findings in the data. In a discussion of a game's procedural rhetoric, however, a discussion of procedurality alone will not be enough. Following Voorhees (2009) I understand Bogos procedural model as a simulation, a system that models the behaviour of another system (Frasca, 2003, pp. 2-3). To Voorhees, all representation is ideological, and, therefore, rhetorical (Voorhees, 2009).

Voorhees calls attention to several questions that Frasca uses to help uncover the rhetoric in the simulation (Frasca, 2003, p. 232): 1. Who and what have been included in the simulation close?, and 2. Who and what has been excluded in the simulation?

The three *WoW* characters I examined share the same race and therefore origin. The three characters I created were female, and they all started out level I. The three characters are magic users and they were all played up to level 7. These characteristics allowed me to start with a level playing field and thus the gameplay recording allowed me to compare "apples with apples", to be able to spot the procedural differences. The quest progression table and the conceptual notes maps generated on Atlas.ti showed that the observable character progression (e.g. the progressive increase in abilities and magic power) are very much determined by the character race and class. Being drawn A, my player characters were all able to cast a healing spells from the start (using "the gift of the narrative open close quote, which allows them to heal themselves and others). The character classes were what determined the trajectory of their individual progression with the monk character having a clear edge over the other two in terms of power and speed.

Character progression simulates the life path of the player character and while characters (at least at the start and from the data) seem to have their life path predetermined for them. As a complex procedural simulation, the emergent rhetoric of *WoW* represents life is a serious of violent encounters, with occasional responded in the form of travel or healing others. In this procedural representation magic is utilitarian and used mostly for violent ends. Skills are learned gradually, with the "mentor" (the character class trainer) direct and personal directing personal growth and direction.

The direction, trajectory, and pace of the growth are predetermined by the game's rules. The rhetoric is procedural one of procedural determinism, "of destiny", and of procedural determinism, but if the player stakes to the "script" the preferred playpath – success is virtually guaranteed.

3.5.5 Chapter Conclusions on the Application of the Methodology

I have shown the effectiveness of transcribing playpaths in these three different ways to produce different kinds of processed data. These types of data can be used to answer a variety of different questions, both intradisciplinary, such as questions of game balance and fairness for gameplay characters to have similar powers and similar levels of difficulty, interdisciplinary questions, such as the rhetoric of particular actions taken in the game (such as animal culling), from, say, an environmental perspective, and finally, transdisciplinary studies, such as studying the way players recall the number of quests they finish.

Although this was only a first application of the methodology, I saw several

important strengths in it. The first one is that in recording the gameplay I have been able to go back to my records repeatedly during a period of several years to process the data into distinct types of transcripts, and to re-examine the result of the transcripts. The second strength is that I was able to use the data collected using this version of the method for projects across several disciplines, which means that the record and the data provided a useful bridge for other researchers to join in the ongoing discussion on video games, even those unfamiliar with *WoW* or with the field of games studies. A final strength to list is that the data collected could be transcribed in different ways, as I could always go back to the record to transcribe it in a different way. This is in contrast again to the commonly used process of collecting notes during gameplay, which becomes very difficult and forces the researcher to rely heavily on their memory.

Two weaknesses of this iteration of the methodology of data collection were the choice of software package and the time transcriptions took. Atlas.ti proved to be a very difficult software application to learn to use, with a steep learning curve and counter-intuitive controls, and, as I discovered, not at all suited for long video clips, as playthroughs tend to be. It was therefore impossible to use what the software had to offer in terms of annotation to any great effect.

The second weakness relates to the time coding took. I therefore conclude that playpath transcription is very suitable for game analysis, but needs to be targeted to the elements of gameplay relevant to the research question that is the subject of study, rather than the general, extensive transcripts I had in mind when I first conceived this project, which I have now discovered, would be prohibitively expensive in terms of resources for small research projects. The transcripts, however, allowed me to closely examine the procedural aspects of the game, and the record permitted me to return to the original gameplay again and again to not only code the gameplay, but also to examine the data from different perspectives.

In this chapter, I demonstrated the methodology of data collection described in the previous chapter by applying it to an MMORPG, using a sampling methodology, and examining the data from the perspective of Ian Bogost's (2007) version procedural rhetoric. The focus of the chapter was on exploring the potential of the methodology of data collection itself, rather than on an in-depth analysis. I have demonstrated the application of the method to one type of game, under a particular research paradigm (Scientific or Positivist). In the next chapter, I will highlight the methodology by applying it to a very different type of game, under a different research paradigm.

Chapter 4. CASE STUDY 2: Studying Player Choices in The Wolf Among Us

4.1 Introduction

The purpose of this chapter is to show how the methodology proposed above copes with the variety present in an Episodic Interactive Graphic Adventure Game and how the methodology can be applied within a subjectivist research paradigm, within a poststructuralist theoretical perspective, while applying a deconstructive method. The purpose of this case study is to perform a comparative analysis of two secondary video records of the game using a third (primary) video record as a point of reference to study player choices in the secondary video records downloaded.

In this chapter, I highlight the method of data collection and demonstrate its use, strengths, and weaknesses, within the context of an Episodic Interactive Graphic Adventure Game, *The Wolf Among Us* (Telltale Games, 2013 - 2014). The (primary) data were collected using FRAPS, and downloaded from YouTube (secondary), and processed using MAXQDA, a commercially available CAQDAS package.

This chapter will start with a brief overview of the subjectivist research paradigm, and by contextualizing the study by briefly introducing Episodic Interactive Graphic Adventure Games, and the premise behind *The Wolf Among Us*. The application of the method of data collection is described, and an analysis performed. The chapter ends with a summary of the method strengths and weaknesses when applied to this context.

The subjectivist paradigm's ontological position is subjective realism, i.e. realities are plural and whole and cannot be understood in isolation from their contexts (Guba & Lincoln, 1985; Mills, Durepos & Wiebe, 2010). Knowledge is a matter of perspective (Patel, 2015).

The subjectivist epistemology is of individual rationality, i.e. knowledge is situated with the individual and her context (Guba & Lincoln, 1998). Subjectivist

research sees the world (including the inner world of research subjects) as fundamentally unknowable, and the role of the subjectivist researcher is to construct an impression of the world as they see it (Ratner, 2008).

Subjectivist methodology attempts to interrogate values and assumptions, uncovering subjective reality in a particular context (Rorty, 1979). Subjectivist research produces "multiple constructed realities that can be studied holistically; inquiry into these multiple realities will inevitably diverge" as each line of inquiry raises more questions than it answers (Guba & Lincoln, 1985, p. 37). Subjectivist methodologies see 'humans' as the primary data collection instrument, with the researcher being the primary data gathering instrument (Guba & Lincoln, 1985, p. 39), with the main work being one of reconstructing the multiple realities that simultaneously exist (Guba & Lincoln, 1998).

4.2 What is an Episodic Interactive Graphic Adventure Game?

An episodic interactive graphic adventure game (EIGAG) has a graphic interface that allows the player to interact (usually in the 3rd person) with the game environment to solve one main mystery or puzzle, or a series of them. The main difference between EIGAGs and puzzle games is that in EIGAGs the focus is on the story and character development, as opposed to it being the puzzle itself.

EIGAGs have two main mechanics: branching narratives and quick time events (Nelson, 2015). Branching narratives are a popular game mechanic in which the player character has a choice of what to say when speaking to an NPC and makes subsequent choices until the end of the dialogue. This mechanic is used in several types of games, notably in role-playing games.

The second most used mechanic in EIGAGs is the quick time event (QTE). This is a game mechanic in which the player performs an action on the control device (in the case of PC games, the keyboard and mouse), shortly after the appearance of a time-sensitive instruction or prompt on the screen. This constrains the player choices at a critical moment. Failure to perform the action properly or within the given time results in Game Over for the player.

The Wolf Among Us (Telltale Games, 2013-2014) uses both branching

narratives and quick-time events. In order to study player choices in a branching narrative, researchers need a way to record not only the choices made by the player, but the alternatives in the context for those choices. A video record as part of a method of data collection does both, showing every choice made by the player with the alternatives to that choice, and the context of the choice, prior to the decision being of offered to the player, and the consequences, if any, of the decision made.

4.3 About The Wolf Among Us

The Wolf Among Us is based on The Fables (Willingham, 2002) series of comics – see Figure 21. The game was developed in collaboration with Bill Willingham, the creator of the original *Fables* comic book series. The narrative in the game takes place in 1986, chronologically before the start of the comic series. *The Wolf Among Us* was nominated for Outstanding Achievement in Story and for Adventure Game of the Year at the 18th Annual D.I.C.E. Awards by the Academy of Interactive Arts & Sciences, and for two 2014 BAFTA Games Awards for Story and for Performance (Adam Harrington as Bigby Wolf).



Figure 21. Cover of the first issue of The Fables: Legends in Exile, published in 2002. Notice how different the style is to the game's.

4.3.1 The Context

Fabletown is a community in New York City inhabited by fairytale creatures and characters who call themselves "the Fables," and who must remain hidden from mundane humans, or "Mundies," for their own safety. The job of Sheriff Bigby Wolf (The Big Bad Wolf) is to keep Fables safe—especially from each other. The game follows Sheriff Bigby through a series of five episodes, each subdivided into "chapters," as he investigates a series of crimes, allowing him to interact with many of the well- known characters from fairy tales and folklore, in their incarnation living in New York City.

The game is set in 1986, making it a prequel to the events in the first issue of the comic *The Fables* (Willingham 2002-2015). Bill Willingham, creator of *The Fables* universe has said that his only consideration when using a character from mythology or folklore is whether the character is part of the public domain, and thus available for free use. The game consists of five episodes that were digitally released for PC from October 2013 to July 2014: *Faith, Smoke and Mirrors, A Crooked Mile, In Sheep's Clothing*, and *Cry Wolf*. Many decisions the player makes as Bigby have consequences. For example, if he chooses to assist (or not) one character, it may also affect how another character might react to him.

4.4 Studying Player Choices in an EIGAG

4.4.1 Possibility Spaces

Bogost states that the 'possibility space of play includes all of the gestures made possible by a set of rules (Bogost, 2008, p. 120), while, from Salen and Zimmerman's perspective, the idea of a possibility space can be understood, both literally (as the organisation of spatial elements guiding or constraining the player's movements and actions) and metaphorically (as the underlying game system that defines the affordances available to players) (Salen & Zimmerman, 2003, p. 489). In this study I was most interested in the metaphorical understanding of the possibility of space as it relates to player choice within the context of an EIGAG. Warren Spector defined possibility spaces as "spaces that provide compelling problems within an overarching narrative, afford creative opportunities for dealing with problems and then respond to player choices with meaningful consequences"

(Salen & Zimmerman, 2004, p. 488). A possibility space defines what is possible in a game. In this study, I look at the complex system of affordances that exist within an EIGAG's potential playpaths.

Will Wright sums up the idea of possibility space in games thus: "In linear storytelling, we can only imagine the possibility space that surrounds the narrative [...]. In interactive media, we can explore it" (2006). The way these possibility spaces are most often traveled in EIGAGs is within the context of a branching narrative.

4.4.2 Branching Narratives

Most adventure games pride themselves in being both non-linear and story- driven (Heussner, Finley, Brandes Hepler, & Lemay, 2015, p. 111). This paradox can be understood when clarifying both terms. A truly non-linear gameplay experience allows players to experience the game world in any order - as in 'sandbox' games, such as the *Grand Theft Auto* series (Rockstar, 2013-2018). This type of experience usually has the story take a secondary place, as the narrative emerges (in the player's imagination) by connecting actions taken in the game into an inner narrative of the player's experience (Ibid).

Instead, most well-known EIGAG, such as *The Witcher* (CD Projekt, 2007), are what is called 'branching narratives'. This kind of narrative is closely related to the type produced when reading a Choose-Your-Own-Adventure book. The player makes choices that affect particular sections of the plot. The narratives produced will 'branch out' (say, player A making choices that turn the character into a hero, while player B chooses to make the character a villain) (Nelson, 2015).

Branching narratives are somewhat crude narrative devices, but they are still the most common form of interactive storytelling because of their accessibility (Nelson, 2015). In the simplest nonlinear stories the player starts at the beginning and is given two choices, each of which leads to new choices, and so on (see *Figure* 22).



This is a branching tree, and it quickly becomes an expensive design choice, as the number of choices increase exponentially with the number of branches. Nelson's example of a story with 10 choices with two options each quickly needs 2^10 (1024) branches. To limit the complexity of branching narratives games commonly use a fallback structure (or 'pinch point') to make branches eventually lead to the same place thus:



Figure 23. Branching narrative including a foldback structure or 'pinch point' (Nelson, 2015).

The number of branches is thus more manageable (see Figure 23), but this can make many of the decisions made by the player seem meaningless in terms of their effect. A more elegant version of how to introduce variety is called World State (Nelson, 2015) or "delayed branching" (Fabulich, 2011). World State is a way

to introduce variety without adding scores of new nodes to the branching narrative.

World State can be seen as a set of variables. For example, if the developers insert the variable Janet_pregnant = true, then the other characters might react to Janet by congratulating her when they meet her. Down the line, when players meet Janet again, she may be carrying a child. If Janet pregnant = false, then nobody will congratulate Janet on her pregnancy because she will not be pregnant.

Branching narratives of the kind used in TWAU can be visualised as having a structure like the one in Figure 24:



Figure 24. Branching narrative structure including world state (Nelson, 2015).

4.4.3 Affordances and Moral Agency

An important concept to understanding game systems is the notion of affordances, as one that can add granularity to our understanding of the rules that govern game worlds. Perceptual Psychologist James Gibson (1977) saw affordances as "action possibilities" latent in the environment or object to be studied, and independent of the user's ability to recognise them. So, for example, if a tree in a field has the affordance of being "climbable," to Gibson, this affordance does not change whether an actor (say, an animal nearby) can perceive the tree itself (because of it being dark, for instance, or out of sight in some other way), or because the actor is not aware of the affordance (say, a nontree dwelling animal/actor is looking at the tree), or because the animal cannot, in fact, climb trees.

To extrapolate this to games studies, in a video game environment a door can have the affordance of "openability" (as an affordance relative to the player character as actor) even if the door is hidden, camouflaged, obscured, or in some other way rendered invisible to the player (the information specifying its affordance as "openable" being then unavailable to the player character/actor).

Norman (1988) saw affordances differently. Norman redefined the concept of affordance to mean the action possibilities *only* as perceived by the user and as "suggested" by the object or environmental feature. In contrast to the example above illustrating Gibson's theory, in Norman's model the tree would only possess the affordance of being "climbable" if the animal observing it could indeed climb trees. To go back to the door example, when both the affordance (the door can be opened by the actor) and the information in the environment that specifies the affordance (the door is visible, has a halo that shows it to be an active object, etc.) are present, a state of direct perception is reached, making the door's affordance of "openability" apparent to the player.

Gibson's Affordances	Norman's Affordances
1. Action possibilities in the	1. Perceived properties of action
environment as they relate to the	possibilities
action capabilities of an actor	2. Affordances are suggestions or
2. Affordances are independent of the	clues as to how to use the
actor's experience, knowledge, or	properties of the object
ability to perceive	3. Can be dependenton of the actor's
3. Affordance's existence is binary –	experience, knowledge, or ability to
either they are present or they are	perceive
not	4. Can make an action difficult or easy

Table 13. Affordances according to Gibson and Norman (based on (McGrenere & Ho,May 2000).

The distinction between Gibson's and Norman's models (see Table 13)

becomes important in the field of video games studies when studying player choices, as decision point affordances can vary during the course of a game (e.g. as a character levels up, gains new abilities, or accesses new content). Soegaard (2015) believes that the differences between the two conceptualisations of the term "affordance" are unnecessary and produce unproductive confusion. The two concepts can, however, be used in different ways such that they lead to greater clarity on the overall concept of affordances in games.

From the game engine's point of view, and from the game developers' perspective, an object in the game can be seen as either having an inherent affordance coded in it or not, regardless of the player's awareness of this affordance or their ability to access it. One could call this perspective "Gibsonian." Conversely, from the game designer's (and the players') perspective, the ability to access content often goes hand in hand with a character's experience, so Norman's model works well here.

Since its inception three decades ago the concept of affordances has become very influential in the field of human computer interaction (Sun & Hart-Davidson, 2014). Indeed, researchers in a number of disciplines are intrigued by the terms "constraining" and "enabling" features that arise from the materiality of technology (Hutchby, 2001a) (Jung & Stolterman, 2012) (Leonardi & Barley, 2010) (Leonardi, Nardi, & Kallinikos, 2013). Most researchers currently frame their understanding of affordances transactionally, that is, as one or more emergent properties in a system arising from the interactions between an agent and the environment (Sun & Hart-Davidson, 2014). This addition of a transactional dimension to the concept of affordances makes it more robust and helps connect the material with the discursive in new media technologies (Hutchby, 2001a, 2001b).

Baym (2010) characterizes the affordances of digital media as "packages of potentials and constraints for communication" (p.17). The constraints and possibilities of affordances referred to by Hutchby (2001a) offer a "third way" to understand how users engage with new technologies, reconciling technological determinism and social constructivism. These constraints and opportunities work well with constructivist and subjectivist approaches to understanding media. "Materiality" here refers to the intersection in an information system between capabilities that allow or constrain action in digital artifacts (Leonardi & Barley, 2010). Leonardi & Barley (2010) see this materiality as including any of three dimensions: physical matter, practical association of ideas, or an element relevant to the task at hand. The last two are particularly useful when characterizing the materiality of software artifacts (Sun & Hart-Davidson, 2014), such as games. "Materiality is not a property of artifacts, but a product of the relationship between artifacts and the agents that produce and consume them (Leonardi, Nardi, & Kallinikos, 2013).

A rough metaphor used by Sun and Hart-Davidson (2014) to explain the relationship between materiality and affordances would see materiality as a picture frame and the affordances as the different pictures that would fit in that frame. Materiality in this context remain stable, while affordances do not. This represents a three-way dialogic relationship (Sun & Hart-Davidson, 2014) between a technology (a game), a user (the player), and the users concrete activities situated in a specific context (an instance of gameplay). These definitions of affordances lead us to discuss the idea of moral or ethical affordances in games.

Keane (2013) defines "ethical affordances" as any aspect of a person's experience that they may draw on as they make ethical decisions (p. 8). This would not align with neither Gibson's nor Norman's definition of affordance, however. For the sake of clarity, let us rephrase the idea of ethical affordances as an extension of each of their concepts of affordance. So, within Gibson's framework, an ethical affordance in a game would be one of the possible choices available to the player in an ethical dilemma, from the game engine's perspective. Within Norman's framework, an ethical affordance within a game would be one the perceived choices available to the player, as perceived by her and as available to her. From both perspectives, the player would have the opportunity to make an ethical choice (see *Table* 14).

Ethical affordances in game (Gibson)	Ethical affordances in game (Norman)
1. Ethical possibilities in the environment as a relate to the action capabilities by the player	1. perceived properties of ethical action possibilities. These perceived ethical possibilities can be dependent on the player's experience, knowledge or ability to perceive them
2. these ethical possibilities are independent of the actor's experience, knowledge, or ability to perceive them	2. Can make actions difficult or easy in the game

Table 14. Ethical affordances within Gibson's and Norman's Frameworks.

Moral choices often run counter to the choice of making optimal moves in a game (Perdue, 2011), as games often reward one type of behaviour over another. This can result in unbalanced gameplay (where a character ends up with more, and higher rewards than another for a similar task), or in extreme moralities (flawless good or absolute evil). Playing any sort of inconsistent middle ground can be, strategically speaking, a poor decision – the so-called "Han solo problem" (Babij, 2013, p. 153). Moral choices tend to be quantified in games as points or as reputation score that affects how NPCs react to the player character, for example.

Agency is, simply put, the capacity of an agent to act in the environment. There are videogames that tell moral stories without the player participating in making any moral or ethical choices in them, and there are videogames that attempt to include moral decisions, but which fail when pairing these with the game mechanics (Perdue, 2011, p. 1). Morality and ethics do not necessarily indicate player agency in a game.

It is difficult to avoid the problems that arise from the use of ethical choices in games, but some games—such as, for example, *Heavy Rain* (Sony, 2010), and *The Witcher* (CD Projekt, 2007) —achieve this by removing the strategy element from the moral dilemma itself, and by having an unquantified morality system in which the choices the player makes carry repercussions but these do not affect the player's character in any definable way beyond changing how the story will unfold (Perdue, 201, p. 3). As Muzyka (2009). stated, game "choices have to have consequences in order to be impactful."

José P. Zagal (2009), proposes the term "ethically notable game" to denote a game that provides "opportunities for encouraging ethical reasoning and reflection."

Moral dilemmas play a salient role in whether a game can be considered ethically notable". To summarise Zagal's conceptualisation of ethically notable games (2009, pp. 1-6), these games:

- 1. Make players feel personally invested and responsible for the decisions they make in the game
- 2. Encode an ethical system and require players to learn it and to follow it in order to succeed
- 3. Provide players with situations in which their understanding of the game's ethical system is challenged
- 4. Create moral tension between the gameplay reward structure and the motivation of the player's goals as defined by the narrative
- 5. The ethical framework is discernible and consistent
- 6. The dilemmas are actually ethical or moral, and the player is involved and emotionally invested in them

In Zagal's estimation the ethical framework in a game need not be allencompassing (not every decision in the game need be an ethical one), or complete (ethically consider all possible intentions or goals behind player choices; 2009, p. 5). Instead, he proposes three questions to identify a game as an ethically notable one:

- a. Is the ethical framework discernible?
- b. Who faces the dilemma?
- c. Is the dilemma actually moral?

The aim here is to study player choices as possibility spaces by comparing the ethical affordances offered by the game system in two sets of secondary data. This case study will attempt to answer the question, considering Zagal's (2009) definition above, is *TWAU* an "ethically notable game"?

4.5 Method of Data Collection as Followed

4.5.1 Part I: Creating a Valid, Reliable Data Set through Video Recording

3.1.1.1 Step 1: Selecting the Game

The game was selected for its branching narrative mechanics and appealing graphics style.

3.1.1.2 Step 2: Obtaining the Game

The game was downloaded from the official website (Telltale Games, 2016). The website provided an immediate download of the game.

3.1.1.3 Step 3: Pre-play Preparation

In preparation for playing *The Wolf Among Us*, I played *The Walking Dead* (Telltale Games, 2012). The two games have similar mechanics (point, click, Quick Time Events).

3.1.1.4 Step 4: Selection and Installation of the Computer-Assisted Software for Analysis (CAQDAS)

For this particular project, MAXQDA (VERBI GmbH, 1995-2018) was chosen. MAXQDA offers video and document data processing for analysis. Video and text records can be tagged in overlaying tag segments. MAXQDA is a data analysis suite for PC designed to aid in the qualitative, quantitative and mixed methods analysis of data, including video data. Version 2018.1, released in 2017, allows for different types of coding of texts, as well as coding videos directly without necessarily having to transcribe the text first. This CAQDAS seemed to work much better than Atlas.ti for video analysis, as it was more stable with large video files.

3.1.1.5 Step 5: Play (and Record Gameplay)

A full secondary video record of a whole playthrough was downloaded from

YouTube (Alphabet Inc. 2005-2018), where the record had been posted anonymously (TealhollowGaming, 2013-2014), and saved as separate sections, each corresponding to one 'chapter' of each episode. For comparison purposes, the game was played to completion once, and a record was created using FRAPS. The recorded and downloaded gameplay can be found in Appendix 3 (See accompanying USB drive).

4.5.2 Part II: Transcribing and Encoding the Data Set

3.1.1.6 Step 6: Preparing Video Data

The recorded and downloaded videos were converted to MP4, as MAXQDA is more stable when using that file format.

Transcription

The secondary video data downloaded from YouTube was transcribed using YouTube's automatic transcribing feature. Each transcription was saved as a separate text file to accompany each video record. Minimal corrections were done on the transcripts for the sake of clarity (e.g. the transcribed "big b" was corrected to read "Bigby").

3.1.1.7 Step 7: Data Processing

Coding

For this case study, it was decided to use MAXQDA's coding function directly on the video files to code chunks of data using pre-defined codes, and then the corresponding transcripts were coded separately. The original pre-defined codes were as follows: Decisions (ethical, procedural, diegetic), World State, Pinch Points, World States, New Branch, Ethically Notable Game Quality (1 through 6). Codes that emerged during the iterative process of coding were as follows: Canned Answer, Scripted Pinch Point, Choice Made, Context Before Choice, Worldbuilding, Quick-Time Event (QTE). The memos defining these codes were saved as part of MAXQDA's Project Codebook (see Appendix 3 in accompanying USB drive).

1 Scripted Pinch Point

All choices lead to this point. No control exerted by player character. This means that, procedurally, the game is folding into one path for all players, to help them navigate the overarching story path.

2 Canned Answer

This script is tagged on at the end of all player choices, bringing the player to a pinch point. For example, the player will choose from four options how to react to a prompt. The non-player character will react to the choices the player has made, but eventually the dialogue will be channelled into a canned response. This code refers to the player character only. Contrast with Scripted Pinch Point and Pinch Point.

3 Choice Made

This code marks the outcome of the dialogue or verbal choice made by the player, that is, the response selected by the player from a set of four choices. The choices onscreen do not show the full resulting dialogue/response, but rather a shorthand version of it. Compare to Canned Answer.

4 Context Before Choice

The context before choices are offered to the player, or that contextualises the importance/moment of the choice.

5 Worldbuilding

This code is used for segments that establish something about the game world intradiegetically, that is, within the story. These codes tell the player about the game world's workings and internal rules. Contrast to World State.

6 World State

This code a change introduced by a player choice whose consequence will not be apparent until later in the game.

7 QTE

This code marks the duration of Quick Time Events. Many procedural decisions are made within a QTE.

8 Decisions

This group of codes marks the decisions made by the players as Ethical, Diegetic, or story-related, or Procedural.

8.1 Decisions/Ethical Decision.

This code marks decisions of an ethical nature or with ethical or moral implications.

8.2 Decisions/Diegetic Decision.

This code marks decisions that change the storyline. Contrast with Ethical and Procedural decision.

8.3 Decisions/Procedural Decision.

This code marks decisions made by the player that are other than ethical or diegetic in nature (especially within the context of a quick-time event, or QTE).

9 Pinch Point

Everything leads to this point. This is a plot point, as well as a node in the branching narrative.

10 Ethically Notable Game Q1

This code answers the question, does this example fit into the idea of an Ethically Notable Game, from Zagal's perspective? If so, does it correspond with characteristic 1 – Does this game make players feel personally invested and responsible for the decisions they make in the game?

11 Ethically Notable Game Q2

This code answers the question, does this example fit into the idea of an Ethically Notable Game, from Zagal's perspective? If so, does it correspond with characteristic 2 – Does this game encode an ethical system and require players to learn it and to follow it in order to succeed ?

12 Ethically Notable Game Q3

This code answers the question, does this example fit into the idea of an Ethically Notable Game, from Zagal's perspective? If so, does it correspond with characteristic 3 – Does this game provide players with situations in which their understanding of the game's ethical system is challenged?

13 Ethically Notable Game Q4

This code answers the question, does this example fit into the idea of an Ethically Notable Game, from Zagal's perspective? If so, does it correspond with characteristic 4 – Does this game create moral tension between the gameplay reward structure and the motivation of the player's goals as defined by the narrative?

14 Ethically Notable Game Q5

This code answers the question, does this example fit into the idea of an Ethically Notable Game, from Zagal's perspective? If so, does it correspond with characteristic 5 – Is this game's ethical framework discernible and consistent?

15 Ethically Notable Game Q6

This code answers the question, does this example fit into the idea of an Ethically Notable Game, from Zagal's perspective? If so, does it correspond with characteristic 5 – Are this game's dilemmas actually ethical or moral, and is the player involved and emotionally invested in them?
4.5.3 Other Sources of Data

The Wolf Among Us has a very interesting feature for researchers: it provides the player with a summary of the decisions they made during the game and compares each decision with what other players have done. This helps to create a macro view of the narrative playpath created by each instance of gameplay, as well as a list of ethical decisions that developers consider "key" (see Figure 25).



Figure 25. A screenshot of the summary of player choices taken in The Wolf Among Us, compared to the stats of other players.

Additional Texts

The downloaded secondary video data had been posted on YouTube, and as part of each post, a summary of the decisions taken had been published (see *Figure* 26). Additionally, a list of key decisions was downloaded for each of the five episodes from the Fables Wiki (n.d.), based on the list of decisions shown to the player at the end of each episode (See Appendix 3.B in accompanying USB drive).

PouTube ^{GB}	the wolf among us decisions	Q		
+ Add to	Share ••• More	1	22	JII 1
Published on No (READ DESCRIPT Among Us - Epis in this Part will a	v 1, 2013 'ION FOR IN DEPTH CHOICE LIST) These videos will show you all of the different choices and dialogu ode 1: Faith. From this point on every video that has Choice Path 1 in the title will use this save, mean ffect other Parts, and anything that happens in this Episode will affect other Episodes.	e options fo ing anything	r The Wolf that happe	ens
The choices pick you win the fight	ed in this video represent what happens if you are mostly nice throughout the section. This video also let the girl continue attacking, and choose to give her money.	shows wha	t happens	if
Note: I am writin option I have pic	g down every dialogue option I choose, so that I don't make any repeats in the future. If you ever see n ked before, it is because that option opens up another dialogue option that I would prefer to tinker wit	ne choose a h.	dialogue	
IN DEPTH DIALO -3 Foot Toad. -Get it fixed. -What do you wa -Whys he pissed	GUE LIST: nt me to do?			
-MATCHBOOK -PHONE				
-Knock. -Whats going on' -Youre drunk. -WIN FIGHT. -Say that again. -What are you do -Are you alright? -What's your nan -Will you excuse	ing here? ne? me a moment?			
-Sorry about the -Thanks. -LET HER -Light her cig. -Beautiful. -Are you sure? -GIVE MONEY. -I clean up ok.	sar.			
Game	The Wolf Among Us 2013 Explore in YouTube Gaming			
Figure 26. Desc	cription listing choices made in the playthrough (TealH	lollow	Gamin	ıg,

2013).

4.5.4 Part III: Conducting an Analysis Using the Data Set

3.1.1.8 Step 8: Results

For this case study, the game was played to completion once, going through the five episodes: *Faith, Smoke and Mirrors, A Crooked Mile, In Sheep's Clothing,* and *Cry Wolf.* The gameplay was captured using FRAPS. This set of primary video data

served as a point of reference throughout the study.

The main data set for analysis was composed of secondary video data found on YouTube, where the record had been posted anonymously by user TealhollowGaming (TealhollowGaming, 2013-2014). The downloaded data set comprises two full playthroughs of the game, each one following "good" and "bad" choices. These two sets were chosen for the following reasons:

- The "good" and "bad" paths were so labelled by the player him or herself, and these were popular labels for TWAU playthroughs posted online,
- These sets were complete for each.
- These sets were also complemented by a player-produced summary of decisions for each part of the record (See Appendix 3.B in USB drive).
- The section of the game chosen for microanalysis is the first part of episode one: faith. This section of the record was deemed saturated enough to showcase how to study player choices in the game.

Four documents were used for microanalysis: two video records of episode one *Faith*, part one (following 'good' and 'bad' choices respectively), and the automatically generated transcript for each. The gameplay duration was of 00:18:09 for the 'good' playpath, and 00:18:15 for the 'bad' one (See Appendix 3.B Appendix 3 Contents (See accompanying USB drive).

Coded Segments

In total 307 segments were coded using the codes explained in Step 7 above. These can be subdivided into the following types: Contextualizing segments (Context before choice, World State, Worldbuilding), Narrative segments (Scripted pinch point, Pinch point, Canned answer), Procedural segments (QTE, Procedural Choice), and Decision segments (Choice Made, Decisions -Ethical, Diegetic, Procedural, Ethically Notable Game Indicator Q1, Q2, Q3, Q4, Q5, Q6).

The segments were coded as follows:

1 Scripted Pinch Point	35
2 Canned Answer	20
3 Choice made	50
4 Context before choice	18
5 Worldbuilding	34
6 World State	17
7 QTE	4
8 Decisions	7
8.1 Ethical Decision	38
8.2 Diegetic Decision	6
8.3 Procedural Decision	14
9 Pinch Point	17
10 Ethically Notable Game Q1	9
11 Ethically Notable Game Q2	9
12 Ethically Notable Game Q3	14
13 Ethically Notable Game Q4	8
14 Ethically Notable Game Q5	3
15 Ethically Notable Game Q6	4

Figure 27. A screenshot of the summary of player choices taken in The Wolf Among Us, compared to the stats of other players.

Out of 307 coded segments, 69 were coded as contextualizing, that is, segments that contributed to the player's understanding of the game world. Seventy-two segments were directly linked to the deployment of branching narrative mechanics. 162 segments were coded as segments related to the decisions made in the game and their type. 18 segments were related to procedural choices. One hundred and sixty-two segments were coded as choices made by the player, and 65 of these were coded as ethical, diegetic, or procedural decisions. Forty-seven segments were related to Zagal's six characteristics of an ethically notable game. The coded segments in many cases overlap (see Figure 27).



Figure 28. Extract from the coded transcript in the "Villain" playthrough.

For example, *Figure* 28 shows an extract from the coded transcript showing the codes on the left with matching lines to indicate the length of the coded segment. First, the yellow line marks the scripted pinch point code, also in yellow. In this segment, Mr. Toad complains of the price of glamours. This is a Scripted Pinch Point, as all conversation paths led to this one. The same section is also tagged with the blue code marking it as a Worldbuilding segment. This segment not only establishes that glamours are expensive, and that some families struggle to cover the cost, but also that glamours are mandatory. This segment was also coded as Context Before Choice, as it provides the player with information which is useful for the decision she will have to make next.

The next code in this example is Choice Made, which shows the outcome of the response chosen. For example, in *Figure* 29, it can be seen that the dialogue choices were as follows:



Figure 29. On-screen options to respond to Mr. Toad.

- 1. I don't make the rules
- 2. Get it fixed
- 3. Not my problem
- 4. ...

The player chose option number three, the full response uttered by Bigby was "It's not my problem. You're the one risking your entire family. It's completely irresponsible, Toad." The expanded answer ("It's not my problem") is labelled as a Choice Made, while the rest of that speech there is labelled Canned Answer, as it is tagged on after the originally made chosen response, and the player has no control over this addition. It also bears the code Worldbuilding because, as above, this segment introduces to the player rules and laws about the story world.

The same segment is coded as an Ethical Decision as Bigby's speech immediately raises the stakes for the choices made by the player. The final part of the example shown in *Figure* 28 is transcribing the text that appears on the upper left side of the screen: [Mr. Toad Will Remember That]. This signals to the player that the World State has changed because of the player's previous choice. This granularity of coding was obtained by giving the data several coding "passes"—performing an iterative form of coding and employing both preselected codes, and codes that

emerged from the data.



Figure 30. MAXQDA Analytics Pro Suites Interface.

Figure 30 shows a screenshot of the MAXQDA Analytics Pro Suite's Interface. As in many PC applications, the top of the screen shows a ribbon with a number of options, arranged in tabs (home, import, etc.). The left side of the screen shows two windows: Document System, where documents and document sets are displayed in accessible, and code system, where codes can be displayed, accessed, and created. The right-side shows two windows. The first window is a document browser and shows two tabs. The document displayed is the coded transcript. The right-side window shows the retrieved segments, that is, the coded video segments retrieved as part of the search.



Figure 31. Interactive Quote Matrix in MAXQDA.

Figure 31 shows a screen capture of MAXQDA's Interactive Quote Matrix function. The left-hand side shows the list of codes highlighted for analysis, the centre shows the coded segments in the transcript corresponding to the highlighted code, and the right-hand side shows the correspondingly coded segments.

3.1.1.9 Step 9: Analysis

Branching Narratives in TWAU: Emergent Versus Hard Coded Narratives

The unit for analysis in this case study is the code. Codes subdivide the video and text data to be studied into "chunks", to borrow a term from applied linguistics (Miller 1956, McCauley and Christiansen 2017). In this sense, each coded segment paired with a corresponding code is a chunk – a unit of meaning for analysis. This produces small and manageable amounts of data in such a way that it becomes easier to compare like with like, and to spot patterns.

One of the questions driving this case study is how much impact player decisions have on the story that unfolds. To test that, the first chapter of Episode One: Faith was examined. The summarized branching narrative tree resulting from

both instances of gameplay is summarized in Figure 32.



Figure 32. Summarised branching narrative tree for Episode 1 – Faith – Part 1.

In the branching tree shown above, pinch points are represented by the yellow central circular nodes along the horizontal axis, and the options available as the blue circles along the vertical axis. The yellow circles marked WS mark changes to the World State. The letters in the pinch point circles represent the character Bigby is interacting with at the time (Toad, Woody, and Faith).

The game begins with a Worldbuilding segment that establishes that the time is June, the hardest day in history. The player follows as Sheriff Bigby Wolf response to a call by Mr. Toad, one of the Fables, who has called to complain about the noise one of his tenants is making upstairs.

When Bigby arrives, Mr. Toad is downstairs in the lobby, and he is not glamoured, that is, he does not look human. The player's first decision in the game is how she chooses to react to Mr. Toad's breaking the law. In the "good" Sheriff playthrough (called 'choice path one' by the player who generated the record), Bigby reacts by pointing out that Mr. Toad looks like a 3-foot Toad in a sweater, which is a problem if Fables are to remain concealed from the human world. In the "bad" Sheriff gameplay, Bigby says that he has had enough of Toad's excuses for not being glamoured. Both responses end the same way, however, with Bigby saying "If you can't afford to look human, you're going to the Farm, it's a simple as that... Go see a witch; get a glamour." There is no option to ignore Toad's appearance and go straight

to his complaint, and no option to arrest him on the spot.

Two interesting things emerge from this first exchange, from an ethical affordance perspective. The first one is that the player is told that "silence is a valid option." This is not an option the player who generated the record took, but after a few viewings of the video record I realised why it was an important part of the game mechanics to offer silence as an affordance: if the player doesn't make a choice in the dialogue quickly enough, the game does not stop, and will interpret the unresponsiveness as "silence." This means that the story continues to flow, and makes for a more immersive story.

The second thing that emerged in this context is how quickly the game resorts to pinch points to control the narrative in this first chapter. Regardless of what choices the player makes the ensuing exchange will culminate with Sheriff Bigby going upstairs to investigate the violent noises coming from upstairs. Mr. Toad will act offended at the end of the exchange, muttering to himself and yelling at his son.

Sheriff Bigby proceeds upstairs, where his options are to knock on the door or to kick it open. The door opens and Bigby witnesses a large bearded man, "Woody," the Woodsman, slapping a dark-haired woman. Bigby intervenes by pushing Woody against the wall and thus separating them.

Bigby can act conciliatorily or threateningly, but regardless of this, the exchange results in a physical fight would Woody, realized in the game as a quick time event (QTE) (see *Figure* 33). QTEs are action-packed game segments in which players need to quickly to react quickly and follow prompts in order to move on to the next section. Not fighting Woody is not an option.



Figure 33.Screenshot showing prompt during a QTE.

In both playthroughs, after defeating the woodsman, he will continue to insult the woman, calling her a "bitch." The sheriff can politely excuse himself to the woman ("good" playthrough) or angrily demand the woodsman stop using that word. The result is the same: Bigby will jump push the wood the woodsman out the window and come to on top of Mr. Toad's (now ruined) car.

Woody also comes to and attacks Bigby. A second fight QTE follows. As long as the player can follow the prompts, Bigby will stay alive long enough to get rescued by the woman Woody had been hitting, who hits Woody in the head with his own axe from behind.

An exchange follows between Bigby and the woman. Context is provided to the player through the conversation, so they established that she is a prostitute, that Woody had not paid her, that she and Bigby think they know each other from "before"— the time before the Fables were exiled to New York City.

It is established that the woman will be in trouble if she leaves without the money. The player has two choices: to give her money or not to give her money. Whichever course of action the player per pursues, it alters the World State. The player is told that "she'll remember that" about the prostitute, but also it will affect

whether later on in the game the player can afford to pay for things. The chapter ends with the prostitute thanking Bigby for his help and whispering that "he is not as bad as everybody says he is." The chapter ends with Bigby and the mysterious woman going their separate ways (see Figure 34).



Figure 34. End of Episode 1 - Faith - Part 1. This is a scripted Pinch Point that ends the same way in every playthrough.

4.5.5 Ethical Affordances and Moral Choices in TWAU

This case study attempts to answer the question, according to Zagal's (2009) definition above, is *TWAU* an 'ethically notable game'?

To summarise Zagal's conceptualisation of ethically notable games (2009: 1- 6), these questions will be answered:

a) Is the ethical framework discernible and consistent?

Yes. From the data examined, it can be concluded that *TWAU* offers players a discernible set of mechanics. The way choices are presented is consistent enough to be quickly grasped by players, but the game does challenge the player's assumptions by using Canned Answers that expand on the answer originally chosen by the player

in sometimes unexpected ways.

The ethical rules seem to apply more or less as expected, allowing players to attempt different playpaths (as a "good" or "bad" Bigby, for example) in a relatively uncomplicated, consistent way. This consistency creates a smooth experience and helps preserve the suspension of disbelief necessary for immersion.

b) Who faces the dilemma?

In the section of TWAU used for microanalysis two types of dilemma coexist: player-based moral dilemmas and character-based moral dilemmas (Zagal, 2009, p. 9). Player-based moral dilemmas offer the player enough agency to actually make a decision (and experience the consequences). Character-based moral dilemmas are different. These are dilemmas that the player witnesses, as they are choices made by the character.

In Episode 1: Faith–Part 1, the player makes decisions that colour the experience, but those seem to have fewer consequences than the story-driven character-based dilemmas. The story is immersive enough to mask this, however.

c) Is the dilemma actually moral?

Yes. The ethical/moral dilemmas presented in TWAU are easily coded as such, even though many of them are character driven, as they demand enough investment from the player.

In TWAU, although story-driven, players can understand 'good' and 'evil' at a semantic level, rather than purely at a procedural one.

From this data it can be concluded that TWAU is an ethically notable game.

4.6 Chapter Conclusions on the Application of the Methodology

I have shown the effectiveness of using the proposed method of data collection and processing by using secondary video records to study player choice and have shown ways to simplify the task by using freely available technologies, such as YouTube's Auto Transcribe option.

In this second application of the methodology, I saw several important strengths. The first one is that in recording the gameplay I have been able to go back to my records repeatedly to perform iterative coding, and to analyse the data from different perspectives. The second strength is that the recorded data provided a wealth of information when processed systematically. This allowed for a much richer research experience than expected.

A final strength to list is that although the video game relies heavily on ethical/moral choices, and emotional impact, I was able to revisit the primary and secondary records and make systematic choices regarding its coding of the data independently from my affective memories of the game. This is in contrast again to the commonly used process of collecting notes during gameplay—which would have also affected the outcome of several dilemmas, as inaction from a player taking notes would be considered "silence", and therefore, a valid response. This project would have been virtually impossible without my method of data collection. In this sense, it is also true that my method of data collection allows researchers to use a wide variety of tools for analysis once the data is collected, which makes the method independent of the software package I have shown to process the data for coding video segments; in this case, MAXQDA18.

Two weaknesses of this case study using the methodology of data collection were the mistakes in automatic transcriptions and the time coding took. A weakness of this application of the method is that using an automatic transcription application produced many spelling and grammatical errors in the transcript. A traditional transcription process would have been time-consuming, however, and the Autocode function did prove to be adequate for this project. The transcripts allowed me to closely examine the relevant aspects of the game, and the record permitted me to return to the original gameplay again and again to not only code the gameplay in an iterative fashion, but also to examine the data from different perspectives.

The second weakness relates to the time coding took. I had originally envisioned a full playthrough comparison, comparing the secondary gameplay records (See Appendix 3.B in accompanying USB drive) in all 5 episodes. As the coding began taking shape, I discovered that it would be beyond the scope of this project to invest resources on full coding, and decided to focus on a single chapter in a single episode. In this chapter, I showcased the methodology of data collection described and proposed in this dissertation by applying it to an EIGAG, using a post-structuralist approach to narrative, and examining the data from the perspective of Jose Zagal's (2009) idea of ethically notable games. The focus of the chapter was on exploring the potential of the methodology of data collection itself, rather than on an in-depth analysis. I have demonstrated the application of the method to one type of game, under a particular research paradigm (Subjectivist). In the next chapter, I will showcase the methodology by applying it to a very different type of game, under a different research paradigm. In contrast with the first two case studies, this third and final case study will offer a full analysis.

Chapter 5. CASE STUDY 3: Studying Jewish Representation in *The Shivah: A Rabbinical Adventure*⁵

5.1 Introduction

This chapter is the third and final case study in this dissertation. The purpose of this chapter is to apply the proposed methodology and to demonstrate its use by analysing a point-and-click game, *The Shivah: A Rabbinical Adventure* (Wadjet Eye, 2006), from a multimodal perspective.

This case study starts by defining what point-and-click games are, and the premise of *The Shivah*. A brief step-by-step report is given on the method of data collection which is explained as it was followed. The game data is then analysed qualitatively. This multimodal analysis is performed by looking at the semiotic resources in the game, and focusing on their denotation, connotations and on the main characters in the game as carriers of meaning. I then examine what these semiotic elements say about two versions of Judaism and their approach to Jewish identity, and what the game's procedural rhetoric says about Judaism, before drawing some conclusions.

The data collected for this case study was used for publication twice, along with portions of this chapter: once in a volume on methodologies to study religion in games (Carrillo Masso, 2015), and one instance in collaboration with Prof. Nathan Abrams from Bangor University (Carrillo Masso & Abrams, 2014). The method of data collection was successful in aiding interdisciplinary collaboration between a game researcher and a film scholar. In the collaborative publication, Prof. Nathan Abrams was able to access the recorded playthroughs and apply methods of film analysis to the sample collected with the proposed method of data collection, while I used sociolinguistics and critical discourse analysis on the same sample.

⁵ Portions of this chapter were published in Carrillo Masso and Abrams (2014), and in Carrillo Masso (2015).

5.2 What is a Point-And-Click Game?

The Shivah is a point-and-click, single-player game where the user plays a detective in the form of the character Rabbi Stone. The game mechanics (pointing with the mouse, clicking with the mouse, typing with the keyboard) are easy to master, as they mirror what is used for other applications in terms of PC hardware affordances (using a computer mouse and a keyboard).

The player moves by using the keyboard arrows or by using the mouse pointer and clicking on the location she wants the player character to walk to. To interact with other characters the player chooses items from the set responses and questions Rabbi Stone can choose from (usually three options, including one question), which appear at the bottom of the screen. This format involves straightforward mechanics and limited affordances for gameplay, which makes the dialogue and narrative more critical to both set the theme of the game (crime/noir) and to develop the gameplay experience.

5.3 About The Shivah

The Shivah was developed as part of the Monthly Adventure Game Studio⁶ 5th anniversary competition in June 2006, which it won. *The Shivah* has not only received very positive reviews through the years but also it has been credited with the revival of point-and-click games since their decline in the 1980s (Walker, 2013, 2014). The game was scripted, designed, and developed by Jewish game developer David Gilbert on his own, at a coffee house in New York. Gilbert went on to form a game developing company on the back of *The Shivah*'s success. The game was re-released in 2013 as an updated version titled *The Shivah*: *Kosher Edition*, which can now be played on the Mas OX platform and features new graphics and new music. The analysis in this chapter refers to the original 2006 edition of the game.

5.3.1 The Premise

Rabbi Stone's synagogue is broke. The congregation has dwindled to single

⁶ Adventure Game Studio is an open source video game development software tool.

digits, the building is out of repair, and his sermons are depressing. He is disenchanted with God. Then one day, a detective comes to ask Rabbi Stone questions about his relationship with one Jack Lauder, an old member of his congregation, who had been murdered three days before and left Rabbi Stone ten thousand dollars. Rabbi Stone realizes that he can be accused of murder because the money provides a motive, so he decides to pay a Shivah⁷ visit to Lauder's widow. The widow shows contempt for Stone's visit and makes the player understand their history together: Rabbi Stone had refused to officiate Mr and Mrs Lauder's wedding because Mrs Lauder (nee Sharma) was not Jewish. An exciting search for clues all over Manhattan ensues, in which Stone meets Joe De Marco, who is a member of the same synagogue Jack Lauder moved his membership to after breaking up with Stone's. The nagging question keeps coming up: Is Joe De Marco Jewish?

Rabbi Zelich, who oversees the congregation Jack Lauder belonged to, and who had both married the Lauders and buried Jack, seems to be thriving. An older man, he seems to have more modern views than Rabbi Stone. After paying several visits to Zelich, Rabbi Stone figures out a connection between Zelich and the murder of Jack Lauder, as well as another murdered member of the congregation: an accountant by the name of Goldman. Eventually Stone finds out that Jack had tried to contact him to ask for advice about Zelich and some shady business Joe De Marco was involved with. Stone discovers that De Marco was the murderer, under Zelich's orders. The game has three main possible endings, depending on the choices the player has made through their gameplay. In one ending, Stone is forced to jump to his death from Zelich's balcony to fake his own suicide. In another ending, Zelich kills Mrs Lauder and pins the murder on Stone, who goes to jail. In the third possible ending, Rabbi Stone kills Zelich in selfdefence and saves Mrs Lauder, who testifies in his favour. In this ending, she eventually joins Stone's congregation. The first two endings can be seen as the "losing" mode and the third one as the "winning" mode. There is no feedback in this respect, however, so winning or losing is subjective in this case, and depends on the player's views.

⁷ Shivah (Hebrew: שבעה, lit. "seven") is the week-long deep mourning period in Judaism for first- degree relatives, including spouses. The ritual is often referred to as "sitting Shivah". It is considered kind (a Mitzvah) for a rabbi to pay a Shivah visit to the mourning family while they sit Shivah.

In order to progress in the game, the player has to discover that the best answer to choose from the set of options is always the question. David Gilbert, the game's creator, said in an interview that unlike other games, which rely on violence to solve problems, questioning is the rabbi's power⁸ (Gilbert, cited in Lando, 2007). In this sense, the game seems to reward moral ambiguity over absolute certainty.

The purpose of the case study in the dissertation is to show how the multimodal data analysis of a computer game done under an interpretive research paradigm can be enriched by the use of the proposed methodology. Unlike the previous two case studies presented in this dissertation, which only showcased the method of data collection, this one will be a full case study, featuring a complete analysis using the methodology to collect the data, and then analysing it to its logical conclusion.

5.4 Method

5.4.1 Part I: Creating a valid, reliable data set through video recording

4.1.1.1 Step 1: Selecting the Game

I first became aware of *The Shivah* through a blog post by its maker, David Gilbert, in 2009.⁹ I was looking for point-and-click games for this project, as I was then working on a game taxonomy, and the general premise of the game looked both interesting and promising for analysis.

4.1.1.2 Step 2: Obtaining the Game

The game is available for PC, and the version I played, published in 2006, was readily available from Wadjet Eye Games, at a cost of \$5. I was able to make

⁸ The questioning approach could be read as a Socratic approach to analysis and it was used in the very earliest AI engines, e.g. Weizenbaum's Eliza (1964-1966), etc. Although there are similarities between the two, the main difference between the Socratic method and the Talmudic approach is that rabbis formalized their inferential techniques, but did not create an abstract system of reasoning of general application, as this logic was designed for the sacred activity of Torah study, and was not seen as an end in itself.

⁹ The blog is now defunct, but the original link was http://www.davelgil.com/wordpress/?page_id=128. Accessed December 04, 2009.

an online payment for it and obtained instant access to a download link and key.

4.1.1.3 Step 3: Pre-play Preparation

Having selected the game I wanted to work with, and having read the software specifications for *The Shivah*, I looked for games that had a similar set of mechanics, i.e. other point-and-click games for PC. I decided to play three games, in particular, *Machinarium* (Amanita Design, 2009 – see Figure 35), *TORK* (Nectarine, 2008 – see *Figure* 36), and *The Inner World* (Studio Fizbin, 2013 – see Figure 37). I played them to completion in order to be comfortable with the way their interface operated and to familiarize myself with their conventions. Although the mechanics of these games are similar, their visual styles are very different (see below).



Figure 35.A puzzle in Machinarium.



Figure 36. Screen capture from TORK.



Figure 37. Screen capture of The Inner World.

4.1.1.4 Step 4: Selecting and Installing CAQDAS Software

After testing the free versions of several software packages, I chose FRAPS to record my gameplay and Transana for analysis. After obtaining access to them, I installed them and tested them on the games shown above to familiarize myself with their interface as well. I also attended a seminar on CAQDAS (Computer-

Assisted Qualitative Data Analysis) at the University of Surrey to learn how to use Transana and some of its potential applications.¹⁰

4.1.1.5 Step 5: Playing and Recording my Gameplay

As stated above, I used FRAPS to record my gameplay. I played the game to completion four times and recorded each instance separately. I also recorded my facial expressions for the first playthrough, as I had initially thought of using a dual approach, but decided against using it as part of the showcase of the method, as the process proved too cumbersome with my limited resources. I do believe this would have been proven useful to answer a different set of questions.

The recorded gameplay used for microanalysis can be found in Appendix 3.C <u>The Shivah</u> in the accompanying USB drive.

5.4.2 Part II: Transcribing and Encoding the Data Set

4.1.1.6 Step 6: Preparing Video Data

I did not need to prepare my files in this instance, as FRAPS produces .wmv files, which Transana can handle.

4.1.1.7 Step 7: Transcription

Playthroughs

I first transcribed the playthroughs verbatim, (i.e., I transcribed them as an exact script of what was said on screen). In my first iteration, I added a visual description in the same transcript (see below), but as I wanted to examine the transcript using a concordancer, I eventually decided against it, as I realized I would get 'false' hits if I wanted to look just at the game content, as my own commentary would also be retrieved. I then proceeded to develop a way to transcribe the actions inscribed by the game so that I could later examine the procedural aspect without retrieving commentary. This produced a series of annotations that were incorporated in the transcript itself.

¹⁰ University of Surrey, July 11-12, 2012.



Figure 38. A screenshot of The Shivah in Transana with the original transcript and annotation.

Contrast with Figure 39:



Figure 39. A screenshot of The Shivah in Transana using the new transcription and annotation style.

The process of transcribing all four playthroughs verbatim took one week, plus two days to check their accuracy. The process of time stamping them took close to 6 weeks. The development of an annotation system took close to 8 months and was done through a process of trial and error, as well as trying to ground my decisions in theory. Tagging using the final method took 2 weeks.

Playpaths

As a low granularity transcription of my playpath, *Figure* 40 shows what unit operations (Bogost, 2008) I as a player had to go through to reach the point of control over the game character:



Figure 40. Low-granularity playpath transcript for the first few minutes of The Shivah.

In order to produce a transcript of a playpath, I was able to search transcript 4 as a corpus using Transana. By looking up the symbol ">", which I use in my tag set (see accompanying disk) as an action taken by the player over a game object, or a procedure enacted by the player, I was able to see when, where and how I was using particular processes in the game, by clicking on game objects. I was able to retrieve these searches using Sketch Engine (Lexical Computing Limited, 2003-2016), which allowed me to see how often this procedure was used (see *Figure* 41 below).

Sketch Engine

Sketch Engine is a web-based corpus manager and corpus analysis software developed and updated by Lexical Computing Limited since 2003. The purpose of Sketch Engine is to enable linguists to search large text collections. Sketch Engine is named after one of the critical features, word 'sketches', which are brief, automatically produced, corpus-derived summaries of a word's grammatical and collocational behaviour.

Corpora + Create corpus + WebBootCaT + Upload TMX Parallel corpora Compare corpora My jobs	Corpora: Re	cent My own Featured Parallel	All				
	Language	Name	\$	Words 👙			
	Chinese Simplified	zhTenTen [2011]		1,729,867,455	0	Q	
	English	ACL Anthology Reference Corpus (ARC)		38,795,751	0	Q	
	English	British National Corpus		96,052,598	0	Q	
	English	Playthrough 4		10,650		Q	81
Advanced features	English	TheShivah		39,710		Q	~ t
	English	TheShivahParatexts		67,369		Q	81
rpus templates	French	frTenTen [2012, v. 1]		10,666,617,369	0	Q	
etch grammars	German	deTenTen [2010]		2,338,036,362	0	Q	

Figure 41. This project's corpora loaded in Sketch Engine. Notice the difference in the number of words between my three small sub-corpora and the British National Corpus, for example.

I chose to use Sketch Engine because it allows the user to upload separate sub-corpora (see *Figure* 41) and because it offers the possibility to view concordance searches, which allow the user to find patterns in word use.

4.1.1.8 Step 8: Treating Raw Data

Transana allows you to define tags clearly before deploying them, which proves useful over long periods of time (like in this project) and for collaborative purposes Here is an example of three tags in the tag group "Diegetic," with the accompanying description I prepared for each to define when to use these tags (See accompanying disk for a full keyword report). Tag Group: Diegetic

Backstory

Events or dialogue that hints at the backstory of the main events of the game

Denouement

The outcome of the narrative as constructed by my

choices while playing.

Inner Struggle

A point where [Rabbi Stone] struggles internally with a

situation or concept.

Figure 42. Sample tag group with accompanying tags and definitions, from my notes in Transana.

The tags and tag groups I used when annotating the transcript (in Transana's menus, they are called Keywords) emerged primarily in two ways: from the data and from the research questions. The former were utilitarian tags that were needed during transcript. For example, the tag Backstory, in the tag group Diegetic, emerged from the fact that Rabbi Stone's previous history with other characters kept coming up in the game, and I thought it would be interesting to see how much of it played into the game's narrative. Similarly, the tag Hebrew emerged when the language was used in the game, and I felt it would be interesting to find out when and how it did. The tags that came from the research questions I decided on in advance, and those are the ones in the tag groups Ludic, Masculinities and Representational. The full list of tags used were as follows in *Figure* 42.

Tag Group: Tag	Number	Total	
	of Clips	Duration	
Diegetic : Backstory	61	0:24:58.9	
Diegetic : Denouement	111	0:40:01.6	
Diegetic : Inner Struggle	33	0:09:37.0	
Diegetic : Plot Twist	173	1:02:19.9	
Diegetic : Rabbi Stone Thinks	60	0:24:34.3	
Language : Hebrew	34	0:23:41.4	
Language : Humor	8	0:01:29.1	
Language : NSEP	82	0:36:58.6	
Language : Yiddish	21	0:18:07.4	
Ludic : Embedded Clue	201	1:08:10.3	
Ludic : First Person	17	0:14:35.0	
Ludic : Game Clue	81	0:28:04.0	
Ludic : Game choices	201	0:42:29.5	
Ludic : Hover	12	0:11:50.7	
Ludic : Map	21	0:04:03.3	
Ludic : Procedural rhetoric	109	0:24:55.3	
Ludic : Rabbinical Answer	78	0:18:51.1	
Ludic : Third person	188	0:42:25.4	
Masculinities : Frontier-Zionist	26	0:09:05.1	
Masculinities : Urban-Assimilationist	22	0:06:20.2	
Representational : Class	7	0:02:45.5	
Representational : Crypto-Jew	106	0:33:48.8	
Representational : Jew qua Jew	189	1:08:41.2	
Representational : Jewish Shibboleths	193	1:09:02.8	
Representational : Non-Jewish Shibboleths	119	0:34:11.6	
Theological : Belonging	194	1:04:01.3	
Theological : Ethics	225	1:07:25.4	
Theological : Faith	87	0:40:36.8	
Theological : Parable	10	0:03:20.1	
Total number of clips:	331	1:31:40.3	

Figure 43. Tag groups and tags used in Transana to annotate my gameplay.

On the left-hand side of *Figure* 43, the tag groups can be seen, followed by the individual tags in each group. They are followed in the centre column by the number of clips tagged using each one of them, and the total duration of video time for each tag.

One of the most interesting things about working with multimodal corpora using Transana is the visualization of these tags once the transcripts have been annotated, as this allowed me to see the data in different ways. In the y-axis, I was able to see co-occurrence, and in the x-axis, I was able to see how this happened over time. In Transana, the individual tags once moved into the visualization window, are also called Keywords.



Figure 44. Keyword visual representation in Transana.

By changing the initially assigned random colours and grouping them by tag group, I was able to explore the ways in which the game deployed different themes and resources (*Figure* 45). This allowed me to see emerging patterns in the visualization window more clearly (Figure 44).



Figure 45. The colour palette to change the visualization style in Transana, showing the keywords I used for this case study.

5.4.3 Part III: Conducting the Analysis Using the Data Set

In this case study, I answer two questions: How does *The Shivah* portray two different versions of Judaism semiotically? And how does *The Shivah* portray Judaism procedurally?

In order to answer these questions, I chose to focus on Playthrough 4 for my analysis, that is, the fourth iteration of my gameplay, because this instance of gameplay was the longest and most comprehensive one (all the characters were present and had important roles to play, in contrast to the other endings, where Rabbi Stone was killed too early for the other characters' importance to become clear (Playthroughs 1 and 2), or Playthrough 3, where I became confused and ended up with a similar ending as Playthrough 2 without intending to.

I will explore in this section ideas of denotation, connotation and iconographic symbolism in the game, before moving on to examine how social actors are represented, and what this means in relation to my research question. I will illustrate the analysis using screenshots taken from my own playthroughs.



Figure 46. The Shivah start page (post-intro) indicates something about both its theme and format, as well as showing players what is possible from this screen.

Upon reaching this point of the game (Figure 46), three elements seem to jump out of the screen: its monochromatic nature, the figure on the right, and the name of the game in bold, followed by the other components of the screen. Interestingly, although saliency (in terms of, for example, size or colour, often equates with some form of interactivity in games, in this case, it does not. The definite article has also been dropped from the title, and the final letter "H" at the end of the word has been unusually elongated, linking it visually, perhaps, to the Cyrillic alphabet. The figure on the right of the screen in Figure 46 is of a mature man with a beard and wearing a kippah, both of which elements code him as Jewish. His maturity and the point of view of the image (slightly above the viewer's right and looking left and up) potentially code him as a rabbi: as a mediator between the viewer and God. On his chest, there is the shadow or reflection of what looks like high-rise buildings and a sky full of stars. The monochromatic nature of the image code it as the start page of a serious game, and the font, as well as the nature of the options, code it as an old-school style game.

The process of transcribing and annotating these images from the recorded gameplay made me examine the game both minutely and systematically, which provided a whole new perspective from the cursory glance at the elements on the screen during gameplay. By looking at the recorded gameplay, I was able to fully notice some of the semiotic resources deployed by the game makers for the first time, which had escaped my attention through many hours of gameplay. As an example, I had indeed noticed that the mouse pointer changed during gameplay from a shield of David¹¹ to a Hebrew letter. I had not seen a pattern in this until I finished transcribing the playthroughs and started annotating them from my video recordings.



Figure 47. Notice the use of the Star of David as the pointer.

¹¹ Commonly also referred to as a Star of David.



Figure 48. The symbol Chai used as a pointer to indicate there is an action that can be executed by the player—in this case, typing.

Although I could conceivably have remembered this detail without having recorded and transcribed the gameplay, I could not have understood its meaning without it. Not being a Hebrew speaker/reader, I had not been able to read the second mouse pointer. Upon systematically examining the playthrough as part of a multimodal corpus, I was able to cross-reference it and realized it was the Chai ('n) symbol; a combination of the letters Het (n) and Yod ('). Chaim which translates as 'alive', 'life' or 'living' is a common symbol used by many Jews around the world as a shibboleth of their identity. It is considered a lucky charm, usually worn around the neck *Figure* 49, left), or carried around in the form of a key ring (centre), and has acquired more significance since WWII, as part of the slogan 'Am Yisrael Chai'/'Israel lives on' (*Figure* 49, right).



Figure 49. An example of Chai used as a gold pendant (left) or combined with a Shield of David (centre) and as part of a slogan (right).

This made me realize the subtle humour of the interface: not only was it displaying two symbols that were used to signal Jewishness, but the game only used 'n when the interface indicated there was a "live" object, that is, an object that could be interacted with.

4.1.1.9 Stone vs. Zelig – A Tale of Two Rabbis

My previous experience and knowledge of what I saw in the game is, above all, an intertextual one. These are other texts, verbal, visual, etc. which, having encountered them in other contexts, will inform my interpretation of the images of the two main characters in the game as semiotic signs by looking at what they denote (their surface, or literal meanings) and what connotations (the implied meanings of these signs) they bring to mind.

Denotation



Figure 50. Portraits of Rabbi Stone (left) and Rabbi Zelig (right).

Rabbi Stone and Rabbi Zelig, like most speaking characters in the game, have a dual representation in the game when they speak: a full-body sprite in the main screen, and a close-up portrait icon framed above the main frame of the game. The most used portraits for Rabbi Stone and Rabbi Zelig can be seen above in *Figure* 50. Rabbi Stone wears a brown kippah/yarmulke jutted forth on his forehead, and the design of a Magen David, a very common design for kippot, can be seen on it. Rabbi Zelig wears a black kippah further back on his head and, thus, no design is visible.

Rabbi Stone's hair is dark, in shades of salt and pepper, like his beard. This, along with his lined face and demeanour, seem to code him as a man in his mid-40s to early 50s. This contrasts with Rabbi Zelig's silver hair and beard, which code him as a man who is perhaps in his late 60s or early 70s. Rabbi Stone's hair and beard seem untidy, in contrast to Zelig's well-groomed hair.

The angle of the portraits also shows some differences. Rabbi Stone's head is slightly bowed, which makes his kippah visible as stated above. His chin is slightly tucked into his chest, and the angle of his gaze goes up slightly, as though his interlocutor's face is higher, which is interesting as he seems taller than most other characters in the full-body sprites. Perhaps this is a way to signify belligerence, rather than to show his height. His chin has a cleft visible through the beard. In contrast, Rabbi Zelig's portrait, although a close up as well, seems 'taken' from slightly farther away, as more space is visible between his face and the frame around it. Rabbi Zelig's face is very erect, and his chin seems to jut out slightly, as shown by the way the light shines on his chin in contrast to the rest of his beard. The angle of his gaze goes downwards from heavy-lidded eyes, which is interesting as in the full body sprites he is shown to be visibly shorter than Rabbi Stone.

Rabbi Stone's nose is long and looks slightly misshapen, as though it has been broken before. Rabbi Zelig's nose is long and prominent, with a hooked end. Rabbi Stone's skin looks dark, possibly olive toned, and his eyes are brown or black. The whites of his eyes are only visible at certain times (see Figure 51 below). Rabbi Zelig's skin is light, and he has blue eyes. The whites of his eyes are always visible, more so at key times (see Figure 52 below). Unlike Rabbi Stone, Rabbi Zelig wears glasses. They both wear dark or black clothes.



Figure 51. The faces of Rabbi Stone. During most of the game he is shown as the first picture on the left, during dialogues.



Figure 52. The faces of Rabbi Zelig. Rabbi Zelig's portrait does not vary much from the first two pictures on the left throughout the game in Playthrough 4, until the final part of the game, when he reveals his intentions to Rabbi Stone.

Rabbi Stone's left hand is visible in one of the sprites in Figure 51. This is the only time in the game a hand is visible in a close-up portrait. The background of Rabbi Stone's portrait remains grey throughout the game, regardless of the background/setting the full body sprite is in. In contrast, Rabbi Zelig's portrait has a blue background, which remains the same throughout his conversations with Rabbi Stone until the final scenes, when his demeanour changes (see Figure 53). The portraits face different directions, often, but not always consistent with the direction their full body sprite is facing at that moment.¹²

¹² Many of the screenshots in this chapter, like this one, are shown without the context of Transana around them for the sake of clarity in the images when presenting the results. This is to emphasize the content of the picture in my report.


Figure 53. A screenshot from the final section of Playthrough 4 (at 59:22) in the Playthrough 4 video record. I highlight here the way Zelig's portrait faces left while his full-body sprite faces right.

Having used a descriptive approach to the two main characters' images and what they denote, I will now move on to study the connotations attached to them and to relate them to the broader context of the game.

Connotations

The semiotic effects of these denotative resources being deployed are hard to recognize or remember during play, but easy to identify when studying the playthrough video record. In the most commonly used sprite (Figure 51, far left), the fact that the design on it is clearly visible could indicate the openness, or rather, the directness of his character. The forward, almost jaunty angle of the kippah, coupled with the tucked line of his chin, the set of his mouth and his eyes, seem to give him a slightly belligerent air. The angle of his head, along with the direction of his gaze and the angle of the lines on his forehead could indicate the habit of raising his eyebrows, which could, in turn, indicate a habit of questioning or judging his interlocutors. In terms of angle of interaction with the viewer, his more marked close-up could indicate his salience to the game and story. His seemingly broken nose and strong neck is a hint that he has experience with being physically active, which is confirmed later in the game during a confrontation with another character, Joe DeMarco, where Rabbi Stone reveals that he is, in fact, a proficient boxer.



Figure 54. Rabbi Stone reveals he can box at 48:4 in Playthrough 4.

Rabbi Zelig's tidy hair and the proud jut of his chin seem to indicate power, matching the expense and elegance of his surroundings (see below). The bearing of his head and his facial expression seem to indicate a subtle arrogance of character, or perhaps a subtle disdain for Rabbi Stone. The colour of his skin, his features, and his last name, along with his Eastern European accent seem to code him as a first- generation immigrant into the USA (this in contrast with Rabbi Stone's New York accent).

The background colour of their portraits also has some interesting connotations. Rabbi Stone's consistent grey could indicate his stormy mood, or pessimistic personality, or perhaps be an indication of the uneasy position he holds in the narrative, as a character that is not quite a hero, and not quite a villain. Rabbi Zelig's initial blue background could be an indicator of a 'sunnier' outlook or circumstances, and code him as good, initially. The change to red towards the end of the game brings with it connotations of fire, perhaps Hell, of anger and of evil. There is, however, another interpretation to his two background particular to video games: when a character is "friendly" or "neutral," or when an enemy is not in combat mode, they will have a blue marker or halo above their heads, which will turn to red when combat is initiated (see Figure 55).



Figure 55. The moment Rabbi Zelig's portrait changes to, red, and his expression turns to anger.

The connotations of class in the portraits of both rabbis have a strong connection with the connotations of the way their synagogues are pictured. These connections become apparent using the video recording, but moving through the game space, most of these details are easy to overlook. To demonstrate the level of detail that can be examined with this method, I will briefly look at two game spaces and identify several markers of class in both spaces as seen in the game (see *Figure* 56).



Figure 56. Contrasting class: Rabbi Stone's synagogue (top image) makes a sad contrast with Rabbi Zelig's (bottom picture) opulence.

The first striking difference between the two game spaces is the representation of space [1]. In Rabbi Stone's synagogue, B'nai Ben-Zion¹³, the ceiling is low, and the room feels cramped, whereas in Rabbi Zelig's synagogue, Beth Tikvah¹⁴, the high ceiling and wide hall indicate a much larger temple, with connotations of more wealth and access to funds. The second element that jumps out is the light [2]. The candles in B'nai Ben-Zion's sconces are half-burned, as if waiting to be re-used in another service, and there are no windows visible in the frame. The only source of light seems to be electric. In Beth Tikvah, on the other hand, a very large set of stained-glass windows seems to be the main source of light. On the lower left-hand side of both

¹³ Hebrew: 'The Children of Zion'

¹⁴ Hebrew: 'House of Hope'

screenshots, two contrasting elements seem to connote a difference in class. In B'nai Ben-Zion, a large crack is visible on the wall by the cantor's lectern [3]. In Beth Tikvah no such crack appears, and the cantor's lectern shows a microphone [3] as does the rabbi's [4], showing both access to money to purchase both, and the need for the sound equipment, thus implying a larger congregation that would need the microphone to hear the sermon as some people would be sitting much farther away, and thus necessitating more (and better) seats [6]. In the centre of the image, the bimah/tevah¹⁵ is visible in both temples, with an ark on top [5]. The ark in B'nai Ben-Zion seems to be made of dark wood with little adornment, whereas the one in Beth Tikvah seems to be covered in a rich white cloth (mappah). Implausibly, a scroll has been left on the ark on display. Finally, in B'nai Ben-Zion a very utilitarian waste paper basket can be seen, in what seems to be industrial/metallic grey [7], in contrast to the more welcoming decoration of community pictures on the wall of Beth Tikvah [7].

Although the palette of the game is generally sombre, the dark green colour of the walls of B'nai Ben-Zion has a utilitarian, perhaps institutional feel to it, whereas the pale pink of Beth Tikvah, with its teal accents, seems to indicate a more contemporary feel to the decor, and provides a softened atmosphere. All of these indicators of class are consistent with the narrative of B'nai Ben-Zion as a struggling synagogue about to be foreclosed, and Beth Tikvah as a prosperous one with a large congregation. I will refer to these differences again below.

Carriers of Meaning

Kress and Van Leeuwen (1996) made a distinction between social actors and "carriers of meaning." To them, in some cases, visual representations of certain people are interpreted by virtue of who they are, rather than by their actions. I believe this is indeed the case of the two rabbis in *The Shivah*. The game narrative would be impossible (or at least much less rich in content, and significantly less original) if the main characters were not two rabbis. Their story is understood through the lens of religion. This is not to say that the characters do not engage in actions and processes (Machin, 2007) as social actors, but that

¹⁵ Bimah: Hebrew 'high place'; Tevah: Hebrew 'box'. The terms are more commonly used by Ashkenazim and Sephardim communities respectively.

these are heavily coloured by their being carriers of meaning themselves. I will return to the characters' agency in the second part of this chapter, where I will deal with procedurality.



Figure 57. Screenshot of the final confrontation in the game between the two rabbis in Playthrough 4.

The fact that in *The Shivah's* narrative both protagonist and villain are rabbis is relevant here. Had Gilbert chosen to make only one of them (say, Rabbi Stone) a rabbi, and made Zelig into a gangster, the game would have taken a very different meaning (as well as making the current mechanics system impossible—see the next section). If only one character was a rabbi, the player might have seen him as a metonym for all rabbis (especially players unfamiliar with Judaism). The fact that the game offers two very different characters, with very different interpretations of what it means to be a rabbi, and, importantly, what it means to be Jewish, gives the narrative and the characters more texture.

In analysing the game, I also noticed another interesting fact. Even though both characters seem to stand at opposite poles, neither one is perfect. Rabbi Stone is a man struggling with his faith and a man who, without being a hero, appears to be basically good, but who has done bad things. Rabbi Zelig appears to be a good man, and he has indeed done many good deeds, but he is a murderer. They are both wrong.

This type of "grey polarization" is interesting in another respect. After going through the transcript and keywords, and upon reviewing the playpaths taken, I was able to see a parallel with another set of characters often used in Jewish narratives. I refer here to the Fools of Shtetl and will base my analysis mainly on the work of Boyer (1993) on their role in Jewish black humour. There are two main types of Fool in Jewish narratives: The Fool as Schlemiel and the Fool as Schlimazl.¹⁶ They are the black humour versions of Jewish narratives of 'accommodation at one extreme and rebellion at the other' (Boyer 1993). In analysing the black humour of Jewish narratives, Boyer argues that regarding these two extremes:

[b]lack humour holds that neither choice is viable any longer, and it is often from the protagonist's failure to recognize this that the comedy originates. We see, even if he doesn't, that choosing is out of the question. If not by an act of God, then at least by an act of cultural fate, he is doomed to live the life he lives (Boyer, 1993, p. 5)

These two Fools of the Eastern European traditions have been defined in an oft- used cliché: if the Schlemiel is the poor man who spills his own bowl of soup, the Schlimazl is the poor man he spills it on. When used in stories, however, this characterization becomes insufficient, and the cliché loses sight of the complexity of these traditional carriers of meaning. The key to understanding an essential aspectof the roles of Rabbi Stone and Rabbi Zelig in *The Shivah* could be found in the way Boyer further problematizes the Fools. He says of the Schlemiel:

The schlemiel tries to understand his world using what we quickly recognize are oversimplified beliefs [...] Rather than allowing facts to alter his beliefs, the schlemiel interprets events to fit what he already believes. [...] The schlemiel is ... incapable of fitting in, for he is incapable of the sort of accommodation the culture demands[...] He learns all the rules, obeys all the laws, lives by all the orders [...] and yet, somehow, for some reason, he never quite prospers. (p. 5-6)

The word schlemiel's origin can be traced back to the Hebrew phrase shelvach

¹⁶ This portion of my analysis benefitted in robustness from the positive feedback I received from Dr Gerwyn Owens, Prof. Nathan Abrams, Prof. Norman Solomon and Rabbi Ethan Sacks.

min 'el, which means "sent away from God." Johnson (1994) echoes Pinkser (1971) in her interpretation of the term, [w]ith its suggestions of exile and alienation, the phrase reveals the religious connection between "recurrent bad luck with one . . . out of God's graces" (Pinkser 1971, p. 58).

I must clarify here that the name 'Fools' could be considered to be a misnomer. Despite their frequent appearance in comedy, both traditional/European and modern/American (c.f. Johnson's (1994) analysis of the TV show Seinfeld), the Schlemiel and Schlimazl appear also as intelligent, kind characters (see, for example, their incarnation as Laverne and Shirley (ABC, 1976-1983—see Figure 58). The show was humorous but dealt on occasion with serious themes, such as death and mourning.



Figure 58. Laverne and Shirley's theme song, "Schlemiel, Schlimazl, Hasenpfeffer Incorporated" may have brought the terms into currency to a wider American audience.

As the Jewish "fool" evolved and travelled from Europe to America, the language and modes that presented the character have changed, but still the "fundamental themes of [...] food, health, and manners (xiv) and the grimmer themes of frustration, futility, alienation, and humiliation characterize the themes [...] of Yiddish folklore." (Wisse, 1971, p. xiv)

Rabbi Stone seems to follow the pattern of the Schlemiel in the narrative. His belief system is uncompromising and seems to oversimplify the way the sacred rules he tries to uphold affect the lives of real people (see *Figure* 61 below), as in the case of the murdered man, Jack Lauder, whom he had expelled from his temple for wanting to marry a non-Jewish woman. The fact that Rabbi Stone cannot accommodate his belief to his congregation, and to modern society, means his temple never prospers. Rabbi Stone, like a Stone, seems unchangeable, and unable to change.



Figure 59. Rabbi Zelig points out to Stone that he is incapable of adjusting his belief system to reality.

According to Boyer (1993), the Schlimazl represents a different type of problem of cultural adjustment.

Unlike the schlemiel, the schlimazl takes it all in—that's not his problem. His problem is rather that he doesn't know what to do with the information once he has it. And as a consequence, he is constantly modifying his system of beliefs [...]. He embraces his culture, accommodates it, makes its rules and regulations his own...bends to accommodate his culture until he finds himself in the shape of a paper clip—and for what? Everything he touches turns to dung. (p. 7)

Rabbi Zelig does just this. He seems to lack a moral filter that tells him which parts of the culture he is trying to accommodate are compatible with the moral code he is supposed to uphold as a rabbi (*Figure* 61). He is also a lost man, but in a different way from Stone.

Rabbi Stone's surname, Stone, could be seen as alluding to Stone's immutability of character, and "hardness," which could be another nod to the figure of the Schlemiel. Rabbi Zelig's name, on the other hand, ties him semiotically to Woody Allen's (1983) eponymous mockumentary film, in which Leonard Zelig (played by Allen) takes on the characteristics of those around him in his effort to blend in, in a misguided attempt to adapt to the culture (*Figure* 60). The film gave origin to the American use of "Zelig',"¹⁷ which according to the Oxford English Dictionary online (2013) is defined as "[a] person who is able to change their appearance, behaviour, or attitudes, so as to be comfortable in any situation." I believe this is further evidence of a potential tie between the character of Rabbi Zelig and the Schlimazl.

¹⁷ As a reference, 'Zelig' occurs only once as a happax legomena in the BNC, while it appears 54 times in the COCAE.



Figure 60. Promotional poster for the Woody Allen 1983 movie "Zelig." The different typographic styles for the same name on the poster are used to signify the character's chameleon-like changes to adapt to his surroundings.



Figure 61. Rabbi Stone points out to Rabbi Zelig that his too accommodating approach has made him into a criminal.

The Fools of shtetl in this tradition is then, I believe, a good lens through which these two characters can be better understood. Rabbi Stone, in particular, is a character with whom many players will disagree, but once compared to Rabbi Zelig's greed and violence, Rabbi Stone's intentions become clearer and the player's compassion for his views develops. In the words of Boyer:

Without fully recognizing it, [the Schlemiel] stands in opposition to what his culture holds up as a model for manhood. And when we compare him with that model, it is the model, not the schlemiel, that we are most likely to question. (1993, p. 8)

Rabbi Stone's hard line of Judaism, although problematic in itself, becomes then more human when contrasted to Rabbi Zelig's disregard for human life. By the end of the game, the player then questions Rabbi Zelig's conduct.

4.1.1.10 Zionist vs Assimilationist

Stone and Zelig represent in the game the contrast of a strong, hypermasculine version of a Jewish man, the "New Jew" that emerged after WWII and with the creation

of the state of Israel (Rabi Stone), contrasted with the "weak" effete, urbane stereotype of Jewish men, popular since the Renaissance (Rabbi Zelig). This contrast casts the two rabbis in fairly clear roles near the extremes of this spectrum. Interestingly, in the Transana visualisation window (see Figure 62below), the (red) tag "Frontier-Zionist" most often appears collocated with the (blue) tag "Urban-Assimilationist"—which seems to indicate that both representations need to be present as they only make sense in relation to each other.



Figure 62. Rabbi Zelig refers to Stone as a Zionist openly for the first time in the game in one of the final stages of Playthrough 4.

Rabbi Stone is coded in the game as a man who is physically strong, but whose capacity to integrate is not very sophisticated. When tagging the data, I used the keyword "Frontier-Zionist" to tag places where this aspect of his character emerges during gameplay in Playthrough 4 (for example, when discussing his view that interfaith marriages are wrong for Jews). In contrast, I used the keyword "Urban- Assimilationist" to refer to Rabbi Zelig's position in this continuum (for example, when Zelig accuses Stone of being a "zionist[sic], pigheaded rabbi" (Figure 62) for refusing to marry Jack Lauder and his Hindu fiancé), which prompted Lauder to change synagogues and join Rabbi Zelig's. This leads me to an interesting element that emerged from the data was the differences between Rabbi Stone and Rabbi Zelig's views on Jewish identity. In *The Shivah* the player is confronted several times with the question of Jewish identity, as Rabbi Stone repeatedly tries to find out whether another character, Joe DeMarco, is Jewish (see Figure 63).

lewis	1 (adject	ctive) Alternative PoS: noun (12) nivah freq = <u>82</u> (522.83 per million)
dj_subject		
10 eMarco <u>10</u>	10.46	Word sketch item 27 (172,15 per million)
odifier 12	0.60	Page 1 of 2 Go Next Last
ery <u>5</u> at 7	12.07	90 , Yes. But-" [ML:] " I know." " I 'm not Jewish ." " I'm probably doing it all wrong, but
-		90 do. But I always have known that I was jewish ." Is that enough? I'm not a traitor, Rabbi
odifies		90 traitor, Rabbi, I have never forgotten I 'm jewish Jack Lauder >> " IBACK TO PREVIOUS SCREET
38 aabbu 6	2.00	90 [RS:] " At temple?" " So Joe DeMarco is jewish ?" [ML:] " Maybe, why?" [RS:] " 34 DeMarco
neral 3	11.13	90 IPS:1 " You really think be DeMarco is jewish ?" [Mi 1] " I told you I have no idea "
rt 3	11.13	90 other?" A third may use may on the jointh is point in the found "" There are only
ke <u>3</u>	11.13	90 other: A third man who may or may not be jewish is hownere to be found. There are only
mity 3	10.78	90 You really think that Joe DeMarco is Jewish ? [ML:] I told you, I have no idea."
ime <u>9</u>	10.22	90 [RS:] " At temple?" " So Joe DeMarco is jewish ?" [ML:] " Maybe, why?" [RS:] " " 34 DeMarco
mmunity 2	9.85	90 jlauder@sharming-fashion.com: thanks.]" << Rabbi Zelig: I am not jewish myself, but Jack was very devout and I
nagogue 3	9.83	90 Yes. But- Mrs. Lauder: I know. I 'm not jewish . I'm probably doing it all wrong, but it
an <u>3</u>	9.45	90 do. But I always have known that I was jewish . Is that enough? I'm not a traitor, Rabbi
upte 2	7.37	90 traitor, Rabbi, I have never forgotten I 'm jewish Jack Lauder "Email From " 34 E 34 " (
nd/or	0.70	90 Rabbi Stone: At temple? So Joe DeMarco is jewish ? Mrs. Lauder: Maybe, why? Rabbi Stone:
3	12.00	90 figure out. You really think Joe DeMarco is jewish ? Mrs. Lauder: I told you, I have no idea
ohen 5	13.00	90 other? A third man who may or may not be jewish is nowhere to be found. There are only
<u>dj_comp_of</u>		90 from Mrs. Lauder: Rabbi Zelig: I am not jewish myself, but Jack was very devout and I
adj_comp_of 27 be 27	19.00 9.06	90 from Mrs. Lauder: Rabbi Zelig: I am not jewish myself, but Jack was very devout and I

Figure 63. Word Sketch of jewish* in Sketch Engine from The Shivah corpus. On the right, a detail of the concordance lines for the node jewish* in the same corpus. The node word was chosen because it was relevant to my first research question.

Joe DeMarco is a thug, employed by Rabbi Zelig to bully and kill those who oppose him. Rabbi Stone asks about DeMarco's Jewishness repeatedly, and it becomes one of the most provocative questions in the game. Is Joe Jewish?

I followed Rabbi Stone's quest to answer this question by using the tags "Jew qua Jew," for when a character was both known to be, and acknowledge as, Jewish. This applied to both rabbis and to several referential characters, like Jack Lauder. In contrast, the tag "Crypto-Jew" signalled that the character's Jewishness was questioned (like in Joe DeMarco's case) or their religion was unknown. I also used the tag "Jewish shibboleths," as a way to identify the instances in which a character would signal their Jewishness through words (e.g. declaring themselves Jewish, using Yiddish, attending a sermon at the Temple). The tag "Non-Jewish shibboleths" was used for instances when a character signalled their non-Jewishness through words (e.g. showing unfamiliarity with Jewish rituals or prayers, as in the case of Mrs Lauder). In many instances, the tags "Crypto-Jew," "Jewish shibboleths," and "Non-Jewish shibboleths" are present in clusters. This aided my analysis in understanding the ways in which certain semiotic resources were codeployed in the game and how these patterns emerged through gameplay. In Figure 64, a sample of visual clusters that were of interest in my analysis is highlighted in yellow.



Figure 64. Detail of Transana (visualization window) with keyword/tag clusters highlighted. Each colour represents one of the tags used in my annotation.

Interestingly, after all the chasing after clues in the game, the player never finds out whether Joe DeMarco is Jewish. The truth is, it does not seem to matter in the end. His choices, whether good or bad, are ultimately not dependent on his faith.

This is something that Rabbi Stone struggles with throughout the game. As the game progresses, the player discovers that he refused to marry the Lauders because he did not approve of interfaith marriages, but then discovers progressively how sorry Rabbi Stone is for the pain he has caused them. His fear that intermarriage would lead to the dilution of Jewish culture and eventual disappearance of all Jews, coupled with his strong sense of duty, led him to make that choice, but it is a choice that he comes to question and to regret. In contrast, Rabbi Zelig seems the more likeable character at the start of the game, as he had gone on to marry the Lauders, and was both helpful and welcoming to Jack Lauder's wife, even though she was not Jewish and was not a member of the congregation. Eventually, however, the player discovers that this apparent openness hides a complete disregard for human life, as the Rabbi has become a criminal, a killer.

The two rabbis seem to clash in every respect, offering two very different faces of Judaism to the player. They do coincide in one aspect, however: their apparent enjoyment of questions. After all, as David Gilbert said, "questioning is the rabbi's power."

4.1.1.11 Procedurality and Judaism

In this section, I will explore the procedural rhetoric of *The Shivah*, focusing on two elements in particular: the affordances the game has to offer, and the procedural use of questions. To answer the question of how does *The Shivah* portray Judaism procedurally, I will use examples from *The Shivah* corpus interrogated using Sketch Engine. Once collected, *The Shivah* corpus comprised four sub-corpora, which included four videos, one for each of the playthroughs, four transcripts, one for each video record, a collection of fifty Paratexts with fifty accompanying screenshots, complemented by articles collected automatically by Sketch Engine using the WebBootCAT function (see Figure 63 above).

The tags RC> and LC> as queried in Sketch Engine (see Figure 65) were extremely useful in helping me understand the particular playpath I took in Playthrough 4, as well as in performing an analysis of the affordances and procedural rhetoric in *The Shivah*. The query helped to highlight strong indications of the playing style encouraged in the game (i.e. the Rabbinical response is favoured over other approaches), and encouraged mindsets (e.g. to advance in the game, a line of questioning is always to be favoured over direct confrontation). Because this tag was searchable in Sketch Engine, I was able to perform a query on it and to entertain conclusions on what was *not* present in the corpus. By this I mean that the options open to the player are very restrictive from the point of view of game's affordances (left clicking on an option is the most common action), as

well as from a narrative perspective (for example, upon examining the actions taken in previous gameplay, many of them do not exert a real effect on the game narrative.¹⁸

user: Ms. Sam Masso	corpus: Playthrough 4		
Concordance			
Query > 318 (-53.3 per million)			
Word Sketch	Page 1 of 16 Go Next Last		
Thesaurus	02 OHIT CAME ODTIONS WAD IET EVE CAMES " IDC & STADT CAME! " It began as many things do		
ind X	92 QUIT GAME, OPTIONS, WADJET ETE GAMES [RC > START GAME] It began, as many things do		
ketch-Diff	the obvious, beclare your intentions [IC > STATE the Obvious] Services are canceled		
orpus Info	92 the obvious, beclare your intentions [LC > RE-STATE THE OBVIOUS] Trepeat, services 93 your intentions. Gradingly acquierce [®] [LC > DECLARE YOUR INTENTIONS] * Leave me alone		
?	92 your interctions, or dugingly acquiesce [EC > DECEARE FOOR INTERVIEWS] Leave the atome		
	Delayface receptors. Pabhinical response" [I C > PAPPINICAL RESPONSE] " Is there same sort		
	Pokerrace response, Rabbinical response [LC > RABBINICAL RESPOnse] is there some some		
ave	Provide a construction of the second se		
iew options	Price of the point of the		
KWIC	92 bidsh-off response, Rabbinical response [EC > RABBINICAL RESPONSE] _ DOT EOOR like T 93 to grap " [PS-1 "] peed to think " [I C > COMPLITER >>DIFFERENT DOV (IST DEPSON)] [
Sentence	22 College, [KS;] Theed to think. [EC > COMPUTER >>DIFFERENT POV (IST PERSON)][23 24 25.1 "Loood to think. "ILC>COMPUTER >>DIFFERENT DOV (IST PERSON)][
ort	P2 [IS:] Theed to think. [LC>COMPUTER >>DIFFERENT POV (13) FERSON)] [NARRATOR VO P2 P31 "L pand to think. "[LC>COMPUTER >> DIFFERENT POV (15) FERSON)] [NARRATOR VO		
Left	ISUS CONNECTI please enter your login [TYPE > rstopa]" " please enter your password [TYPE		
Right	Schröden in Place ander your paraverd [TYPE > youta]" "Holle Pabli Pyrcell Stand Place		
Node	Presseries of the log out" " [[C Search - (abort action]] [CMAII] " [[C		
References	92 out" " " [I CsSearch (abort action) I C > MAIL 1 " " [I CsEROM ikaplan@raymetNY com-		
Shuffle	92 Search (abort action) C > MAIL 1 ** [I C > EROM ikanlan@ravnetNY com: Test] [CK: Email		
ample	92 search "(abor action) contact [] [[control of a search] [TYPEsiack lauder] " 34 jack lauder		
ilter	92 Haba +)" -Contor Josh " [ICsSearch] ITYPE > jack lauder] " 34 jack lauder 34 " found		
0	Tana , cance easi [Lessearch] [TTE / Jack ladder] 34 Jack ladder 34 Tourid		

Figure 65. Concordance lines (sample) for the node '>', showing actions taken in-game.

¹⁸ For example, upon being openly rude to Mrs Lauder, Rabbi Stone gets a curt response, but eventually does get the clues he needs to proceed.

Sketch TEngine			
user: Ms. Sam Mas	iso corpus: Playthrough 4		
Concordance	Query question.* 15 (798.8 per million)		
Word List	90 ask, Why do rabbis always answer with a question ?" " To which Rabbi Moishe replied, Why		
Word Sketch	90 pain, or oppression, or poverty" "The question is always the same." " " 34 How could God		
Find V	90 " [DD:] " I'd just like to ask you a few questions ." [RS:] " Fine." " Josh? take a hike."		
	90] " Should I be?" [DD:] " I'm asking the questions , Rabbi." [RS:] " Fine. Let me think." "		
Corpur Info	90 TRUTHFUL RESPONSE] " The detective had some questions for me. That's all." [CK:] " So who was		
	90 my prayers?" [Narrator VO:] " The old age question ." " What is the work of God and what is		
1977 - 19	90 guest." [RS:] " I'll have to ask you some questions about what happened." [ML:] " Can't you		
	90 Feel free to email me if you have any more questions ." " " [EXIT] " [MAP:] MANHATTAN ISLE" "		
Save	90 much for your help and for answering all my questions . I'm sure Jack would have appreciated the		
View options	90 Rabbi Zelig. Thank you for answering my questions . The article will appear next weekRosangela		
KWIC	90 angry?" [JD:] Stop asking me these stupid questions ! " I am what I am, all right?!"" [GAME		
Sentence	90 You have two choices." "You can answer my questions ." "Or I throw you onto the tracks." [JD		
Sort	90 [JD:] "Yes." [RS:] " I see." "Well one question remains." "What should I do with you?"		
Left	90 aftermath of pain that we are justified in questioning God's fairness?" " Just how much pain must		
Right	90 pain must occur to legitimately raise the question Why do bad things happen to good people		
Node			

Figure 66. Concordances for question* in the Playthrough 4 corpus.

Because the range of affordances in the game is limited to mostly choosing one response out of three in every dialogue, the encouraged playing style feels very significant in its simplicity: always choose the question. When examining this phenomenon, while querying the term *question*23*, I was surprised to find that its frequency in the Paratext corpus was higher than in the Playthrough 4 corpus (117 tokens in the former, which represents 1,495.99 per million vs 15 tokens in the latter, which represents 798.8 per million), despite their different relative sizes. Further investigation was then required.

²³ The asterisk (*) indicates that the results of the query would include *question, questions, questioning, questioned.* This was not possible when looking at *Jew* as *Jew** would have included *Jewish,* as well as *jewellery.* The former needed to be segregated from *Jew* to be examined separately, and the latter was not relevant to this study.



user: Ms. Sam Masso corpus: TheShivahParatexts

Concordance	Query question.* 117 (1,496.0 per million)
Word List Word Sketch	Page 1 of 6 Go Next Last
Thesaurus Find X	#2592 dialog trees, allowing him to respond to questions with a question. At certain points this
	#2595 allowing him to respond to questions with a question . At certain points this ties into the story
ketch-Diff	#6448 conversation ways, crime, intrigue, age-old questions asked of God by man, and three different
orpus Info	#9864 jobs? D.G.: This is a difficult question and I'll need to think about it for a min
0	#11984 favourite is the way that every dialogue question can be answered with a rabbinical question
	#11991 guestion can be answered with a rabbinical guestion . While all eyes are on Resonance and the
Save View options	#12374 audience."
	#12408 post on his website today, posing numerous questions about the term apparently in an effort
	#12750 I don't know the answers to any of these questions (and maybe there aren't any), but it irritates
Sentence	#15286 of which always involves responding to a question with another question. There are several
	#15289 involves responding to a question with another question . There are several points at which the
DIT	#16366 to get more clues, and when in doubt, ask questions .
Lett	#16385 to its full potential, but it raises the question of why the bigger games don't, either.
Right	#20091 , however, before a detective arrives to question him. It seems the past has come back to
Node	#20162 You are offered three responses to every question asked by the detective, and this degree
Shuffle	#20216 fit the rabbinical stereotype and turn the question right back at 'em. It soon becomes apparent
ample	#20520 You'll have to persuade her to answer your questions so you can track down those responsible
ilter	#20842 These clues can also be used when asking questions to other characters, so the more clues
Overlaps	#20860 you have the more can be gleaned from the questioning .
requency Node tags	#23439 joke of a person who asks a rabbi why every question asked of the rabbi is met with another
Node forms	

Figure 67. Sample concordances for question* in the Paratext corpus.



Figure 68. Comparison of frequencies of question* and "?" in the Paratext and Playthrough 4 sub-corpora.

Upon closer examination, I realised that *question** offers more hits in the Paratext corpus because the writers are using references to gameplay and game strategies, and also speaking of interview questions (these two are the main contexts in which *question** appears in the Paratext corpus). On the other hand, "?" appears much more often in the Playthrough corpus (both in absolute and relative percentage terms), as it became clear that the question mark is deployed within the context of questions but was not itself discussed in the paratext corpus.

What makes questions so important to the game's procedural rhetoric? It seems that *The Shivah*'s creator, David Gilbert, was trying to emphasise a single aspect of Judaism, in the game's procedures, and this was the rhetorical process of *pilpul. Pilpul* (أَرَّخُوالَا), is the name given to a process of Torah study and its application, whereby the student will learn to interrogate the text at deeper and deeper levels by asking increasingly probing questions of the text. *Pilpul* was often used as a didactic method to teach the Torah, as it requires both a sharp wit and an attention to detail, which is perhaps linked to the origin of the word, which is derived from *pilpel* (pepper). Breuer (2008) speaks of the three main functions pilpul served in the study of the Torah:

The first was to safeguard the unity of the Oral and Written Torah and to harmonize between the apparently differing opinions of the sages [...] The second was to keep up the vitality and relevance of the Oral and Written Torah in its traditionally fixed form in the face of changing times and circumstances. Finally, it made Torah study a permanent challenge to the intellectual powers of masters and students and kept it safe from routine and perfunctoriness. Pilpul enabled the gifted student to bring new elements into Torah study, and these were themselves considered part of the divine revelation. (Online)

These three functions were realised by Torah students through the art of asking questions of the text, and of the Torah teacher, and of each other. Because the aim of these lines of questioning was not to destabilise the nature of the Torah, but to actually make it more stable by harmonising the contradictions and repetitions in the text through lengthy rhetorical disputations, the word came to be translated in in some instances as 'casuistry' or 'sophistry', and more recently, as "hair-splitting". When examining the preferred playing style of question-asking in the game, I initially followed this line of research by looking at the way questions and question-asking are studied across different disciplines (Kearsley, 1976). I quickly realised that the linguistic and psychological research on the use of questions would not help answer their use in *The Shivah* because the function of questions in the game bypasses conversational conventions. For example, in the game, Rabbi Stone can repeat the same question an infinite number of times to the same character and will receive the same answer every time, and no other reaction. Also, and counterintuitively, during combat, Rabbi Stone still needs to keep asking questions to survive, rather than succumbing to the temptation of using a snappy insult or an aggressive response to a blow to his face.

The humour of this seemingly endless series of questions becomes apparent when the two rabbis fight each other at the end of the game. Essentially the verbal part of the fight becomes a series of questions answered with questions until Rabbi Zelig asks "You think you can out-rabbi ME?" (see Figure 57 above).

The questions in *The Shivah* serve to highlight both the traditional use of *pilpul* and its absurdity when applied out of context or taken to extremes. Interestingly, commentators like David Sasha (Sasha, 2010) have identified ways in which pilpul is connected to the ways Zionist and Assimilationist views are discussed, particularly by Ashkenazi Jews. Sasha states, on the apparent futility and circularity of pilpul that

> [t]here is little use trying to argue in this context, because any points being made will be twisted and turned to validate the already-fixed position. [...] The contentiousness of the Middle East conflict is intimately informed by pilpul. Whether it is Alan Dershowitz or Noam Chomsky, both of them Ashkenazim who had traditional Jewish education, the terms of the debate are consistently framed by pilpul. (Online).

David Sasha's scathing evaluation of *pilpul* and its effects on political rhetoric seems to gently resonate with the spirit of *The Shivah*. In the end, through engaging content and gameplay, the player comes to see both rabbis, ultimately, as fools following two very incompatible and problematic views on Jewish identity and what it means to be Jewish, and both unwilling to engage in real dialogue with each other, each for different reasons.

David Gilbert says he made *The Shivah* after spending a year teaching English in South Korea, where he was the only Jew in his social circle, and usually, the first Jew to which they had ever spoken. His Korean students did not seem to know how to feel about meeting a Jew, and after a while, he did not know how he himself felt about being Jewish. Even though Gilbert remains a secular Jew, he made *The Shivah* in an attempt to explore what being Jewish means. "It's not like I had anything really deep to say about it. I just wanted to explore it. I don't think there are any answers really" (Gilbert in Walker, 2010, n.p.).

5.4.4 Conclusions of Case Study

In this study, I attempted to answer two questions. The first question, on the representation of two type of Judaism in the game, was answered by systematically looking at the semiotic resources deployed by the game. The second question, on the procedural rhetoric of the game, was answered by looking at the annotated transcripts of game playthroughs. In answer to both, *The Shivah* portrays two divergent views on Judaism, both problematic, and both worth questioning. Mirroring Gilbert's own views, there are no real answers in the game; no hard and fast rules of what makes "a good Jew." What *The Shivah* offers is an invitation to participate in the discussion, and to keep asking questions.

5.4.5 Chapter Conclusions on the Application of the Methodology

I learned several valuable lessons from using the method of data collection proposed in Chapter 2 to analyse *The Shivah*. The first thing I learned from this case study was the usefulness of transcription and annotation, and the importance of time management to employ both. Even though *The Shivah* is a relatively short and simple game, transcription and annotation still proved to be arduous tasks. When my method of data collection was initially conceived, I had envisioned transcription as a central element of it, but after learning how labour-intensive the process can really be with video games, I have realised that it would be impractical to make it a permanent part of the method when not every research question would benefit from a verbatim transcript.

The second lesson I learned with this iteration was the importance of both

being open to new research avenues and being selective in what to use to answer a research question when being confronted with large amounts of multimodal data. The amount of data produced by this study alone was so large that, having spoken about this case study at several conferences, and published two book chapters about it, I still feel I left most of the game unexplored after tagging, and will continue to revisit the data in the future.

The third and final lesson I learned from this case study was the usefulness of the proposed methodology for collaboration. As I stated in the introduction to this chapter, I collaborated with Prof. Nathan Abrams at Bangor University in producing an analysis of the game for a conference paper and a book chapter. Prof. Abrams was not familiar with video games, but was intrigued by *The Shivah's* premise, as it aligned with his own research interests on Judaism and Jewish representations in media. After playing part of the game to understand the mechanics, Prof. Abrams was able to examine the data I had collected with my methodology and analyse it using a Film Studies approach to analysis. The method proved useful in making this type of data accessible to a researcher unfamiliar with games, and our combined analyses served to triangulate our findings. From this, I conclude that the method of data collection can indeed be an effective tool for interdisciplinary collaboration.

Conclusion

This dissertation has sought to contribute to the fields of game research and research methods by developing a methodology and unified framework for data collection for the study of PC games. I started by looking at the ways the game scholars have defined games from the 1950s to the 21st century, and by examining the influence of these key scholars' original fields on the current landscape of games studies. A typology of eight kinds of current games studies was then proposed, partly based on the work of Engefield- Nielsen, Heidi Smith, and Pajares Tosca (2016). The next section critically examined eight influential methodologies for game analysis (Aarseth, 2003; Bogost, 2007; Consalvo & Dutton, 2006; Frasca, 2003; Jorgensen, 2012; Juul, 2003; Konzack, 2002; Malliet, 2007), paying particular attention to the way they refer to data collection. Their approach was compared to industry approaches, as an introduction to a section examining the structure of game research as a field, based on the metaresearch done by Paul Martin (2018) and Sebastian Deterding (2017). The picture they paint of game research is often is of a new field struggling to find its footing as an interdisciplinary endeavor. They establish unequivocally that the field is fragmented, and that, without new methodologies to help integrate research epistemologies and objectives, game research will remain, at best, a partially integrated interdisciplin (Deterding, 2017, p. 14).

Until now, most proposed methods for game research have focused on suggesting *what* to look for when studying a video game, but not *how*. This is the gap in the literature that this dissertation aimed to address. This research established that systems theory as a meta-discipline provides a useful lens on the *how* for methodological research design. With a Systems approach, a research method needs to be able to consider as many parts of the research problem as possible, in a holistic manner that can identify how said parts interact with each other. This approach is a good match for the pragmatist research paradigm adopted for this study, as both are flexible and focused on choosing the right tools for the right job. In Systems Thinking, to uncover analytical possibilities depends on the chosen methods for identifying the patterns of interaction found within complex systems (Holland, 2014, p. 10).

The linchpin of the approach suggested to address the gap in methods of data collection is based on Ashby's Law of Requisite Variety (1956, p. 207)—recast as the Law of Requisite Complexity by Allen, Maguire, and McKelvey (2009). The law states that to be effective in adapting to a variety of stimuli the internal complexity of a system must match the complexity of the environment. Complexity here refers to what Weaver (1948) defined as problems of organized complexity.



Figure 69. Types of problem in relation to variety of response and variety of stimulus (based on Boisot and McKelvey, 2011, p. 284).

Figure 69 above shows the three types of problem conceptualised by Weaver, identified by the amount of variety and organization present in the system. The diagonal line, which (Boisot and& McKelvey, (2011, p. 284) called "Ashby space" shows how the requisite Variety/Complexity of responses from the system's regulator must increase as a variety of stimulus from the environment increases. The resulting adaptive frontier is the limit of that response. This study argued that this is analogous to the researcher's capacity to respond to the stimulus provided by the game system. I contend that this capacity can be expanded (see Figure 70) by using the proposed method of data collection, as a video record of an

instance of gameplay can limit the Variety/Complexity of the video game as object of analysis, while the use of that record increases the researcher's capacity to process and respond to input provided by the game, by harnessing commonly available computer tools to help collect, process, and analyse video data in a systematic fashion. The method also enhances the capacity of researchers to share data and collaborate in new ways.



Figure 70. Expanded capacity to respond to variety from the game system

As substantiated in Chapter 2, the scientific and scholarly study of video games needs to account for the complexity of games. To study any complex system, an accurate method of data collection must be described and employed. Used in this manner, video recording as a central tool for games research would eliminate many of the problems that have plagued the field of games studies. By creating a video record to be studied I argue here that game researchers would be creating "boundary objects". The record can then be metaphorically set in the middle of a group of researchers with divergent epistemological and ontological views on games and serve to help collaboratively build a more robust knowledge base for game studies. The flexibility provided by the use of a video record includes the ability to replay the recording for in-depth analysis, the ability to corroborate results, the ability to collaborate with other researchers across disciplines by everyone being on the same page so to speak, and the ability to reuse, re-examine, and archive data.

Three pressing methodological questions (adapted from Derry et al. 2010, p. 5) were formulated:

- 1. What framework and method can be put in place to systematise the collection, processing, and analysis of video data for the study of games?
- 2. What expertise does already exist for recording, preparing, transcribing, encoding, analysing, interpreting, and presenting the data? and
- 3. What are the benefits and limitations of collecting the data this way for the study of video games?

The first part of the dissertation dealt with the first two questions by outlining the methodology developed (see Table 16), within an integrated framework for video data collection to study games (see Table 15), as a way to ground the method in the theory, and by outlining existing tools for the purpose.

Table 15. Integrated framework for video data collection for the study of games.

INTEGRATED FRAMEWORK FOR VIDEO DATA COLLECTION FOR GAME RESEARCH			
RECORD (COLLECT)	ENCODE (PROCESS)		DECODE (ANALYSE)
A.1 ORIGIN/PRODUCTION CONTEXT	B.1 ANALYTICAL FOCUS	B.2 THEORETICAL FOUNDATION	C.1 TYPES OF ANALYSIS
 Primary Video Data Researcher 'Instigated' Video Researcher-produced video Researcher-produced video in collaboration with other specialists Secondary Video Data 'Found' video – public sources/archives/online Material produced for other purpose or hy other researchers 	 Procedural Interactional/transactional Representational Visual Haptic Interactional Computational 	 Game theories Theory of affordances Visual theories Choice of theories related to specific research questions Research Paradigm Inductive/deductive approaches 	 By Research Paradigm Inductive vs Deductive By host' field By focus Iterative Annotation Primary vs Secondary Data
A 2 REFERENT/SUBJECT	B 3 CODING CO	NSIDERATIONS	C 2 ANALYTICAL CONSIDERATIONS
 On-screen video capture Offscreen video capture Player (Individual/Group) Behaviour (researcher-elicited) Behaviour (spontaneous) 	Technical Competencies Appropriate operationalisation of the Transcription, tagging, and coding Choice of recording devices and si epistemological consequences Choice of CAQDAS concerning the Active knowledge of the game meet Collaboration/expertise issues/skills Preliminary investigation of the spectrum.	theory g choices software concerning their e epistemological consequences chanics and context s: technical, normative, creative ecific features of the game	 Determining the unit of analysis Defining granularity Storing, sharing, and archiving data Sampling strategies Explorative/opportunistic Systematic (snapshot, time series, or longitudinal/repeat)
A.3 DEGREE OF RESEARCHER INVOLVEMENT	B.4 PROVISION OF NE	ECESSARY CONTEXT	C.3 INTENDED USE OF DATA
 No awareness Unacknowledged Reactive Interactive Participatory Joint production A4 DATA PRODUCTION STRATEGIES Explorative/opportunistic Systematic (snapshot, time series, or longitudinal/repeat) 	 Provide game-internal context relationships within the visual Provide game-external contex other kinds of data and finding Reflexivity and transparency i chosen methodology and the circumstances, including the relationships 	t: establish part-whole record and the video game itself xt: compare/ supplement with gs (e.g. paratexts) issues: document and justify the recording and coding esearcher's position.	 Research input Exemplar Unusual behaviour Dissemination of results

The steps of the method were then outlined and linked to the sections of the framework.

Table 16. Steps of	f methodology integrated	d into the framework.
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RECORD (COLLECT)	ENCODE (PROCESS)	DECODE (ANALYSE)
Part One: Creating A Valid, Reliable Data Set from Video Recording	Part Two: Preparing the Data for Analysis	Part Three: Conducting the Analysis Using the Data Set
 Selection of the Game or Games to be Studied Obtaining the Game Pre-play Preparation Selection and Installation of One's Computer-assisted Software for Analysis Play (and record gameplay) 	 6. Preparing video data 7. Transcription and Coding 8. Parallel corpus: Compilation of paratexts. 	9. Conduct analysis using the data set.

The three main parts of the method developed are (see Table 16):

- 1. Create valid, reliable data set through video recording
- 2. Transcribe and encode the data set

3. Conduct analysis using the data set

Up to here, the answer to the first two research questions. The third question was answered by means of three case studies that applied the methodology and showcased its use under three different research paradigms, and then evaluating the results of each application (See Table 17).

Case study one was done under the positivist research paradigm, using experimental research sampling to study procedurality in *World of Warcraft*. In this case study, the use of the method of data collection allowed for detailed comparisons of characters journeys, allowing me to compare like with like. That the method also allowed me to go back and examine the data several times over a period of time. Likewise, the method allowed me to transcribe and code the data in different ways, and to analyze it from different disciplinary perspectives for two different publications and for this thesis.

The application of the method in case study one also revealed some limitations. The selected software package (Atlas.ti) is not suitable for large video files, and this affected the amount of data that could be compared. It also showed that the transcription and coding of the data are time-consuming activities that require careful planning in a game research project.

Case study two was done under a subjectivist research paradigm, deconstructing player choices in *The Wolf Among Us*. The application of the method of data collection in case study two provided me with the ability to go over the data repeatedly to perform iterative coding which allowed me to make strategic coding choices apart from the initial impactful/affective impressions I had during gameplay. The method also allowed me to reuse the data for different projects.

The method of data collection also allowed me to take advantage of the free online or to transcribe tool provided by YouTube. This, however, have the drawback of producing many spelling mistakes, which can limit the ways in which the data can be interrogated.

Section	Benefits of using the methodology	Limitations to using the methodology
Case Study 1	 Using the method allowed for detailed, like-with-like comparisons. It provided the ability to go back and study data in different ways over a period of years. Ability to re-use the data for analysis across different disciplines. Ability to transcribe and code data in different ways for detailed analysis. 	 The software package chosen for this case study was not suited for large files. Coding and transcription took longer than expected.
Case Study 2	 Using the method allowed for iterative coding done over a period of time. It provided the ability to analyse the data from different perspectives for different projects and publications. Ability to make strategic coding choices apart from initially impactful emotional/affective game content. Ability to take advantage of freely available tools online, such as YouTube's new Autotranscribe feature. 	 Using automated transcription saved time, but yielded many spelling mistakes, which can affect how the data is searched. Coding and transcription took a long time.
Case Study 3	 Using the method allowed for minute pattern-spotting. It provided the ability to collaborate in an interdisciplinary fashion with someone new to video game studies. Ability to share data to be examined from an interdisciplinary perspective. 	 Detailed, verbatim transcription and annotation can be arduous tasks for a one-person project, even with a small game.
Overall	 Ability to examine original data systematically. Ability to share and archive original data. It provided the ability to collaborate across disciplines. Ability to return to original data months or years later. Ability to make current research relevant for longer by archiving video data, as theories and conclusions can be demonstrated and challenged using the original data. 	 Transcription, coding, and annotation are time- consuming tasks, and thus need to be deployed strategically to answer relevant research questions. The selection of a software package needs careful consideration and needs to be done on a case-by-case basis.

Table 17. Summary of benefits and limitations of using the methodology.

Case study three was done under a constructivist research paradigm and used hermeneutic analysis to study Jewish representation in *The Shivah*. The application of the method of data collection in case study three provided me with the ability to examine the data closely and minutely which allowed me to see patterns that would have otherwise eluded me. The method, importantly, allowed me to collaborate with somebody from a different discipline (film studies and history), which enriched the analysis produced for publication. During that project, I was able to share the data with my colleague so that he could examine it and familiarize himself with it independently.

This dissertation has shown an effective methodology to collect data for the study of PC games within a proposed integrated framework, contributing to both the field of game research and research methods. This method shows several advantages. The first one is that it allows the researcher to repeatedly observe gameplay instead of relying on memory, or on field notes. The second advantage is that the record can be shared, enabling collaboration (interdisciplinary as well as transdisciplinary) to a degree that has not yet been seen in the field of game research. Third, it allows researchers to revisit the data at a later date and apply, if needed, a different method or approach of analysis without compromising the data itself. Data can also be added later on to a set for longitudinal analysis. Well-organised and well-documented, preserved, and shared data can be invaluable to advance academic inquiry and to increase opportunities for learning and innovation in this field.

Using video data for game research is both a demanding and rewarding experience but is still a rather uncommon one. This gap in the literature has been filled by proposing a clear, explicit and transparent method and framework for data collection for game research. The method allows for the ability to keep current game research both intelligible and relevant for years, as the day remains the faithful record of gameplay that may no longer be possible due to game technology rapid evolution. With this method, game researchers can then not only understand and refer to game literature for years to come, regardless of the game or platform becoming "defunct", but they can also validate, or challenge said Literature's findings.

Those who wish to use this method of data collection for PC game research

must be aware that there are some reasonable objections to this proposal. The methodology might be deemed too cumbersome or expensive for the type of analysis a particular project might have as an object, or researchers might find it difficult to implement due to time constraints. The method resulting from this piece of research was designed within the context and scope of PC game analysis. Although it was tried on a variety of PC games, further research is needed to determine how it can be applied to the study of video games in other platforms, and the advantages and limitations of doing so.

When processing the data for this thesis, I found that detailed transcriptions and coding of the data are very labour-intensive activities for a one-person project – even with a relatively small game like *The Shivah*. There are different approaches to coding based on an individual difference of fields of inquiry, research genre, or framework for analysis, but they are all likely to yield large amounts of processed data (see Appendix 3.C, for example). Coding will always depend on the research question and context. Choosing the right tool for the right job is more important than blindly following a methodology that is not fit for purpose.

One distinct practical disadvantage of the method, however, is the size of the files produced when recording gameplay. To manage this, I found that an external drive can be used, or, alternatively, saving files on to the cloud. That way, the PC you are using to play and to perform the analysis will not slow down, and the data will be more secure. Despite the technical difficulties, the way in which the video allowed the revisiting of the data for further analysis, or for analysis from a different perspective, was of great value. Overall, in all three cases, the methodology allowed me to examine the data collected systematically, and to return to it months or years later to add to my initial analysis, or to look at the data with fresh eyes from a different research paradigm. The method allowed me to collaborate in an interdisciplinary fashion, and to share the original data without loss of fidelity.

There are several overall limitations to this dissertation, however. First, the design and development of both the framework and the method of data collection were done with a focus on PC games, which limited context makes the extrapolation of results to other game platforms problematic without further study. Another way in which the method was applied within a limited context is the fact that the in that two of the three case studies (2 and 3) the method was applied to

games that shared many similar aspects of their mechanics. I only realized this *post facto*. A third limitation from the context the method was applied to is the number of players: all three case studies looked at data collected from single player gameplay.

The limited context of application is problematic, as it limits the demonstrable utility of the framework and method in their present form to PC games, especially to a set of mechanics, and to games research focused on in single player modes.

I had consciously chosen to limit the dissertation to framework and method for PC games for reasons of space and other project constraints, including time and budget, as well as my because my having become disabled partway through the project forced me for the time being to abandon my tests with more active systems, such as the Nintendo Wii Fit. The choice to analyse single player gameplay instances was also a conscious and practical one. The games for the case studies were chosen to respond to calls for papers, and their similarities in mechanics were not noticed until the writeup had been completed.

In terms of future research directions, as a first step these limitations in context can be addressed by examining the proposed framework and testing the methodology in new contexts. One simple way to address each contextual limitation in a progressive and systematic manner would be to test the methodology on more PC games with different mechanics and themes (e.g. First-Person Shooter, platform, etc.). The results can then be used to re-examine the framework and determine whether it needs to be expanded or altered to reflect a wider application.

The next step would be to test the method and examine the framework using data collected from multiplayer PC game instances, followed by a series of studies to test the method on different game platforms (e.g. console, arcade, handheld, etc.), and thus systematically determine the limits of the framework and method and how they can be modified to further wider their application to other game platforms. Finally, data can be collected from face and keystroke trackers and from cameras positioned to capture players' body language to complement screen capture video data. For this type of study, I would strongly suggest the use of

Labanotation (Laban, 1956; Hutchinson-Guest, 2005) (or a modified version of it) for movement transcription and coding – a system of movement notation created for dance notation but also applied in industrial settings, and, more recently, to Health and Safety and to robotics (Ikeuchi et al. 2018). That stage could take the shape of, say, capturing data from disabled and able-bodied players to compare gameplay strategies and whether they are affected by the effects of disability (e.g. nerve damage or hand tremors might prompt the use of different strategies in game mechanics).

A dedicated gameplay archive can be created in order to support publication, and to share and re-use collected data. At present there are several ways gamers share and store their own gameplay online, such as Twitch (Amazon, 2011), Plays.tv (Plays.tv, 2017), or Gaming (YouTube, 2018). These platforms all offer different functionalities and are freely available. Their availability means that the technology for a dedicated game research archive is already in existence. I intend to design a flexible archive structure and function under the guidance of the UK Data Archive, and then apply for a grant to create and maintain it as a largescale project.

I have learned that the field is a much more complex interdiscipline than I had originally thought. This realization also made apparent the fact that there was an urgent need to be fulfilled – the need for a way to speak to different disciplines and to understand other epistemologies about game research. To me, this goes beyond coining new terms (although that is necessary), but it involves an understanding of other methods of analysis, and, importantly, the epistemological assumptions made by the analyst. I think the most productive conversation can be had when game researchers can show each other the data.

Consider two researchers, say, one in literature and one in English as a Foreign Language, studying *The Ballad of Reading Gaol* and having a conversation from their different disciplinary perspectives solely from their notes and from memory. I suspect that the conversation would be much more difficult than if they had brought their annotated copies to compare them. Now, consider how much more difficult that conversation would be if *The Ballad* was different every time it was read (in line order, in lines being there or not, and words changing according to the reader's timing). To sum up, I don't think that data collection is a

substitute for insightful analysis, but it can add rigour any can help keep the conversation going and honest.

Why commit to an ambitious attempt to collect data to understand games and shift the ways they are currently studied? To summarise the findings outlined in this dissertation, this can be done to:

- 1. Improve the robustness of research output
- 2. Improve the quality of teaching and training materials.
- 3. Maximise (personal and institutional) competitive advantage.
- 4. Stimulate an energized, committed approach to scholarship.
- 5. Manage technological and disciplinary changes.
- 6. Maximise research output from public funding.
- 7. Respond to the demands of disciplinary and institutional interdependence demand it.

The impact of a potentially unifying approach to game studies is farreaching and has several important implications for game research as a whole, within and outside of academia. By making games more accessible to analysis and social critique, researchers and academics can find new fertile ground for their respective disciplines in the field of video games studies, and ludologists can gain input and insight from and collaboration with other fields of inquiry. By creating a method that is based on empirical data, we game researchers also open the field to both input and constructive criticism from the games industry, and can have some hope of making our findings both useful and of interest to game designers and developers. Additionally, by creating gameplay corpora that can be accessible to those whose technicity might have made them wary of exploring games firsthand, to also make games more available as discursive spaces for other communities of practice, and the possibility of them being incorporated in discussions of legislation and public policy for their use in fields such as education and health.

A method of data collection that allows researchers to look at games and to characterize the commonalities and differences in game phenomena in a more rigorous way will allow us to move away from the information silos game researchers have been building for some time. As illustrated in chapters one and two of this dissertation, much work in game research involves the implementation of concepts and tools from across widely disparate disciplines. A new, robust conceptual framework will need to emerge once complex game phenomena that used to be considered elusive can be more closely analysed and incorporated into a general epistemology of computer games. Renowned mathematician Stephen Strogatz (2003) says of research on complex systems that "we may be missing the conceptual equivalent of calculus, a way of seeing the consequences of myriad interactions that define complex systems." Newton invented calculus by developing a sophisticated lexicon that allowed him to unify hitherto fragmented concepts into a single coherent scientific edifice. Given enough time to systematically observe complex phenomena in games, and to share what researchers know with each other, can we similarly invent the calculus of game research – a coherent conceptual framework that captures the dynamic nature of the field and allows us to deepen our understanding of games?

The method of data collection proposed in this dissertation offers many exciting possibilities for game research and expands the possibilities of collaboration for video game studies scholars. The purpose here was to offer a methodological toolkit that will help enlarge the scope of such analyses in terms of the ability to identify trends and describe phenomena, replicate and verify results, diminish researcher bias, and raise new questions that will invite a more critical approach for the study of this exciting new medium.

I have now inserted my thumbnail between the layers of cellophane that cover the plastic case around *Sid Meier's Civilization VI*, ripped the clear plastic, and opened the game box. I am about to insert the disc into my PC and wake up the dormant code lying within. The seed will soon sprout, and a new path will begin to unfold.
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Appendices

Appendix 1

List of conference papers derived from this dissertation

2015 University of Helsinki (Finland)

Video Games and Religion. Research Seminar. Invited speaker on research methods for the study of games and religion. Focused on data collection.

2014 University of Canterbury (Canterbury, UK)

Finding Religion in Digital Gaming conference. Presented research on studying Judaism in video games.

2014 University of West Virginia (USA)

UKIERI Project on MOOCs and online learning for the global market.

2013 Radisson Heathrow (London, UK)

Nine Worlds Convention. Invited participation in a panel on race in video games.

2013 Bangor University (Bangor, UK)

UKIERI project conference: Future directions. Presented research on the use of algorithms to map behavior.

2012 University of Salford (Manchester, UK)

Media Cultures conference. Presented a paper analysing the representation in new and traditional media of Trayvon Martin's murder case.

2011 Bangor University (Bangor, UK)

CSL Conference. Presented original research on linguistic barriers in WoW.

2011 Bedfordshire University (Luton, UK)

Under the Mask conference. Presented original research on the linguistic behaviour of elite players in World of Warcraft.

2011 Limerick University (Limerick, Ireland)

4th International Language in the Media Conference. Presented a paper on the metalinguistic practices of videogames with Dr Astrid Ensslin.

2010 Lodz University (Lodz, Poland)

CADAAD: Ideology, Identity and Interaction Conference. Presented a paper on "The Language of Gaming" with Dr Astrid Ensslin.

2010 University of Exeter (Exeter, UK)

Representations of Prostitution, Sex Work and Sex Trafficking between the 19th and 21st Centuries. Presented paper on the representation of prostitutes in video games.

2010 British Association of Jewish Studies (London, UK)

BAJS Conference: The Image and the Prohibition of the Image in Judaism. Presented original research with Dr Nathan Abrams.

2010 Bedfordshire (Luton, UK)

Under the Mask Conference. Presented original research in the area of ludological methodologies.

List of publications derived from this dissertation

- Carrillo Masso, I. (2015), 'When Pixels Pray: *The Religion of the Draenei in World* of Warcraft', in V. Sisler and X. Zeiler, *Video Games and Religion: Research Methods*, London: Routledge.
- Carrillo Masso, I. (2015), 'The G-d in the Machine: Studying Religion in Video Games', in S. Shakkour and S. Contractor, *Digital Methodologies in the Sociology of Religion or Belief: Theory, Practice and Methods*, London: Bloomsbury.
- Carrillo Masso, I. and Abrams, N. (2014), 'The Pixelated Jew: Exploring Judaism in Video Games', in H. Campbell and G. Grieve, *Finding Religion in Digital Gaming*. Bloomington, IN: Indiana University Press.

Appendix 2

World of Warcraft

Table 18. Quest Progression Table – Shaman

Table 19. Quest Progression Table - Priest

Table 20. Quest Progression Table – Monk

Table 18. Atlas.ti Map - Shaman

Table 19. Atlas.ti Map - Priest

Table 20. Atlas.ti Map – Monk

	QUEST PROGRESSION - SHAMAN				
QUE	ST NAME	LEVEL	QUEST GIVER	QUEST OBJECTIVES	NOTES
1.	You survived!	1	Megelon	Speak to Proenitus	
2. crysta	Replenishing the healing	1	Proenitus	Acquire 6 vials of moth blood (kill moths)	
3.	Urgent delivery	2	Proenitus	Deliver vials to Zalduun	
4.	Volatile Mutations	2	Botanist Taenix	Kill 8 volatile mutations	
5.	Rescue the survivors	2	Zalduun	Rescue 1 survivor using the Gift of the Naaru	
6.	Primal strike	2	Firmanvaar	Learn Primal Strike by reaching level 3 and practice it on a training dummy	Shaman quest - given by Broken/Krokul
7.	What must be done	2	Botanist Taenix	Gather 10 lasher samples (kill lashers)	
8.	Botanical legwork	2	Apprentice Vishael	Gather 3 corrupted flowers	
9.	Spare parts	3	Technician Zhanaa	Collect 4 emitter spare parts	<when expected="" in,="" to<br="" turning="">speak to her first, and then Vindicator Aldar</when>
10.	Inoculation	3	Vindicator Aldar	Use inoculating crystal on 6 Nestlewood Owlkin	<problematic phrasing<="" quest="" td=""></problematic>
11.	Healing the lake	3	Botanist Taenix	Disperse neutralizing agent at the irradiated power crystal	
12.	The missing scout	4	Vindicator Aldar	Find and speak to Tolaan	

Table 18. Quest Progression Table - SHAMAN

13.	The Blood Elves	4	Tolaan	Kill 10 Blood Elf Scouts	Tolaan is the missing scout
14.	Blood elf spy	5	Tolaan	Kill Surveyor Candress (a Blood Elf spy)	
15.	Blood elf plans	5	Plans	Take Blood Elf plans to Vindicator Aldar	The item starts a quest
16.	The emitter	5	Vindicator Aldar	Speak with Technician Zhanaa	
17.	Travel to Azure watch	5	Technician Zhanaa	Speak with Technician Dyvuun in Azure Watch	Leave Crash site <dyvuun for<br="" has="" no="" quest="" waiting="">you</dyvuun>
18.	On the mend	6	?	Heal 1 Battle pet	Floating quest - no giver. Appears on map inspection first and when tracked it is accepted - accepted but not completed
19.	Word from Azure watch	5	Aeun	Speak with Caregiver Chellan	
20.	Red snapper- very tasty!	5	Diktynna	Use the Draenai fishing net to catch 10 red snappers	Rather pointless quest in narrative. It gives you an extra boost in a chance to grind before arriving in the next section, though, and the surroundings are serenely beautiful.
21.	Find Acteon!	5	Diktynna	Deliver a crate of red snapper to Acteon	Arrive in Azure Watch
22.	The Great Moongraze Hunt	5	Acteon	Bring 6 Moongraze Stag tenderloins (kill stags)	Part one
23.	Medicinal purpose	5	Anchorite Fateema	Bring her 8 root trapper vines (kill Root Trappers)	Anchorite is the Draenai title for priests

24 Rede bandages a	Rode, bandages and bayand	6	Caregiver	Take Chellan's list to hippogryph	Fun name, reminiscent of Bed,
24.	24. Deus, bandages and beyond:		Chellan	master Zaldaan	Bath and Beyond
25.	On the wings of a hippogryph	6	Zaldaan	Purchase ahippogryph ride to the Exodar and take the list to Nurguni	Travel to the Exodar
26. Stepł	Hippogryph Master nanos	6	Nirguni	Find Hippogryph Master Stephanos and purchase a ride back	
27.	Return to Caregiver Chellan	6	Hippogryph Master Stephanos	Purchase a hippogryph ride to Azure Watch and take the items to Caregiver Chellan	By this point I am starting to think that a lot of the quests are like the 'telephone' of a children's game
28.	An alternative alternative	7	Daedal	Bring back 5 Azure Snapdragon bulbs	accepted but not completed
29.	The Great Moongraze Hunt	7	Acteon	Bring 6 Moongraze Buck hides (kill the bucks)	Part two - accepted but not completed

	QUEST PROGRESSION - PRIEST				
QUEST NAME	LEVEL	QUEST GIVER	QUEST OBJECTIVES	NOTES	
1. You survived!	1	Megelon	Speak to Proenitus	Start Ammen Vale area	
2. Replenishing the healing crystals	1	Proenitus	Acquire 6 vials of moth blood (kill moths)		
3. Urgent delivery	2	Proenitus	Deliver vials to Zalduun		
4. Volatile Mutations	2	Botanist Taenix	Kill 8 volatile mutations		
5. Rescue the survivors	2	Zalduun	Rescue 1 survivor using the Gift of the Naaru		
6. Learning the word	2	Zalduun	Learn Shadow Word: Pain by reaching level 3 and practice it 5 times on a target dummy	Priest quest given by Zalduun, a Draenai priest trainer	
7. What must be done	2	Botanist Taenix	Gather 10 lasher samples (kill lashers)		
8. Botanical legwork	2	Apprentice Vishael	Gather 3 corrupted flowers		
9. Spare parts	3	Technician Zhanaa	Collect 4 emitter spare parts	<when expected="" in,="" to<br="" turning="">speak to her first, and then Vindicator Aldar</when>	
10. Inoculation	3	Vindicator Aldar	Use inoculating crystal on 6 Nestlewood Owlkin	<problematic phrasing<="" quest="" td=""></problematic>	
11. Healing the lake	4	Botanist Taenix	Disperse neutralizing agent at the irradiated power crystal		
12. The missing scout	4	Vindicator Aldar	Find and speak to Tolaan		

Table 19. Quest Progression Table – PRIEST

13.	The Blood Elves	4	Tolaan	Kill 10 Blood Elf Scouts	Tolaan is the missing scout
14.	Blood elf spy	4	Tolaan	Kill Surveyor Candress (a Blood Elf spy)	
15.	Blood elf plans	4	Plans	Take Blood Elf plans to Vindicator Aldar	The item starts a quest
16.	The emitter	5	Vindicator Aldar	Speak with Technician Zhanaa	
17.	Travel to Azure watch	5	Technician Zhanaa	Speak with Technician Dyvuun in Azure Watch	Leave Crash site <dyvuun for<br="" has="" no="" quest="" waiting="">you</dyvuun>
18.	On the mend	6	?	Heal 1 Battle pet	Floating quest - no giver. Appears as accepted upon arriving in Azuemysrt Aisle and speaking to Aeun accepted but not completed
19.	Word from Azure watch	5	Aeun	Speak with Caregiver Chellan	
20.	Red snapper- very tasty!	5	Diktynna	Use the Draenai fishing net to catch 10 red snappers	Rather pointless quest in narrative. It gives you an extra boost in a chance to grind before arriving in the next section, though, and the surroundings are serenely beautiful.
21.	Find Acteon!	5	Diktynna	Deliver a crate of red snapper to Acteon	Arrive in Azure Watch
22.	The Great Moongraze Hunt	5	Acteon	Bring 6 Moongraze Stag tenderloins (kill stags)	Part one
23.	Medicinal purpose	5	Anchorite Fateema	Bring her 8 root trapper vines (kill Root Trappers)	Anchorite is the Draenai title for priests

24	Bods bandages and beyond	6	Caregiver	Take Chellan's list to hippogryph	Fun name, reminiscent of Bed,
24.	Deus, bandages and beyond:	0	Chellan	master Zaldaan	Bath and Beyond
25.	On the wings of a hippogryph	6	Zaldaan	Purchase ahippogryph ride to the Exodar and take the list to Nurguni	Travel to the Exodar
26. Stepł	Hippogryph Master nanos	6	Nirguni	Find Hippogryph Master Stephanos and purchase a ride back	
27.	Return to Caregiver Chellan	6	Hippogryph Master Stephanos	Purchase a hippogryph ride to Azure Watch and take the items to Caregiver Chellan	By this point I am starting to think that a lot of the quests are like the 'telephone' of a children's game
28.	The Great Moongraze Hunt	7	Acteon	Bring 6 Moongraze Buck hides (kill the bucks)	Part two - accepted but not completed
29.	An alternative alternative	7	Daedal	Bring back 5 Azure Snapdragon bulbs	accepted but not completed

	QUEST PROGRESSION - MONK					
QUEST NAME	LEVEL	QUEST GIVER	QUEST OBJECTIVES	NOTES		
1. You survived!	1	Megelon	Speak to Proenitus	Start Ammen Vale area		
2. Replenishing the healing crystals	1	Proenitus	Acquire 6 vials of moth blood (kill moths)			
3. Urgent delivery	2	Proenitus	Deliver vials to Zalduun			
4. Rescue the survivors	2	Zalduun	Rescue 1 survivor using the Gift of the Naaru			
5. Botanist Taenix	2	Proenitus	Speak with Botanist Taenix	<quest after="" appeared="" leaving<br="" map="" on="">Proenitus to speak to Zalduun again. Seemed to be activated by entering the area</quest>		
6. Volatile Mutations	2	Botanist Taenix	Kill 8 volatile mutations			
7. The Tiger Palm	2	Mojo Stormstout	Learn Tiger Palm by reaching level 3 and practice it [one time] on a training dummy	<quest after="" appeared="" leaving<br="" map="" on="">Proenitus to speak to Zalduun again. Seemed to be activated by entering the area Monk quest given by Mojo, a 'travelling' Pandaren monk trainer (who doesn't want to 'intrude')</quest>		
8. What must be done	2	Botanist Taenix	Gather 10 lasher samples (kill lashers)			
9. Botanical legwork	2	Apprentice Vishael	Gather 3 corrupted flowers			

Table 20. Quest Progression Table - MONK

10.	Spare parts	3	Technician	Collect 4 emitter spare parts	<when expected="" in,="" speak="" th="" to="" to<="" turning=""></when>
			Zhanaa		her first, and then Vindicator Aldar
11	Inoculation	3	Vindicator	Use inoculating crystal on 6	<problematic phrasing<="" quest="" td=""></problematic>
1	mechanon	5	Aldar	Nestlewood Owlkin	
10	The missing equit	2	Vindicator	Find and speak to Tolaan	
12.	The missing scout	3	Aldar		
10	Lippling the lette	2	Botanist	Disperse neutralizing agent at the	
13.	Healing the lake	3	Taenix	irradiated power crystal	
				Heal 1 Battle pet	Floating quest - no giver. Appears as
14.	On the mend	4	?		accepted opening map accepted but
					not completed
15.	The Blood Elves	4	Tolaan	Kill 10 Blood Elf Scouts	Tolaan is the missing scout
10	Dlood off any	4	Talaan	Kill Surveyor Candress (a Blood	
16.	16. Blood elf spy 4	4	Tolaan	Elf spy)	
17	47 Diaced elfentence	Plane	Take Blood Elf plans to	The item starts a quest	
17.	Blood ell plans	5	rialis	Vindicator	
				Aldar	
18	The emitter	5	Vindicator	Speak with Technician Zhanaa	
10.		5	Aldar		
10	Travel to Azura watch	Б	Technician	Speak with Technician Dyvuun in	Leave Crash site
19.	Travel to Azure watch	5	Zhanaa	Azure Watch	<dyvuun for="" has="" no="" quest="" td="" waiting="" you<=""></dyvuun>
20.	Word from Azure watch	5	Aeun	Speak with Caregiver Chellan	
				Use the Draenai fishing net to	Rather pointless quest in narrative. It
				catch 10 red snappers	gives you an extra boost in a chance to
21.	Red snapper- very tasty!	5	Diktynna		grind before arriving in the next section,
					though, and the surroundings are
					serenely beautiful.
00		6	Dilatana	Deliver a crate of red snapper to	Arrive in Azure Watch
22.	FIND ACTEON!	6	Uiktynna	Acteon	

23.	The Great Moongraze Hunt	6	Acteon	Bring 6 Moongraze Stag tenderloins (kill stags)	Part one
24.	Medicinal purpose	6	Anchorite Fateema	Bring her 8 root trapper vines (kill Root Trappers)	Anchorite is the Draenai title for priests
25.	Beds, bandages and beyond!	6	Caregiver Chellan	Take Chellan's list to hippogryph master Zaldaan	Fun name, reminiscent of Bed, Bath and Beyond
26.	On the wings of a hippogryph	6	Zaldaan	Purchase a hippogryph ride to the Exodar and take the list to Nurguni	Travel to the Exodar
27. Stepł	Hippogryph Master nanos	6	Nirguni	Find Hippogryph Master Stephanos and purchase a ride back	
28.	Return to Caregiver Chellan	6	Hippogryph Master Stephanos	Purchase a hippogryph ride to Azure Watch and take the items to Caregiver Chellan	By this point I am starting to think that a lot of the quests are like the 'telephone' of a children's game
29.	The Great Moongraze Hunt	7	Acteon	Bring 6 Moongraze Buck hides (kill the bucks)	Part two - accepted but not completed



Figure 73. Atlas.ti notes map - MONK



Figure 74. Atlas.ti notes map - PRIEST



Figure 75. Atlas.ti notes map - SHAMAN

Appendix 3 Contents (See accompanying USB drive)

World of Warcraft

Gameplay Video Record for Microanalysis Monk Priest Shaman Atlas.ti Map – Shaman Atlas.ti Map – Monk Atlas.ti Map – Priest Quest Progression Table – Monk Quest Progression Table - Priest Quest Progression Table – Shaman

The Wolf Among Us

MAXQDA Database

Hero

Episode 1 - Faith - Choice Path 1 - Part 1 (video and transcript)
Episode 1 - Faith - Choice Path 1 - Part 2 (video and transcript)
Episode 1 - Faith - Choice Path 1 - Part 3 (video and transcript)
Episode 1 - Faith - Choice Path 1 - Part 4 (video and transcript)
Episode 1 - Faith - Choice Path 1 - Part 5 (video and transcript)
Episode 1 - Faith - Choice Path 1 - Part 6 (video and transcript) Faith
- Part 1 - Hero - Coded segments of activated documents Faith - Part
1 - Hero - Coded Segments - Choices Made
Decisions Code-Subcodes-Segments Model - Faith - Part 1 – Hero

Faith - Part 1 - Hero – Codeline

Faith - Part 1 - Hero - Decisions Code-Subcodes-Segments Model

Faith - Part 1 - Hero Words

Villain

- Episode 1 Faith Choice Path 2 Part 1 (video and transcript)
- Episode 1 Faith Choice Path 2 Part 2 (video and transcript)
- Episode 1 Faith Choice Path 2 Part 3 (video and transcript)
- Episode 1 Faith Choice Path 2 Part 4 (video and transcript)
- Episode 1 Faith Choice Path 2 Part 5 (video and transcript)
- Episode 1 Faith Choice Path 2 Part 6 (video and transcript)
- Faith Part 1 Villain Coded segments of activated documents
- Faith Part 1 Villain Coded Segments Choices Made
- Decisions Code-Subcodes-Segments Model Faith Part 1 Villain
- Faith Part 1 Villain Codeline
- Faith Part 1 Villain Decisions Code-Subcodes-Segments Model
- Faith Part 1 Villain Words

List of Key Choices (All Episodes)

- Episode 1 Faith List of Choices
- Episode 2 Smoke and Mirrors List of Choices
- Episode 3 A Crooked Mile List of Choices
- Episode 4 In Sheep's Clothing List of Choices
- Episode 5 Cry Wolf List of Choices *Processed*

Data Documents

- Faith Part 1 Hero Code Frequencies Faith -
- Part 1 Hero Code hierarchy Model

- Faith Part 1 Hero Code Report Smart Publisher
- Faith Part 1 Codebook
- Faith Part 1 Hero Coded Segments Choices Made
- Faith Part 1 Hero Coded Transcript
- Faith Part 1 Hero Reports Summaries with Coded Segments
- Faith Part 1 Hero Retrieved segments
- Faith Part 1 Hero Single-Case Model with Code Hierarchy
- Faith Part 1 -Hero Document Portrait
- Faith Part 1 Villain Code Frequencies Faith -
- Part 1 Hero Code hierarchy Model
- Faith Part 1 Villain Code Report Smart Publisher Faith -
- Part 1 Villain Coded Segments Choices Made Faith -
- Part 1 Villain Coded Transcript
- Faith Part 1 Villain Reports Summaries with Coded Segments
- Faith Part 1 Villain Retrieved segments
- Faith Part 1 Villain Single-Case Model with Code Hierarchy
- Faith Part 1 Villain Document Portrait

The Shivah

- Transana Databases
- Transana Reports:
 - Gameplay Report
 - **Keyword Report**
 - Language Report
Masculinities Report

Narrative Report

Narrator Report Notes

Report Playpath 4

Report

Procedural Rhetoric Report

Religion Report Representation

Report Representational Report

Theological Report Paratext

Corpus Playthrough Video

Corpus

Playthrough Transcript Corpus